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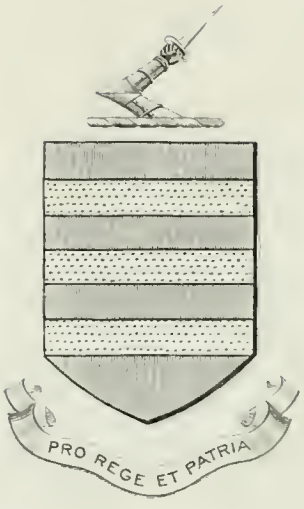

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MEDICAL RECORD

A Weekly Journal of Medicine and Surgery

EDITED BY

THOMAS L. STEDMAN, A.M., M.D.

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Original Articles.

RADIUM AS A SPECIFIC IN GIANT CELL SARCOMA.*

BY ROBERT ABBE, M.D.,

NEW YORK.

A SENSE of justice to a new subject has led me, from time to time, to present to this Society unusual cases of disease under the treatment of radium, so that fair judgment may be formed of the condition before, during, and after treatment. In that spirit also I would present for discussion some evidences of its intrinsic value in one group of cases representing a disease which permits of exact study, namely giant cell sarcoma, and demonstrates a specific action which has not been elsewhere spoken of.

CASE I.—In January, 1904, a lad of 17 years came to me with a soft tumor of his left lower jaw, of rapid growth, for it had been noticed only two months, and was thought by him to be an inflamed tooth. At that time, nearly six years since, I showed him at this society, with the desire that we should watch the change of the growth, as I hoped radium would affect it. The left lower jaw showed a soft tumor bulging the chin and lip forward, with the canine and two incisor teeth, which were loosely imbedded in it. Under the tongue the growth projected on the floor of the mouth, and rose half way up the teeth, where it had a fungating ulcerated area, purple and bleeding. The palpation by a finger within and without the growth was almost as soft as fluid. The bone had been wholly absorbed except a narrow strip on its lower margin which held the jaw ends together. There were two enlarged lymphatics beneath the angle of the jaw along the carotid. The growth was the size of a large English walnut.

Without previous experience with radium in this form of tumor, or with any recorded case in literature, I ventured an experiment with the inside growth by pressing a glass tube against it, with 150 milligrams strongest Curie radium (300,000). This I repeated for from twenty minutes to one hour for eight days. Then I saw a shrinkage of the mass, and of the fungous ulcer, which became pink and small. On the fortieth day the ulcer was healed and the inner side of the tumor hard and flat.

At four weeks the shrinking was progressing. Then I passed a knife into the tumor between the gum and lip. It entered as if the tumor were soft mush. It bled heavily, and I slipped the glass radium tube into the midst of it. On twelve occasions afterwards, this tube was left in the tumor for two or three hours each.

At six weeks the tumor still measured three centimeters thick, 2½ vertically and 5 cm. along the bone, but was shrinking. At each treatment the knife cut tougher tissue and gave less bleeding. At six weeks ossification had begun throughout the tumor, as felt by gritty points as the knife cut it.

At the tenth to twelfth week a sharp radium reaction set in, which caused me some alarm. The hot skin was fixed to the area of the tumor by cellulitis, which was only controlled by lead and opium lotion, but in a week this was gone.

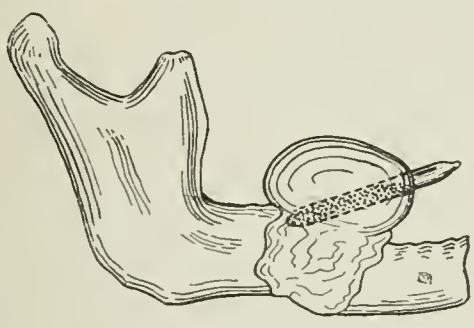
All treatment was stopped from that day. The teeth became solidly fixed in place. The soft growth rapidly ossified throughout. Then the ossific tumor shrank. The strangest thing of all is that each year has seen a continued reduction in the bone, so that now the jaw seems normal except that it is slightly thicker than on the opposite side.

It will be proper here to note this extraordinary retrograde of the tumor tissue, which is not at all like a destruction by caustics, but an effect of specific radiumization alone.

CASE II.—Sarcoma of the Jaw. In April, 1895, I was asked by Dr. E. G. Janeway to see a dear old lady of 86 years, who had a sarcoma of the jaw. I found a most intelligent patient, who had had a fracture of the left side of the body of the jaw a year prior, which had united. During the past six months she had noticed a tumor growing on the right side of her jaw. The bone was unbroken at the time we saw her.

A dense, firm, purplish ulcerated tumor grew up from the toothless gum at the site of the right lower first molar. The bone was largely involved, and the elastic mobility of the part suggested the almost, if not entire, absorption of the bone. The growth was highly vascular and bled on touch, as it had been doing continually when the patient sucked or ate food.

One week later she came to New York to be under my care, and I found the bone had now broken asunder and freely moved at the tumor.



I pierced the mass with a knife to make a channel to implant the radium tube. It bled very freely, and I endeavored to remove a small area for pathological study, but the pathologist reported that there was not sufficient for microscopic section. The radium tube contained 100 mgr. (300,000-

*Read at a meeting of the Practitioner's Society, December 3, 1909.

strength) Curie radium. It was stitched in place and remained accurately embedded for 6½ hours.

By the end of one week the growth had diminished one-half, and had grown pale and firm, with not the least tendency to bleed, even when pressed by a tongue depressor. Within a few weeks the growth had shrunk to the size of an ordinary callus, and firm union of the bone rapidly followed.

Four months later the tumor had gone. The patient lived out another year in fine health, and had not the slightest return of disease.

I have never had the least doubt of the tumor being giant cell sarcoma, nor had Dr. Janeway, who first saw it and considered it a hopeless condition of sarcoma, and said, "Abbe, perhaps you might try radium on that. Nothing else will do any good."

The extraordinary response to the one long treatment by radium was an unprecedented experience.

Case III.—Giant Cell Sarcoma of Both Superior Maxillæ. A boy of 7 years came under my care at St. Luke's Hospital in June, 1906, three and a half years ago, with an apparently inoperable tumor of both upper jaws.

The entire roof of the mouth, from one side to the opposite, and from the front teeth to the soft palate, bulged downward upon the tongue like a soft cushion. Both nasal cavities were obstructed to breathing by the upward growth of the same. In other words, the hard palate was entirely destroyed by the tumor, which had not only replaced it, but spread the upper gums so that the teeth did not match the lower jaw. The latter almost fitted inside the upper teeth.

It was evident that no operation short of removing both superior maxillæ would avail to cure the tumor. This was impossible.

With the two experiences just related in my mind, I gladly put radium to the test in this case of unparalleled size. I passed a knife into the roof of the mouth on one side of the midline, and inserted a cylindrical drill with which I punched out a cylinder of the soft tumor, more than an inch in depth. This instrument went straight up into the nasal fossa; the bone was entirely wanting. The same punch removed a like cylinder, an inch long, from the opposite side, and I could have removed one an inch and a half in depth. Microscopic study showed the growth to be active, and pure giant-cell sarcoma.

In these openings alternately, I buried a thin glass tube, containing 60 miligrams of purest radium bromide, leaving it 3¼ hours, 2 hours, 2 hours, 2 hours; total 9¼ hours during four days. The opening filled with lymph, and there was no fever. The mass became a little tender, and after one week was reduced in size. No other treatment was given.

Five months after treatment I saw him again, and my notes read, "central part all gone, margins flattened." At ten months my notes read, "curative change in every part; central part excavated to the normal depth of roof, sides still full, but ossified instead of spongy; nasal floor much lower."

Three years and a half have now passed with no further treatment, but with continued retrograde toward normal. The entire roof is ossified, and from the teeth toward the center the palate and mucoperiosteum are normal in contour and surface corrugations; while in the center is an undulating ossific surface, somewhat fuller than normal, but covered by new, smooth covering.

The nasal speech has cleared, and the nasal breathing is unobstructed.

To sum up this interesting case, we had a destructive soft sarcoma, filling the roof of the mouth and floor of both nostrils, in which all semblance of the bone from which it sprang was lost. Soon after severe radiumization there began a retrograde change in the mass, with ossification everywhere, and a reassembling of the original cells. The arch of the mouth and its covering have progressively approached normal; and the return to original appearance through shrinkage of the bone first built up in lieu of the sarcoma has not yet ceased.

Case IV.—Epulis, Giant Cell. Dr. R. observed a red, spongy growth on his upper gum between the incisor and canine. It bled at touch. His dentist cut it away and applied the galvanic cautery. In three weeks it reformed. Then it was excised, under cocaine, as far into the gum as possible. It was now more vascular and bled at the slightest touch. The microscopic diagnosis by Dr. Wood was epulis with giant cells. Examination showed a spongy, red growth, showing in front and behind on the gum between the teeth, about the size of a pea. Sucking or the use of a tooth brush caused bleeding.

In June, 1907, I applied 20 mgr. pure radium bromide to the growth, for ten minutes, twice.

In November, five months later, it was normal inside, and a little pink spot showed on the outside. Again I applied the same radium fifteen minutes, and some weeks afterwards another fifteen minutes, which rendered the gum normal. After two and a half years the part is still normal.

Case V.—Giant Cell Sarcoma of the Lower Jaw. In November, 1907, Dr. F. D. Weisse referred to me a woman with a malignant epulis.

Two years before that she had noticed a loose premolar, with a red growth in which it was bedded. Her dentist gave her a pencil to burn it with, but it grew larger. Soon after the tooth turned over sidewise and was pulled. Then the tumor grew faster and was cut out and cauterized. It was several times removed by knife and caustics. Dr. Weisse then removed it twice, as thoroughly as possible, but it recurred, and he put on a white powder to destroy it.

When I saw it, it was a red, spongy growth, as large as an olive, spreading out to both faces of the jaw, and filling the space between the teeth.

I applied radium, 60 miligrams, pure, in glass tube, burying it into the soft growth, after removing a piece for examination, which proved to be giant cell sarcoma. During eight weeks I made four applications, total 2½ hours. At the third month the growth was pale and small and inactive. At four months I cut out a bit for microscope. The report is, "Mostly connective tissue, in one corner a small amount of epulis tissue, with a few small, irregularly staining, giant cells. This area is surrounded by connective tissue, which is also penetrating into it."

It remains cured two years after.

Case VI.—Malignant Epulis. Mrs. B., aged 22, referred by Dr. Weisse. At the site of a lower bicuspid, which had been drawn, there grew for three months a red, spongy epulis, which filled the space between the teeth, and expanded the alveolar part of the bone. It was nearly as large as the one just spoken of.

Cutting out a section in the midst of it, I inserted 20 mgr. pure radium in a tube, three times, total, one hour. And, on one occasion a 60 mgr. tube for

thirty minutes. At three months the growth was flat and gone, except at the inner third, which was given more treatment.

I have lost sight of the patient, and cannot report later.

Case VII.—Giant Cell Sarcoma of the Right Upper Jaw. A gentleman of 65 years came to me January, 1908, with this history. For one year has bled from the nose every morning. A Paris surgeon had removed the lower turbinate bone and found a bleeding tumor behind it. He removed that and cauterized. Bleeding ceased for two weeks and recurred. A very able nose and throat specialist in New York recognized the trouble, and gave him violet rays for three weeks. At that time he came to me.

I found a solid, spongy, purple growth filling the right antrum, as shown by transillumination. The right half roof of the mouth bulged with a dusky, colored growth, soft to the touch, but covered by mucous membrane. The cheek was full below the zygoma, and at the side, and the softness on pressure showed that the bony wall of the antrum had been absorbed.

In June I resected the right upper jaw, which removed all the disease. In the fall, however, a little recurrence showed on the bony edge next the septum, and I again operated to clear all away.

In February, 1909, a little purple spot again showed at the septum bone edge of the opening in the roof of the mouth. To this I now applied strong radium on three occasions for a half hour.

Then the healed condition with no disease allowed a dental plate to be adjusted. At the end of a few weeks I was able to say there was not the least trace of disease, and he left for the country. Some months afterwards I saw him again, and the opening in the roof of his mouth, when the plate was out, permitted a thorough inspection. All was perfect. Some weeks later he met with an accident and lost his life. But this can be claimed as a cured case of grave malignant sarcoma.

Case VIII.—Mrs. S., aged 52, in February, 1905, consulted a nose specialist for bleeding from her right nostril, on using her handkerchief, and from her throat on rising each morning, for some weeks. He found a purplish, polypoid growth, quite friable and bleeding easily, lying on the interior face of the right middle turbinate bone. It was removed by wire snare. Dr. Jonathan Wright and Dr. Prudden both examined it. Dr. Prudden writes, "It consists chiefly of fusiform cells, packed closely together with a large number of very large and irregular shaped multinuclear cells (giant cells) among them. There are a few narrow strands of fibrous stroma and numerous thin-walled blood-vessels and irregular blood-channels. The diagnosis is giant-celled sarcoma."

Dr. Hutchinson makes the same diagnosis, and says it is the first he has seen in the nasal chambers, in his catalogue of fifteen sarcomas of that region.

In March, 1905, I operated to extirpate this disease thoroughly by cutting through lip and cheek, to approach the nasal fossa in front, removing the bone at the side of the nose after replacing the cheek. I found the disease not only extended on the side wall under the turbinate, but it had pushed out of the antrum. The antrum was packed full of the purplish sarcoma, but when the front wall was removed the lining of the antrum peeled out with the disease and left clean bone. The lateral nasal wall only was diseased bone, and this I removed. A prompt recovery followed, and for a year and a half she was perfectly well in this part. Examination by illuminating the nasal cavity was satisfactory, owing to the absence of the nasal wall.

A year and a half later a purplish, spongy growth at the root of the canine tooth where the bone was left, showed on removal renewed sarcoma of the same type. The tooth was loosening. A quarter hour radium application (20 mgr. pure) reduced the spongy mass and made the tooth tight.

A month later a return of the spongy growth extended along the alveola over the front teeth. Radium applied against this promptly flattened the growth. Several times it rose again and promptly subsided; the teeth became practically solid. At present there is a thin layer of growth along the gum, which is slowly going away without further radium, thus following the law of progressive disappearance for months and years after the radiumization.

Two other minor recurrences took place during the year at other points of the bony margin; but all are quiescent now under radium and will be instantly controlled if they again show trouble. It is nearly five years since the operation.

Case IX.—Meanwhile, on the same patient, appeared another typical giant cell sarcoma. Six months after the upper jaw operation a rapidly growing spongy tumor appeared on the outer side of the body of the lower jaw on the same side of her face.

This had no anatomical relation to the upper jaw. It involved the outer plate of the lower jaw, and the cancellous center for 1½ inches. Under ether I excised it, chiseled away all but a thin layer of the inner face of bone, and cleaned out the nerve and artery. It seemed probable this would not prevent a recurrence without radium, and I should have resected the best part of the lower jaw had I followed earlier surgical precedent.

Therefore a week after operation I laid a strong radium tube in the bony groove of the wound for three successive days, two hours each. The wound healed, and the bone is strong and without trace of disease, *four years after excision.*

Case X.—Giant Cell Sarcoma of the Pelvis. A young married lady developed a large, soft, bony tumor over the left sacroiliac synchondrosis, invading the sciatic part of the iliac bone. It was much larger than the fist when one of our most able surgeons attempted its removal. He curetted some of it away for examination, but was confronted by such profuse hemorrhage that he gave up its removal as impossible, and packed the wound. The growth enlarged, and the patient came under the care of another of our best hospital surgeons. *X*-rays were given until she became exhausted by toxemia of necrotic tissue in the wound. The diagnosis of spindle cell and giant cell sarcoma having been made, I was asked to try what radium would do as a last hope. There were two deep sinuses into the midst of the tumor, which was about the size of one's closed fist, and into these I placed strongest radium tubes, on three occasions, two hours each.

She improved during the next six months, gained seven pounds, and looked better. The growth has shrunken one-third or a half, and is firmer; the walls of the sinuses are now everywhere gritty with bone forming. If I may judge by experience, this improvement bids fair to continue, whether radium is used or not. Yet I think I will give it one more

treatment to insure more rapid progress, and because the fibrous predominated over the giant cell structure.

Case XI.—Giant Cell Sarcoma of the Sternum. A man of 59 years had a growing tumor of the breast bone for one year, though he had pain prior to that. It hurt him on jarring, so that he had to give up golf and move slowly. His physician gave him large doses of iodide of potassium, which produced no change.

In June, 1909, he was brought to me by Dr. Newton of Montclair. I found a large, expanding tumor four inches wide by six long, from the top of the sternum downward. It was soft, elastic, and crackled in a small part of its surface under finger pressure, though two-thirds of its surface was soft.

I made a slight cut in the skin at two places and applied a small steel cylinder with saw-teeth edge, with which I punched out a cylinder of the tumor. The instrument went through the fibrous capsule, replacing the bone, and sank toward the sternum three inches before reaching the inner wall. Thus the sternum had been expanded by the rapidly growing sarcoma from a normal half-inch to three inches thick, and all bone was wanting except some trifling surface pieces, like eggshell.

Into these punched-out holes and others made later, I sank several strong radium tubes and left them *in situ*, on three occasions, total 28 hours, in June. The pathological report was Giant Cell Sarcoma. At each withdrawal of the punch blood spouted out almost as if from an aneurysm.

I did not see the patient from June to October—four months. He had had a good summer. The tumors were reduced in size, and had a uniformly harder surface and no crackling. Again I punched this growth to introduce my radium and found it paler, firmer, and bleeding but little. The depth was now two inches where it had been three. The deep aspect of the tumor wall was also harder, as in front.

In October I gave it, by design, a very severe radiumization. At three points introduced a tube of 100 mgr. (300,000, Curie), and two of 20 mgr. pure German, each. These I left *in situ* 53 hours; (the longest exposure I had ever ventured) and advised no more treatment for six months.

Six weeks have passed, and we see to-night a flattening of the lower half, almost normal, and a slight dermatitis which has come from the outward radiations, to the under side of the skin.

If one may predict, we may expect to see a subsidence progress throughout the mass, with ossification and final shrinkage to normal in a few months without further treatment.

This review of a group of cases of one type of malignant cell growth, all showing peculiar, I may say unique, retrograde changes, tending always to return to the normal, gives a demonstration of the efficacy of radium, as clear to the clinical student as a demonstration of Euclid on a classroom blackboard.

There is no similar record in surgery, as far as I know. It may be supplemented by other remarkable cases in radium literature dealing with sarcomata and epitheliomata. The disappearance of a round cell sarcoma of the eyelid, which I have shown before this society (see Medical Record, October 12, 1907), is a notable one.

Again, in a remarkable destructive sarcoma of the humerus, where the bone had fractured in the growth, reported by Dr. W. G. Morton of this city (Medical Record, November 9, 1907), the skiagraphs show the cure by a radium treatment of six weeks. I have recently read a letter from the patient, who uses her arm as well as the sound one for all purposes, washing, ironing, etc., and remains cured after five years.

We have, then, to face a pathological and surgical problem which needs explanation. Why should an overgrown mass of a certain group of cells of the body, like these marrow cells, grow riotously and constitute a tumor which absorbs healthy structures opposing its expansion and destroy the body in a manner justifying its name "malignant?" And, again, when the powerful Becquerel rays emitted from radium penetrate the mass, why should the retrograde of all malignant cells proceed with orderly retreat, until the tumor has entirely gone? Or, again, how shall we explain the reassembling of original cells out of the mass, so as to shape the parts like the jaw bone, the roof of the mouth, the humerus, etc., so that the appearance and function are restored?

It is a bold speculation that permits one to venture in this field of biology when master minds admit ignorance of what constitutes the vital force which energizes each cell, and constitutes life as a whole. Yet we may be permitted to suggest that there are already known definite facts as to the nature of the rays, that they are electrons emitted with tremendous force, traveling in straight undeviating lines, each carrying an electric charge, if, indeed, they are not themselves electricity; speeding at 70,000 miles a second; retarded by dense objects, like masses of lead or steel, or bone or stone, only to escape beyond and resume their travels into space. It is recognized that radioactivity exists everywhere, but it is only when we concentrate it in our powerful little tubes that we can study definite effects.

The alpha, beta, and gamma rays have different electric charges, and different effects. The alpha are suppressed entirely in the glass tube.

The beta, carrying negative currents, escape feebly, and the gamma, carrying its own electricity, penetrate everything. Is it not conceivable that the riotous overgrowth of cells constituting a tumor may be due to a loss of equilibrium in the balance of electric forces sustaining the normal cell growth, and that the supply of one needed element—possibly positive electricity, possibly negative—will restore the balance, and enable the cells to resume their orderly growth.

This theory may encourage us to think further in that field, but it is purely "audacious and speculative," as Crookes says.

Huxley said "theories help us to bear our ignorance of facts," but conversely we may say *facts are the foundation of theories.*

The surgical estimate of giant cell sarcoma is one of a varied degree of malignancy. Wide removal of the apparent disease is undoubtedly more often curative than in other types of actively growing tumors.

The summary of operative results given in a paper read before this society four years ago by Dr. McCosh (*Annals of Surgery*, August, 1904) admirably showed the relative virulence and results to be expected. He rightly says that malignancy cannot be judged from the pathological report, as tumors of apparently similar structure vary. Of a number of operations on giant cell tumors, he cites cases of lower jaw in which he excised half the

lower jaw in two, and one-third in another. In the upper jaw he excised half the jaw once. He advises resection in long bones only when the growth is well encapsulated, but thinks amputation better in nearly all cases. In two cases of sarcoma of the thigh of this type he disarticulated at the hip. In two of the leg, he amputated in the mid-thigh. This reflects the general consensus of opinion on the operative attitude of surgery.

In the group of cases just narrated, it would have been necessary to resect one-third or one-half of the lower jaw in three, and half the upper jaw in two while the case of the boy with involvement of both upper jaws would have been hopeless.

The more grave case also of the extension and highly vascular sternal tumor would have given the patient a fatal hemorrhage if any attempt had been made to remove it, and it, at the best, could not have been extirpated entirely.

My conviction is that every case of myeloid sarcoma should be given treatment by radium before any operation and that we may expect many cures.

HORIZONTAL OSCILLATION OF THE EYEBALL IN CERTAIN RARE TYPES OF PONTINE LESIONS RESULTING IN SEVENTH NERVE PALSY.*

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AND
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It is fairly well known that in Bell's palsy the so-called Bell's phenomenon, that of upward and inward or outward rotation of the eyeball, is a physiological act and not a pathological one, and is not pathognomonic of any special type of palsy, since it may be shown in the normal person. The character of the relationship between the lid closure and the upward rotation of the bulb is still in doubt. In many instances cocainization of the cornea may destroy the occurrence of Bell's phenomenon. But even then if a very intense effort of lid closure is made, so the lids are compressed or pinched together, the sign is once more made to appear. In other words, the Bell's sign would seem to occur under ordinary circumstances as a coordinated associated movement, but with spasmodic intentional lid closure the phenomenon involves the participation of other pontine elements. However this may be, nearly all observers agree that the usual type of globe movement seen in Bell's palsy is that of upward and inward or outward rotation. A few have observed the globe rotated downward in closure of the eyes.

About two years ago Schlesinger reported a case of horizontal globe vibration with closed lids which he announced as a hitherto undescribed variety of coordinate motion of the eyeball. It would seem that the report of his case is the only one published under a separate monographic title, although a few observers have noted isolated cases showing the phenomenon. Thus Dr. Starr has seen one case of this sort. In brief the phenomenon may be described as follows: In rare cases a more or less slow and deliberate lateral oscillation of the eyeballs occurs during a forceful attempt to close the eyes. The phenomenon occurs in some types of traumatic and rheumatic palsies of the facialis in which the nerve trunks or end branches supplying the orbicularis palpebrarum are greatly involved. In some cases at the beginning of lid closure the eyeball behaves as in Bell's phenomenon of facial palsy—the eyeball is moved upward and inward or outward; the voluntary impulse attempts transmission over the paralyzed facial nerve, but this being impossible, a part of the impulse overflows by way of the posterior longitudinal bundle and a coordinated associated movement, that of Bell's phenomenon, occurs. The new eye sign does not stop here. The more forceful attempt at lid closure being persisted in, the eyeball begins a see-saw oscillatory movement of forty to sixty vibrations a minute. The eyeball on the side opposite to the facial palsy participates in the same movement. The excursion of movement and the time of oscillation are maintained synchronously with the side of the affected facials. The new eye sign is partly under the control of the will at times. The movement may be inhibited completely or in part at the beginning or the end of attempted forcible lid closure. The oscillation is not controlled at all when the strongest effort of lid closure is made. The lateral oscillation occurs only on attempts to close the eyes; no other facial movement nor attempt at movement brings it out. In Schlesinger's case the ball phenomenon occurred in a medullary lesion of the seventh and twelfth nuclei, which gradually passed away as the primary lesion improved. The manner of disappearance of the sign in his case was interesting and significant. The ball vibrated at first on the slightest attempt of lid closure, a little later the sign was exhibited only under forcible closure. In a few days thereafter forcible lid closure caused a change in the plane of the globe vibration: it was no longer horizontal but absolutely without order, "wild." This in turn gradually abated into a typical Bell's phenomenon, followed finally by entire cessation of morbid movement as the facialis fully recovered from palsy.

The globe movements in our cases are still in the different phases of recovery, as just cited. Case I shows the state in its most typical phase. There is but little recovery of power in the orbicularis in this case as yet.

Apparently in this sign we have Bell's phenomenon plus something else. It is something more than a simple overflow impulse passing to the oculomotor nuclei. There is a disturbance also in the center for associated movements. Careful analysis of all cases shows a varying degree of paralysis of the conjugate movements. Thus in Case I the conjugate movement to the left exceeded same movement to right by 15 degrees, and the eyes move through an area of about 35 degrees, extending from a point about 30 degrees to the left of the median line to a point 5 degrees to the right of same line. The conjugate movement to the left in this case being stronger, we obtain the horizontal oscillation greater in that direction. Thus all the cases show a certain degree of defect of conjugate movement. Schlesinger failed to note this in his report and has apparently been at a loss to explain the sign in a completely satisfactory manner. Failure to note the disorder in the conjugate movements may lead one to think that various eye palsies exist. The defect is in the coordinate eye movements and not in the eye muscles *per se*. It is necessary, moreover, that the lesion in these cases shall be or shall have extended to the pons. The disordered mechanism occurs in the tegmental region of the

*Read at annual meeting of American Neurological Association, New York, June 20, 1909.

pons, at or just below the sixth nucleus. We also know nystagmus of a certain sort is often associated with paralytic lesion of this region in the pons.

The three cases upon which this paper is based are as follows:

Case I.—J. K., a boy of 16, contracted Bell's palsy of the right face, July 24, 1907. The lesion was complete and typical. At the end of ten months no spontaneous effort at regeneration having occurred under the usual treatment of this affection, facio-hypoglossal anastomosis was undertaken. The result in improvement in the movement of the muscles about the mouth and eye is due to this anastomosis.

The lateral oscillation of the eyeballs as seen at present has been practically unchanged as when first seen one week after the initial palsy. The sign is exhibited only in a forceful attempt to close the eyes. At the beginning of lid closure the ordinary Bell's phenomenon of inward and upward rotation of the eyeball is seen. Immediately after this movement the eyeball begins a slow, deliberate horizontal oscillation. The left eyeball also participates in the same movement. The movement is partly controlled by the patient, but not to any marked extent at the moment of most forceful lid closure. No other facial effort than lid closure induces the oscillations.

The eye examination shows: Vision in right eye varied from 20/40 to 20/20, due to spasm of accommodation. Left eye, 20/20. Sensibility of cornea, right diminished, left normal. The motility of each eye, which was tested separately, is apparently normal. Conjugate movements to the left exceed those to the right by 15°. There is orthophoria for distance, but very slight exophoria (0.5°) for near. The fusion power of muscles tested by prisms for distance shows: Adduction 12°, abduction 4°, circumduction 3°, decorcumduction 3°. The candle test shows no muscle palsies. Upon forced movements of the eyes to the extreme right or left a slight pseudanystagmus is produced; this is sometimes horizontal, at other times it is mixed.

The globe vibration on forceful closure of the lids moves through an area of about 35°, which extends from a point 5° from the right of the median line to a point about 30° to the left of the median line. The pupils are at times equal, at other times unequal, the right being the smaller, which is due to spasm of the sphincter pupillæ. The light and convergence reflex is normal. The orbicularis lid reaction is positive. Sensory reflex is positive, being more marked on the left side. The psychic reflex is positive. The color field test gave the red field largest, then green and white being the smallest. The color fields would seem to indicate a hysterical element as a complication.

Case II.—M. McC., age 43 years, in October, 1908, while driving truck, was thrown from his seat by force of a car running into his truck. He fell to the street, landing on right side of his face; was taken to Roosevelt Hospital, where diagnosis of compound fracture of right malar bone was made, and the torn orbicularis was sutured into place. Inability to close right eyelids (traumatic Bell's palsy). No diplopia, no paralysis of the individual muscles. Esophoria ½° distance. Orthophoria near. Vision: R. 20/40 with .75 20/35; L. 20/15. Excursion of conjugate eye movements to right 55°, and to left 40°, showing an excess of 15° to right over left. Upon forced attempts at closure of eyelids horizontal lateral oscillations appear, extending through an arc of 50° from 30° to right to 25° to left of median line, the deviation of greatest oscillation being toward the side with strongest conjugate movement. Sensibility of cornea diminished.

Case III.—J. M., age 12 years, on March 28, 1909, was kicked by horse on the right side of his face. Treated at Roosevelt Hospital for two weeks and three days. Diagnosis, lacerated wound of face and compound depressed fracture of right malar bone. Was sent to eye department on account of inequality of pupils. Right pupil larger than left; does not react to light nor convergence, due to paralysis sphincter pupillæ and accommodation. Cornea sensibility diminished. Has hemorrhages and changes about macula on right eye. Vision: R. 20/20; L. 20/20. No diplopia, orthophoria. Conjugate movement to right 40°, to left 50°.

On ordinary attempt to close eyes the right closes imperfectly, but by forced attempt may be closed fully. On attempts at forcible closure horizontal lateral oscillations occur, the eyes moving through an arc of about 30°, extending from 10° to right to 20° to left of median line. Thus, again, the greatest swing of the oscillation is toward the side with the stronger conjugate movement.

To produce this disturbance in the association-mechanism of the eye movements in the pons, there must necessarily be a lesion at the level of the sixth nucleus.

It would seem that the lesions in Cases II and III were hemorrhagic in the pons, as well as a direct traumatic neuritis in the peripheral branch involved.

Case I is not so easy to explain. In the one case of so-called Bell's palsy examined by Dejerine and Theohari the whole peripheral system was involved in an infectious neuritis. It is conceivable that this may have been the lesion in our own case. Then, too, the mooted point whether this case and a few others like it, occurring during the late poliomyelitis epidemic, might not have been in the nature of a poliomyelitis and not a true Bell's palsy *per se* needs to be thought of. However, one may view the matter, a lesion in the pons at the level of the sixth nucleus, probably hemorrhagic in character, must be postulated to fully account for this rare eye sign in some cases of seventh nerve palsy.

Finally one must admit that the manner in which a steady tonic contraction is broken into clonic contraction as seen in this eye sign is as obscure as that for ordinary nystagmus. The normal association of eye movements, however, enables us to understand something of the cause that produces it.

For the lateral movement of the eyes there are separate association tracts in the pons on the side toward which the movement takes place. Every normal movement necessitates an activity of these associate fibers, as well as a lessened activity of the antagonists, causing relaxation on the opposite side.

The intermittence in alternating innervation of the two sides causes the eyeball oscillations. If this be granted, the character of the movement may be neglected and the matter gravitates to the relatively simple problem of a disorder in conjugate movements of a paralytic nature. Their origin then constitutes a separate problem common to all forms, independent of special causation.

UNUSUAL MANIFESTATIONS IN CRETINISM.

By L. S. MANSON, M.D.,

NEW YORK.

In October, 1906, B. H. and O. H., male twins, were referred to me for a diagnosis by Dr. Alfred Michaelis of New York, with the following history: Born at College Point, L. I., January

Fig. 1.—B. H. at the age of 3 years.

9, 1883, were both wet-nursed until sixteen months of age; began to walk and talk at the proper age and appeared to be perfectly normal in every way except that they were extremely fat so that at the age of 4-5 years they weighed (O. H.) 101 pounds and (B. H.) 103 pounds respectively. Both had German measles and O. H. an attack of pneumonia at the age of 5. Otherwise the previous history is negative.

Present Illness.—In July, 1894, B. H., when 11 years of age, while playing out of doors suddenly became unable to walk and had to be carried home. He was kept in bed for two weeks by Dr. Arthur Kahn of New York City, now of Berlin, Germany, was dieted to reduce weight, and was given a course of cold baths. In January, 1895, while in London, England, he had a similar attack of sudden inability to walk when he was kept in bed for two days and also dieted by Dr. Walter Kilner of that city.

With the inability to walk there was considerable pain about the hips and thighs which troubled him occasionally, becoming, however, less and less frequent in occurrence. In 1896 he returned to New York, when it was noticed that his gait became peculiar. It is a waddling gait, the body swaying from side to side, and is manifest at the present time. In May, 1896, he was treated by Dr. Russell A. Hibbs at the New York Orthopedic Hospital where braces were used for a marked double flat foot and an extension apparatus was applied to stretch the shortened tendo-achilles for a period of four weeks after which it was noted that his walking improved slightly so that he could go up and down stairs better than formerly.

In the early part of 1906 he began to have spells of unconsciousness with tonic and clonic spasms and frothing at the mouth, which spells became more and more frequent until, in October, 1906, they had become of almost daily occurrence; were both nocturnal and diurnal, some severe and some mild and of very short duration, indicative of occasional attacks of petit mal besides the seizures of grand mal.

O. H., except for being very fat, showed nothing abnormal until 14 years of age when he developed a staggering gait. He walked like a drunken man and complained of severe pains about the hips. He, too, was treated by Dr. Hibbs at the New York Orthopedic Hospital by means of an extension apparatus, but without any improvement, the staggering gait remaining the same and a similar unsteadiness developing in the upper extremities so that he was utterly unable to use a typewriting machine and found considerable difficulty in using his hands to write. They were sent to public school at the age of 7-8 years, O. H. remaining until 17 and B. H. until 19, both being slow to acquire knowledge, B. H. being the more backward of the two. In both boys the hair of the scalp became thin and sparse while on the rest of the body the growth of hair was excessive, being compelled to commence shaving the face at the age of 13, B. H. six months

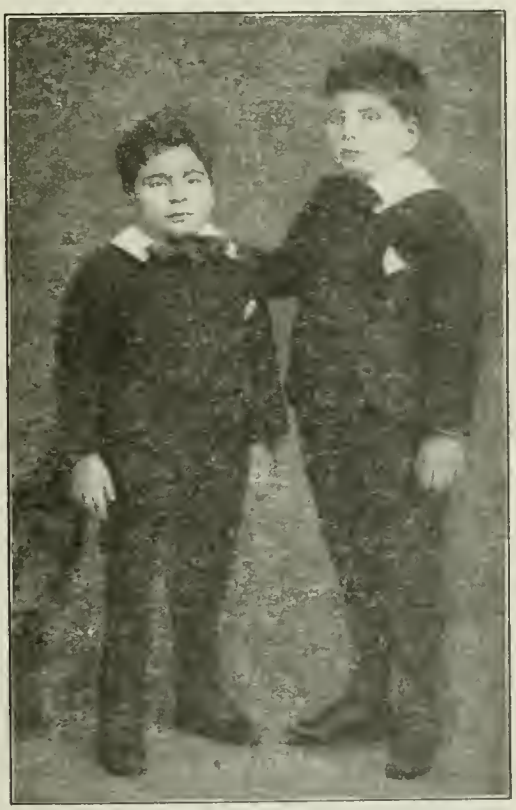

Fig. 2.—B. H. and O. H. at the age of 6 years.

sooner than O. H., in whom the loss of scalp hair took place later and the excessive growth over the rest of the body is not so pronounced.

Family History.—No history of goiter or cretinism is obtainable. The father died in 1894 at the age of 64 of cerebral hemorrhage (apoplexy). The

mother and three sisters are intellectual and healthy normal individuals. Physical examination reveals two well nourished boys with protuberant abdomen, very much under-sized for the age of 24 (1906),

Fig. 3.—Showing the results of treatment in the case of O. H.

O. H. being 58¾ inches and B. H. only 52½ inches in height. The greater portion of the scalp over the vortex of the skull is comparatively bald while the arms, legs, and trunk are excessively hairy, particularly so on B. H., as to resemble Jo-Jo, the Russian boy who for many years was a public exhibit.

Fig. 4.—Showing the results of treatment in the case of B. H.

The expression of their faces is dull and listless, made more decidedly so by the thick lips and broad alæ nasi; their skin is dry; and their gait is waddling, especially in O. H., in whom the loss of muscular coordination is so great as to make him distinctly ataxic in all four extremities. There is marked exaggeration of all the reflexes but no muscular changes. The genitals are overdeveloped;

Fig. 5.—Showing the results of treatment in the case of O. H.

motion at the hips is somewhat limited in all directions, and there is no perceptible shortening of the tendo-achilles. O. H. reports that he is jaundiced at times, is much constipated, has bloody stools from straining, occasional severe pains about the hips and thighs, and feels exhausted after slight exertion. Pulse 72, internal organs normal.

In B. H., who, aside from an occasional eczematous eruption on the front of the chest and infre-

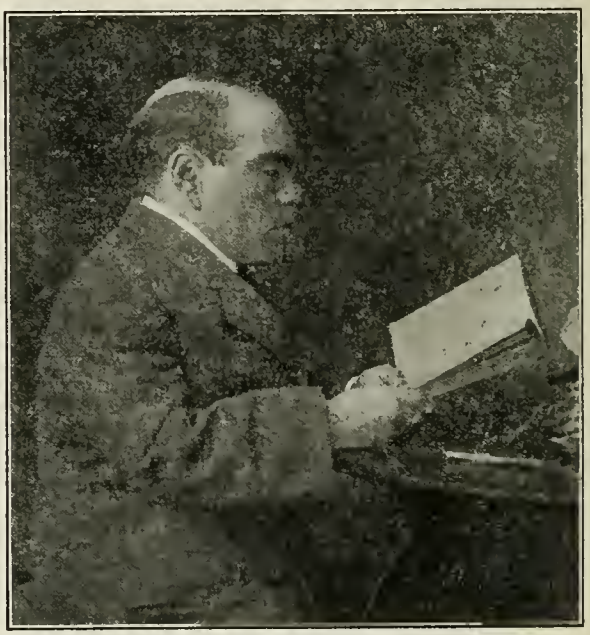

Fig. 6.—Showing the results of treatment in the case of B. H.

quent attacks of pain about the hips, feels remarkably well except during grand mal seizure, I found a myocardial insufficiency with marked bradycardia (pulse 52 to 64). There was a loud hemic systolic

murmur heard at the apex and transmitted to the vessels of the neck.

Mentally they represent boys of less than half their age at which time they apparently ceased to grow physically. They are extremely sensitive, however, refusing to come to my office on the same

Fig. 7.—O. H. at the age of 27 years.

day and never going out together lest they excite attention and public comment. When during the winter of 1907 Dr. Starr asked to show them at the centennial demonstration of the College of Physicians and Surgeons they reached the clinic by different routes and in different cars.

Upon careful palpation I found the thyroid gland in both boys to be so very rudimentary as to be scarcely perceptible and difficult to map out. I therefore diagnosed the cases as cretinism with unusual manifestations and thereupon began the administration of thyroid extract in gradually increasing doses.

In the case of O. H. I administered 15 grains of the extract daily, increasing the dosage by 5 grains every three days until he took 45 grains daily without producing any material change in bodily temperature and only slight acceleration of the pulse rate (72 to 90). Gradually the expression of his face and his mentality became brighter; the skin became moist; the hair of the scalp became thicker and more abundant; the heaviness and rotundity of body became perceptibly diminished (lost 12 pounds in weight); the ataxia in all four extremities became greatly improved so that while he still walks with a waddling movement and his reflexes remain markedly exaggerated he is able to write without difficulty, has acquired the use of the typewriting machine with sufficient skill and dexterity to enable him to earn his livlihood, and has grown up to the present writing fully 1⅜ inches in height. Photos showing the more beneficial results of the treatment in the case of O. H.

In the case of B. H the administration of the remedy was not productive of such happy results, for with the increase to 25-30 grains of the extract his pulse rate would run up to 150 and over and he would display such excessive irritability that the drug had to be discontinued. In spite of its periodical and incomplete administration, however, the epileptic seizures were greatly modified.

Fig. 8.—B. H. at the age of 27 years.

For eight months after treatment was commenced he had no seizure, then he had two in rapid succession and of mild character, though of grand mal type, then another mild seizure, December 5, 1907, in the consultation room of Dr. Louis Fischer, who kindly volunteered to treat the twins during my absence abroad and who reported that "the duration of the seizure was about thirty seconds and looked like petit mal instead of grand mal. The patient suddenly losing consciousness, appeared to hear my talking to him but could not answer; breathing very rapidly and shallow which, gradually subsiding, he resumed the conversation where it was left off as though nothing had happened." At one time after withdrawing the thyroid extract Dr. Fischer was obliged to administer 5 minim doses of adrenalin solution to reduce the rapid pulse rate. In addition to the marked improvement of the epilepsy, the

seizures during the past two years being few and far between, the hair of his scalp became thicker and more abundant, the expression of his face became brighter and more cheerful, and he became decidedly more intellectual, but without any noticeable increase in height.*

The closest possible investigation furnishes no history of an infectious fever, erysipelas of the neck, or rheumatism (unless the pains in the lower extremities with shortness of the tendo-achilles and limitation of motion at the hip joints be rheumatic in nature) as a possible forerunner of thyroiditis.

Why defective thyroidation should produce, besides intellectual and physical enfeeblement and retardation, epileptic seizures in the one and muscular incoordination (ataxia) in the other of these twins, the reader can conjecture as well as I, for as yet all is theory and conjecture. It does, however, lend some color to the doctrine of Schiff that the normal thyroid elaborates some substance as yet not isolated nor its characteristics determined, which is indispensable to the proper performance of the functions of the nervous system.

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THE DIAGNOSIS AND TREATMENT OF PEPTIC ULCER.†

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During the last twenty years a vast literature has accumulated regarding the subject of stomach disorders. Specialists in gastroenterology have elaborated the importance of this or that clinical symptom of stomach indigestion, with a refinement of nomenclature and with an emphasis of utterance more remarkable for its fervor than for its importance to the sick man. A part has been magnified at the expense of the whole, and, in our desire as general practitioners to understand the intricacies of specialism, we have been led into the error of treating a sick stomach instead of trying to cure a sick man. Faddists in diet have been hailed as prophets, and ingenious mechanical and electrical local devices have been sought for, to improve men going down under the stress and strain of modern life, instead of securing for these men restful sleep, fresh air, sunlight, physical exercise, proper activity of the bowels, kidneys, and skin, and that mental content which comes with a realization of the fact that the chief end of life is not the accumulation of riches and honors.

The individual equation in disease has given place to the "feudality of classification and the tyranny of established rule."[1] We have been led away from the fact that while each factor of the digestive process has its own function to perform, all are interrelated, not only with all other factors of the alimentary apparatus, but also with all the other mechanisms of our organism, and especially with our nervous functions and with our mental processes. But while this absolute interrelational integrity must, as a rule, be maintained for the purpose of perfect health, nutrition may be kept up in exceptional cases, even after the removal of the entire stomach by surgical intervention, or in the almost complete absence of hydrochloric acid from the stomach, seen in certain cases of progressive pernicious anemia. Nature here, as elsewhere, seems capable of applying the principles of adaptability and vicarious action. We must also bear in mind that the accurate, complete, and painstaking researches of that pioneer American physiologist, Beaumont, demonstrated, as long ago as 1823, that the recuperative and regenerative power of the stomach was sufficient to atone not only for violent inflammation, but for extensive trauma.

Before we can apply these principles to the consideration of the subject of peptic ulcer, it is necessary to define exactly what is meant by that term. The gastric mucosa, like other surfaces o fthe body, may suffer ulceration from chemical, mechanical, or toxic irritants, the acute infections, tuberculosis, syphilis, scurvy, diabetes, and puerperal septicemia, but it is scarcely proper to regard these as cases of peptic ulcer, even though they may be produced by the eroding action of the gastric juice upon devitalized tissue. True peptic ulcer is none of these, but is "a more or less progressive destruction beginnig in the mucosa and sometimes extending to and even through the deeper layers of the stomach wall, of the nature of a degeneration or a necrosis."[2] Sometimes we recognize this condition easily at the bedside, but at other times it is found only in the deadhouse in cases unrecognized during life. In one thousand consecutive autopsies at Bellevue Hospital, Harlow Brooks found it existing in nine bodies, in only two of which had it been discovered before death.[3] Cases fall into two groups: 1. Acute peptic ulcer in chlorotic young women; 2. Chronic or indurated peptic ulcer in men past middle life. Apparently then there is some common factor which lowers vitality of tissue and is operative in early adult life of women and after middle life in men. This factor is at present unknown, but there is much analogy to suggest that it may be a trophoneurosis akin in its manifestations to the visceral lesions, apparently secondary to neurotrophic disturbance, which sometimes occur in angioneurotic edema.[1] This trophoneurosis may be the factor which, added to destruction of gastric epithelium with disturbance of the circulation in the stomach and hyperacidity of the gastric juice, produces the combination permitting autodigestion. Erosion alone does not cause peptic ulcer, blood stasis in the gastric circulation exists only in a few isolated cases and is not found in the thousands of cardiac cases where we would naturally expect it to occur, and hyperchlorhydria exists in thousands of other cases without producing peptic ulcer when the nervous system is not below par by reason of overwork, underfeeding, business troubles, or domestic infelicities.[4] Again, hyperacidity is by no means constant in gastric ulcer, although when it does exist it may prevent healing of the ulcer and may cause it to become chronic.

Absence of this neurotrophic disturbance then may be the answer to that question which has always puzzled us, "Why does not the normal healthy stomach digest itself?" Another answer is, however, clamoring for recognition in the literature. This is based on the idea that certain endogenic and exogenic poisons, which select the gastric mucous membrane for their special region of attack, contribute to the formation of typical round ulcer of

*Unfortunately I did not have them photographed at the time treatment was commenced, not realizing that the case would develop so many interesting features to make it sufficiently worthy of record.

†Read before the Alumni Society of St. Vincent's Hospital, October 27, 1909.

the stomach.[3] And Weinland has described an antipepsin ferment which was supposed to reside in and to form part of the gland cells, thus intimately protecting the same from autodigestion by these poisons, and has stated that local deficiency of these antibodies was the predominant factor. But how are we to explain this local deficiency? Turck has produced genuine induced round ulcers in every experiment in which he fed bouillon cultures of the colon bacillus to dogs and believes that the etiology is dual: 1. There is some toxic status which overcomes the natural resistance, resulting in cytolysis; 2. Some chemical substances are formed in the alimentary tract, which, when absorbed, neutralize the protective bodies in the blood and tissues, resulting in autocytolysis.

The cardinal symptoms of gastric ulcer are pain after eating, epigastric tenderness, vomiting usually of very acid material, hematemesis, and blood in the stools. Blood in the vomitus and feces may not be obvious, and microscopic, spectroscopic, microchemical and chemical tests for its determination may be required. Secondary symptoms are anemia, emaciation, weakness, nervousness, melancholia, headache, thirst, and constipation. Complications due to hemorrhage, perforation, fistula, subphrenic abscess, perigastritis with adhesions, distortions of the stomach due to indurative and contractive changes around the ulcer, and carcinoma developing on the site of a chronic ulcer, will each add its own modification of the typical picture.

The objective signs elicited by physical examination add but little information to the patient's story. Localized tenderness is the most valuable sign. Palpable tumor may sometimes be felt in chronic ulcer, either from the thickened ulcer itself, from muscular hypertrophy or adhesions, or from exudate. The results from gastric analysis are very variable, according to the type of the ulcer. The finding of blood in the gastric contents or in the stools is of more importance than any other sign.

When this typical combination of symptoms and signs exists, there is very little doubt as to diagnosis, but in many cases both symptoms and signs are very indefinite and diagnosis is obscure. In the differential diagnosis we must exclude gastralgia, hyperesthesia, hyperchlorhydria, hysteria, gastritis, pregnancy with hyperemesis, uremia, cancer, gallstones and renal stones, aneurysm of the abdominal aorta, gastric crisis in spinal diseases, and hemorrhagic erosions with exfoliation. In gastralgia the pain bears no relation to taking of food, pressure relieves the pain, blood is absent. Yet more than one case treated as gastralgia for a long time has confounded the medical attendant by eventuating in a copious hematemesis. Simple hyperchlorhydria rarely has vomiting or hematemesis, very little tenderness, pain appears long after food or at night, proper albuminous diet with alkalies usually promptly relieves. Simple hyperesthesia shows pain at once after meals, irrespective of kind of food or of its temperature. Hysteria has no severe pain as a rule, but prompt vomiting after eating, and shows the stigmata of hysteria elsewhere. Gastritis has obvious dietetic indiscretion, usually fever, anorexia, toxemia, and tenderness and pain which are diffused. Uremia shows characteristic urinary findings. Cancer will often have debility and emaciation preceding the other signs; the pain is more constant and more independent of food; vomiting gives less relief than in ulcer, the vomitus shows little or no hydrochloric acid, and may show lactic acid after a Boas test meal together with ill-digested food and the Boas-Oppler bacilli; if hematemesis occurs, it will be of coffee-ground type. In chronic ulcer causing a pyloric tumor with dilatation of the stomach the differentiation may be impossible—before operation. When cancer is engrafted upon an old ulcer, there is increase in pain, gradual lessening of hydrochloric acid, and tumor increasing in size and assuming a more nodular character. The crucial test for hemorrhagic erosions with exfoliation is the finding in the lavage water of bits of mucous membrane, but these have been found in many stomach conditions without hemorrhage.

Gallstones may present every symptom of gastric or duodenal ulcer, and experienced surgeons have often been deceived. The importance of testing of urine for biliverdin by Rosin's test in every suspected case has lately been brought forward.[7] Spinal disease usually has symptoms and signs which can be elicited by physicians who take the trouble to make routine neurological examinations of their cases.

Duodenal ulcer was formerly described independently of gastric ulcer and was thought to exist in about 6.6 per cent. of all peptic ulcers only, but the surgery of recent years has shown that the proportion is ever increasing and is perhaps 1 to 1. In the last reported 200 cases of the Mayos, 98 were duodenal, 87 were gastric, and 15 were independent of each viscus.[2] Duodenal ulcer depends upon the same main etiological factors as gastric ulcer, and its symptomatology is almost identical. Cases present under four types: (1) Those indistinguishable from gastric ulcer in symptoms and signs; (2) those with hemorrhages from the stomach or bowel, or both, and with no other symptoms; (3) those with symptoms resembling biliary colic, especially the pain, tenderness, and intermittent jaundice; (4) the perforative cases which simulate also gall-bladder perforations and appendicitis. Einhorn believes that he can make the diagnosis clinically with some certainty by the thread test showing a distinct blood spot at a distance of 58 to 60 cm. from the teeth.[8]

In the treatment of gastric ulcer prophylaxis is difficult because the etiology is obscure. Curative treatment must first take cognizance of the variety of ulcer present, whether acute or chronic. Study in the post-mortem room shows that four out of five cases of simple acute gastric ulcer heal during life.[9] But to bring about this happy result early diagnosis is necessary in order to prevent complications, and the strictest discipline is essential, no neglect in hygiene, diet or medcine being permissible. Of prime importance is rest in bed for a period of four to six weeks with very gradual transition to active exercise, a period of rest after each meal being enforced for months after the patient is up and about. Attempts at feeding must also be tentative, as there is no general rule applicable to all cases. Starvation may be necessary for the first few days, and is usually well borne if saline enemata be administered to supply tissue loss and maintain the moderate needs of patients who are absolutely at rest. Nutrient enemata of six ounces given every six hours may next be tried, and, later on, mouth feeding commenced with small quantities of milk and lime water to which the addition of milk of magnesia may be necessary. After several days, broths and raw eggs

may be added, and after four weeks finely divided albuminous foods, such as minced meats, white fish, chicken, tender beef and light potatoes. All coarse, irritating and spicy rich foods should be avoided for several weeks. The best drug is undoubtedly bismuth, the constipation of which can be overcome by combining with it light carbonate of magnesia. Silver nitrate is also highly recommended. Severe pain may require morphine or orthoform, which last drug was formerly thought to be an aid in differentiating the pain of gastralgia from that of gastric ulcer.[10] Other symptoms must be met as they arise.

Although no single rule applies to all cases, certain clinicians have laid down details of methods, with which their names are identified and for which they claim the best results. Thus W. V. Leube[11] reports 547 non-hemorrhagic cases with 90 per cent. cures—the majority in from four to five weeks, and no deaths; and 90 per cent. cures with 2.5 per cent. deaths in hemorrhagic cases. His treatment is based upon four cardinal points: (1) Rest in bed; (2) Karlsbad water, a quarter liter, taken lukewarm; (3) hot poultice to epigastrium, except during hemorrhage, when ice bags are used instead; (4) light diet of high nutritive value and easy digestibility.

Lenhartz's method is based on the theory that ulcer is prevented from healing because of mechanical stretching of the organ, hyperacidity, and anemia. He opposes the main ideas of the usual "abstinence cure" and advocates: (1) Concentrated albuminous food continuously; (2) rapid increase of nourishment; (3) absolute rest for four weeks with ice bag for the first ten days. Senator adopts a middle course and advises glutin or gelatin for its soothing and hemostatic effect, fats for their counteracting effect on the hyperacidity and to soothe the ulcerated surface, and sugar because it is easily digested and nutritious. Later he adds eggs, chopped meat, and jellies.

The above medical measures will be successful in the vast majority of cases of acute peptic ulcer, but many cases certainly fail under medical treatment. The proportion of these failures is variously estimated by different observers, the average mortality in 20 large series of cases collected and quoted by Musser being 8 per cent.[14] Surgeons, however, claim that recurrence takes place in nearly half the cases after "medical cures,"[12] and that surgical interference, on the other hand, shows an ever diminishing mortality in each succeeding year. While agreeing with the medical men that rest for the stomach is the principal factor in cure, the surgeons claim that this rest can only be secured by the surgical operation of gastroenterostomy, preferably by the posterior loopless jejunal method, thus providing sufficient gastric drainage.

It is difficult to draw absolute indications for surgical interference, but any case of gastric ulcer which has resisted *rigid* adherence to the principles of rest, diet, and medication for two months, should be submitted to the surgeon because such a case has become chronic and liable to the occurrence of complications, such as perforation, hemorrhage, perigastritis with adhesions or abscess, stenosis of an orifice, and constrictions causing deformities. A case with early slight hemorrhage does not require surgical intervention, and even a single large hemorrhage does not demand operation until medical measures have failed to control it. This applies only to acute cases. A gastric ulcer which, after causing dyspeptic symptoms over a prolonged period, eventuates in hematemesis should be operated on, as the ulcer is probably an old one, the tissues are indurated, spontaneous healing is difficult, and thrombus occurs less readily. Persistent recurring hemorrhages, with short intervals between, demand operation. Perforation demands immediate operation, as every hour's delay costs the patient 8 per cent. of his chances of recovery.[13] After closing the perforation, a gastroenterostomy should be performed in all cases.

Hour glass contraction and other constrictions of the stomach demand the establishment of proper drainage by suitable surgical procedure.

Conclusions.—1. The crux of the diagnostic situation in stomach disorders is not the study of the stomach itself, but is the study of the individual, including his nervous system, cardiovascular system, renal and other excretions, and his entire makeup.

2. Cases of acute uncomplicated peptic ulcer need not be immediately handed over to the operating surgeon.

3. Cases of chronic, recurrent, or complicated gastric and duodenal ulcer are surgical cases.

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MODERN VIEWS CONCERNING DISEASED TONSILS.*

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DURING recent years striking advances have been made in nose and throat surgery. The diseased tonsil has received due attention from progressive operators, and to-day there can be little excuse for the incomplete operation and the unsatisfactory results which have so characterized tonsil surgery in the past. Specialists have discussed the matter to a standstill and many articles have appeared in the journals. In spite of all this I believe that we as a profession have not given the attention it deserves, and I am quite sure that a careful consideration of the anatomy and pathology of these organs would change the minds of many who are now quite conservative or indifferent.

Conditions other than acute inflammation or ex-

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treme enlargement are frequently ignored; but this should not be, as when a tonsil once becomes diseased it is apt to continue its malign influence, causing an extension of inflammation which affects the ears and nasal passages or gives rise to various ills in remote parts of the body.

The subject is a large one and no attempt will be made in this paper to touch upon other than the more important points.

The faucial tonsil is a structure of varying weight, shape, and size, and is permeated by eight to twenty crypts, which usually penetrate to its base. Its substance consists of lymphoid tissue, which surrounds the crypts and is divided and supported by a fine connective tissue stroma. Its inner or mesial surface is covered with mucous membrane, which also lines the crypts. The outer surface is invested with a layer of fibrous tissue, and it is by these that the organ is totally encapsulated. It rests upon, and is loosely attached to the fascia of the superior constrictor muscle of the pharynx through which pass its principal blood-vessels. Anteroposteriorly, it is bound by the pillars of the fauces which unite above, forming an arch sometimes partly concealing the upper portion of the tonsil, by a membranous fold called the plica supratonsillaris. A membranous investment of the anteroinferior portion of the organ is commonly seen. This is called the plica triangularis and is an embryonic remnant. Inferiorly the pillars diverge and enter into the tissues at the base of the tongue and the lateral wall of the pharynx.

That the tonsil is not a vestigeal organ is proven by the fact that it is more complex in man than in lower animals. Clinically, it need only concern us when in a pathological condition, and broadly speaking it may be considered pathological when it is subject to acute or chronic inflammation or is sufficiently hypertrophied to cause obstruction to nasal breathing, affect the speech, hearing, or other normal processes.

The condition of acute tonsillitis is well known to all of us, but I feel positive that its importance is often underestimated. In addition to the usual symptoms it has given rise to otitis media, edema of the glottis, acute endocarditis, rheumatic fever, pneumonia, and gangrene of the lung. I have personally treated one case where septicemia and hemorrhagic nephritis resulted. Acute attacks may be followed by complete recovery, or what is more likely by a low grade inflammation causing hyperplasia of the glandular element presenting a soft regular enlargement of the organ, or of the connective tissue element, giving an irregular appearance and toughened fibrous character. If true hyperplasia is not present, the enlargement may be due to passive congestion and its consequences. In any of these chronic conditions the cryptic membrane is very apt to be adversely affected, lowering its resisting power to invading bacteria, and exacerbations are thus invited. Under such conditions infectious material is often found in the crypts, which exudes and causes fetid breath. At other times it is a potent factor in deranging digestion. Streptococci and staphylococci are normally found in these crypts and tubercle bacilli not infrequently so. Through lack of resistance, general infection is invited, and primary tuberculosis of the tonsil has undoubtedly been seen. Enlarged and diseased cervical and submaxillary glands frequently attain such a condition by acting as barriers to the influence of offending tonsils.

Many of us have been prone to look only upon the large tonsil with suspicion, and it is true that this may be more obstructive, but the smaller diseased organ is often more important. The small ones which we see during adolescence or adult life are often considered to be atrophied. They really have degenerated and are in some instances a distinct menace to health. Many of them are more obstructive than they look and thorough dissection will show they are bound in and forced upward, impeding nasal breathing and affecting the hearing by pressure and congestion about the Eustachian orifices. This type does not project to any extent beyond the pillars and the use of the tonsillotome under these conditions is worse than useless. I have had patients where throat symptoms and rheumatoid pains were coexistent and suitable treatment of the diseased tonsils was followed by a disappearance of the pains. In some cases it is useless to treat middle ear discharges without first clearing out offending tonsils and adenoids.

The pharyngeal tonsil histologically presents a structure simulating that of its faucial neighbor. It possesses crypts and may be the seat of acute inflammation which is often undetected. In its hypertrophied form we know it as "adenoids" or "adenoid growths." As such it impedes nasal breathing and associated or alone causes impaired speech, chronic rhinitis, cough, mouth breathing, middle ear disorders, permanent facial deformity, and a profound evil influence on the mentality and general health. Mouth breathing is an evil of grave consequences. The face becomes narrow, a vacant expression is present, the teeth are poorly arranged, the palate is highly arched, intruding upon the nares, and the dust-laden unwarmed air is drawn directly against the lower pharynx and into the lungs. The outcome of this is a narrow-chested, weak-lunged individual whose entire respiratory tract is weakened, making him quite susceptible to any disease affecting these parts, and no small number of tuberculous cases can point to a similar history and condition.

On account of the aforesaid reasons the offending structures should be dealt with during early childhood. An opportunity to properly develop is thus given the parts and habits of good breathing may be acquired. It is remarkable how quickly the improvement in breathing is noticed. I have treated cases where sleeping had been a very uncertain matter on account of obstruction. In two hours after the operation quiet free breathing resulted. An able dentist may do good service by correcting the all too common palatal deformity, but as this takes time and is necessarily expensive comparatively few avail themselves of this service. Whether or not tonsils have a function has been discussed at great length by numerous investigators. No convincing explanation has been forthcoming, and while a normal tonsil may be a good thing to have, possessing an abnormal one is quite a different matter. The true function may at some time be discovered, but it may be said that evil consequences have not been noticed after the total removal of a pathological tonsil.

For many years it has been the practice of some to treat the more aggravating symptoms as they presented themselves, leaving nature to cause an absorption, or degeneration if you choose. Others applied astringents, some used the cautery puncture and many amputated the offender with some form

of tonsillotome, which afforded relief in proportion to the amount removed; the process being aided by lack of adhesions and the skill and care of the operator. Knives and scissors have also been employed in partial removals. I might here state that it is impossible to do extirpation by the common tonsillotome, as it is designed to partially protect the tonsil. If separation from the pillars is neglected, it is even less effective. While in a purely obstructive uncomplicated tonsil, partial removal has given relief, there have been more complicated conditions where no improvement took place, and in some instances they were even worse. Topical treatment did little good other than to cause temporary relief. These more or less illogical measures are still carried out to a great extent to-day, but during recent years many prominent operators have advised and practised the complete removal of the faucial tonsil in its capsule. That this cures tonsillitis is naturally apparent. Any form of operation which does not remove the diseased crypts down to their origin in the tonsil base, is very apt to be a failure. Assuming that a patient possessed an encapsulated tumor situated between two muscles in some other part of the body, who would consider it good surgery to simply snip off the most prominent portion possible, including some of the surrounding normal structure? At one time I used the tonsillotome with much vigor and enthusiasm. In some cases the removal of the obstructive element of the organ with possibly an associated adenoid gave thorough satisfaction. In others typical tonsillitis would appear at the spot where no tonsil was supposed to be. Some rather ingenious excuses have to be drawn upon under such circumstances, and one's reputation is not enhanced thereby. Until some valued function of the tonsil has been proven I shall look upon extirpation as the only rational cure of their diseases, and shall advise it unless the exigencies of the case indicate more conservative procedure.

Comparatively painless tonsillectomy may be done in adults by local injection anesthesia, sharp or dull dissection, completed by the snare, knife, or scissors. A cautery point and forceps may be used as Dr. Pynchon has described. Many of these cases are among children or timid adults, where general anesthesia is indispensable. The operation is then far more difficult than its description would seem to indicate. I believe with others that the average abdominal section is less troublesome in its actual performance. These patients breath poorly at all times and worse under anesthesia. We are obliged to work in their principal respiratory channel and blood and mucous add to the difficulties. For many reasons a skilled anesthetist is a most important factor. A trained assistant on the opposite side of the table is essential. The dorsal or side position may be used with illumination from a head lamp or window. A mouth gag is placed in position, the assistant holds the tongue depressor and helps with the sponging. The tonsil should be grasped with suitable forceps and separated from the pillars and loosened from its bed by sharp or dull dissectors. When this has been accomplished, the organ may be removed by the snare, fingers, scissors, knife, or by other means. My preference has been the snare and it has served me well. If these measures are carefully carried out, bleeding is usually inconsiderable. If working under proper surroundings any bleeding vessel may be caught with an ordinary hemostat or a tonsil clamp may be used. An ice water douche or pressure with the fingers is usually quite sufficient. It may be argued that extirpation causes more hemorrhage than amputation. It has not been my experience nor that of others so far as I know. Whatever the technic its object should be to follow the capsule in separating and remove the structure in the shortest time according to good surgical principals.

If adenoid tissue is present it should then be removed by the cutting forcep, currette, finger, or their combined use. It has been my experience that no instrument can always be depended upon. Tufts of tissue frequently remain which could easily cause a persistence of symptoms, and which the finger nail easily removes. The respiratory process is usually improved at once, but some local soreness is present for several days. Infection and secondary hemorrhage have occurred, but usually the recovery is uneventful. To attain an ideal result, the tonsillar fossa should be cleansed at intervals by the family or nurse and the surgeon should at times apply suitable astringents to the granulating surface until healing is perfect.

In such an operation I always prefer the desirable facilities of a hospital operating room. It is an advantage to both the surgeon and the patient. In preparation the nose and the pharynx should be well cleansed, the bowels evacuated, urine examined, and the general physical condition investigated. Subsequent to the operation it is important that the patient remain in his room over night and if all is well on the following day more freedom is allowed.

Owing to the vogue of the tonsillotome such operations will be considered trifling by many. Such a view is distinctly erroneous and should be discouraged. The object to be attained is very important. The operation is a major one and a proper compensation should be exacted in all cases except where charitable consideration properly applies.

THE USE OF TUBERCULIN IN OPHTHALMIC PRACTICE.*

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In view of the numerous contributions on the subject of tuberculin which have appeared in medical journals during the last year, one hesitates to add anything of a personal experience lest it be but a review of what has been well and carefully covered or perchance may add to the confusion and uncertainty as to the real value of tuberculin. The aggregate of personal experience, however, furnishes the data by which we may form a true estimate of its value and dangers. There is a note of warning in most of the more recent papers, as to the dangers which may attend the use of this agent, and it is largely because of the dangers to the eye in particular that I present this subject from the standpoint of an ophthalmologist.

As in the application of new ideas and new remedies, there is a reaction from radical enthusiasm to almost complete nihilism, so tuberculin has passed through its evolutionary period and the profession is prepared to estimate it at its true worth.

The untoward complications and unsatisfactory results observed in its use as a diagnostic and therapeutic agent, I believe, are due to faulty technique and to a lack of discrimination in the selection of cases and of methods, and although the personal equation must enter into the minor details of the

*Read before the Northwestern Medical Society of Philadelphia.

technique, there are certain broad rules which, if followed, will avoid the mistakes of the past and will furnish more uniform results in the future.

As a diagnostic agent, from an ophthalmic point of view, the Calmette reaction has little to commend itself in determining the character of lesions and diseases of the eye. This assertion is rather dogmatic, but is warranted by my personal experience and I believe is borne out by the numerous contributions of ophthalmic surgeons in general. The possibility of causing serious damage by a single application to an eye which may be the seat of even a low-grade conjunctivitis, or to a perfectly healthy eye by repeated instillations, has been fully demonstrated to every one who has employed this test. These results may be obtained in an eye which is not the seat of tuberculous processes and, therefore, in addition to the dangers, there is an element of uncertainty added which largely nullifies the value of the test. The natural inference, therefore, is that the Calmette test should not be used in determining eye conditions. I wish to emphasize this conclusion because we have other and better methods of application without the risk of serious injury which may attend the ophthalmic test.

In its application to determine the tuberculous or non-tuberculous character of lesions in other parts of the body, the reaction has several points of advantage, if the experiments are conducted under the following conditions:

1. The application should be made only by an ophthalmic surgeon because the greatest care should be exercised in determining that conjunctiva and lacrymal sac are entirely free from disease.

2. Solutions of one-half per cent. to one per cent. of old tuberculin should be the maximum strength employed.

3. Not more than two instillations should be made, not only because unnecessary to obtain results of real tuberculous reaction, but because a protracted catarrhal conjunctivitis is not infrequently the sequel of repeated instillations, even in an eye which is not tuberculous.

The advantages of the ophthalmic test over the cutaneous and subcutaneous reactions, when employed under the above conditions are:

1. The ease with which the test can be carried out, because of the accessibility of the parts treated, the usual ready cooperation of the patient, and because there is no need for a careful observation conducted in an institution which the subcutaneous test requires.

2. The absence of a constitutional reaction.

3. The determining of active processes as contrasted with the cutaneous and subcutaneous reactions which are more apt to reveal latent foci of disease.

4. The unmistakable visible evidence of a positive reaction as against a possible doubt in the cutaneous test, when the scarification process is used, and the doubt of a subcutaneous test if the reaction is not well marked. The ophthalmic reaction when positive is rarely doubtful in appearance.

There is, therefore, a distinct though limited field for the application of the Calmette reaction. Its value, however, lies only in obtaining positive results, for failure of even a second instillation may be followed by a successful von Pirquet or subcutaneous demonstration of latent foci of disease.

To determine the character of ocular lesions the cutaneous test of von Pirquet may be employed, but if negative a hypodermic injection of a small dose of tuberculin should be used. The von Pirquet test is fairly reliable, but the conviction is growing that after all the subcutaneous use of tuberculin in all cases which can be brought under proper observation in hospitals or at home under suitable conditions, is the most reliable and satisfactory method and the method attended by least danger if the dosage is carefully guarded. The Calmette and von Pirquet methods should be reserved for selected and suitable cases. In fact there is a great opportunity for exercising careful discrimination in the selection of cases and of methods adapted to individual cases, and I believe that the untoward results and conflicting conclusions are for the most part due to a lack of discrimination on the part of the operator and not to either the tuberculin or the method used. The misapplication of a thoroughly reliable method to an unsuitable case will lead to faulty conclusions both as to the case and the value of the method.

It is a well-known fact that many so-called tuberculous eye conditions are not instances of local disease due directly to the presence of tubercle bacilli, but rather the result perhaps of toxins or more often only a part of the general symptomatology of central diseases—evidence of lowered vitality. A constitutional reaction therefore, is most desirable, but of so mild a nature as not to cause a local reaction. One sees from time to time in literature the mention of a local as well as a constitutional reaction and it is even sought for—a practice which is dangerous and should be carefully avoided by a sufficiently small dose, *e. g.* 0.005 mg. of the solid tubercle bacilli. Should a reaction fail to occur, a larger dose may be administered with safety but the initial dose should always be small. The demonstration of a constitutional reaction in a case of suspicious local disease is strong presumptive evidence that the local trouble is a sequel of central disease and a local reaction is therefore rarely necessary and should not be sought.

In the treatment of tuberculous eye conditions by therapeutic doses of tuberculin or tuberculous preparations, there is opened up to us a new and most promising field, fraught, however, with dangers throughout the course unless the greatest care is observed as to details. Hospitals naturally furnish the ideal surroundings for this work, but since it usually covers a period of three months or more, intelligent cooperation in the home or in one's office, will yield equally good results.

A three hour daily temperature record should be kept on a graphic chart if possible, pulse and respirations likewise. On this chart can be recorded the time of administering the tuberculin and the dose employed. When carefully kept, a glance at the chart will tell one the result of the treatment. In my private work, I instruct the patients to mail to me a daily postal-card record of the temperature and pulse when possible, and such comments as to their condition as they may see fit to make. These data are absolutely necessary to obtain good results and to avoid doing harm. Carelessness in the minutest detail will sometimes cause failure or, what is of more vital importance, will do harm.

The initial dose should not be over 0.0001 mg. of the tubercle bacilli and in children 0.00001 is better. If no reaction follows, the same dose may be given the following day, but if a reaction follows, several days should intervene before a second dose is given. A subsequent dose should never be given throughout the entire course of the treatment until all evidence of reaction have passed. This is es-

pecially important when the dosage is gradually increased. My preference in the selection of tuberculin, because of its constancy, has been von Ruck's watery extract, a 1 per cent. solution known as Sol. No. 100. From this I make four dilutions. Sol. No. 10 consists of 1 c.c. of No. 100 and 9 c.c. of diluent, which is 0.4 per cent. phenol in physiological salt solution. A second solution No. 1 consists of 1 c.c. solution No. 10 and 9 c.c. of diluent. A third dilution Sol. No. 0.1 consists of 1 c.c. of Sol. No. 1 and 9 c.c. of diluent. A fourth dilution may be made if necessary for children. These are the dilutions that are made according to von Ruck's instructions.

The initial dose is 0.1 c.c. of solution marked No. 0.1 and sufficient diluent, possibly 0.5 or 0.6 cubic centimeters; this 0.1 c.c. represents 0.0001 mg. of the solid bacilli. If this dose is tolerated I increase the daily dose 0.1 c.c. at a time until 5 c.c. has been reached and continue the same dose for several days, gradually increasing to 0.9 c.c. When this point is reached, this dilution is discarded and the Sol. No. 1 is employed in the same manner. By this very gradual and definite increase in the dosage a tolerance is gradually built up and reactions are rare. When they do occur several days should elapse before another dose is given and the dosage should not be increased for several days thereafter.

I have gone into these details so that those who are just beginning to use tuberculin may profit by my mistakes.

As to results:

(1) I have not seen any unpleasant symptoms and have not seen any harm done by following this method.

(2) Some days before one notes any change for the better in the local conditions, certain constitutional changes make their appearance. The appetite returns or improves, especially in children; cough, if present, abates, the patient takes on flesh and gives unmistakable evidence of improved health. One may note these changes in the second or third week of treatment. Shortly after this general improvement, including reduction of temperature and pulse rate (if it had been increased), the local conditions improve.

A cure of local conditions is not an indication for stopping the tuberculin. The treatment should be continued until there is evidence that the central lesion is absolutely under control, although daily doses are not necessary after fairly large doses are tolerated.

Just as in the management of central tuberculosis, this treatment must be combined with the methods of to-day, namely, fresh air, rest, and forced feeding, and in addition, local measures should not be omitted. The local treatment must naturally be influenced by the conditions and parts affected.

In the selection of tuberculin, von Ruck has only recently tabulated series of cases treated by modern methods without tuberculin, with tuberculin, and with the watery extract or the emulsion. His conclusions are so concisely and overwhelmingly in favor of the latter that there seems to be little room for doubt as to the superiority of the preparations which contain the solid tubercle bacilli. The latter products yield to a more accurate dosage and to greater uniformity than other preparations placed on the market.

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NEPHROPTOSIS,

ITS CAUSE, AND DIAGNOSIS BY INSPECTION.

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I shall begin with a brief review of my monograph of "How to see all the organs of the body with our naked eyes," which was published in the *St. Louis Medical Review* of February, 1908. The present publication follows as a continuation of the observations already described in the just mentioned monograph. To see beneath the skin with the naked eye without any assistance of any instruments sounds quite incredible, and one is inclined to believe that such sight is a born gift not allotted to every person. But every physician can learn this art if he so desire. Perseverance is all that is necessary.

Is it possible to see the outlines of all the organs upon the skin of the person? The answer is a decided, emphatic, and an unequivocal yes. Can we see all the organs in every case irrespective of the adipose layer of the skin? Yes. Obesity makes no difference, and, between the moderately fat person and the very fat person, the very fat person shows the outlines better, contrary to what by theory is assumed. What element is absolutely essential for us to see the outlines of the organs upon the skin? Respiration.

Every physician should learn, whenever possible, to rely upon himself, upon his own powers of hearing, touch, and sight rather than upon instruments. Every physician should strive to the best of his ability to perfect himself in observation of the patient's every move and every expression. Practice makes perfect. There is nothing without cause; ascertain the cause of every phenomenon; there is no chance, there is no accident; under like conditions the like invariably results. We must always look for symmetry in the two halves of the body and any variation must be explained. Every unevenness, every elevation, every groove, every depression, every moving shadow upon the skin has its absolute cause, and must be recognized and interpreted by the physician.

These are the cardinal principles: (1) The skin adapts and molds itself in accordance with the subjacent organs, thus presenting to the trained eye elevations, depressions, ridges, and furrows; (2) all organs move with respiration; (3) the movement of the skin due to the respiration is perpendicular to the movements of the viscera. The axis of motion of the skin is transverse to the body while the action of the motion of the viscera is longitudinal. Because of these physical facts the gliding of the organs beneath the skin can be seen when we have present proper illumination and the proper position of the observer. Light of medium intensity—diffused daylight or artificial light—is essential; too strong artificial light or direct sunlight must be avoided. The observer must stand a certain distance away from the patient so that his line of vision will fall obliquely upon the region to be seen. If the observer will now bring his eyes to the level of the patient's skin, he will see certain lines move beneath the skin. His knowledge of the anatomy of the region will teach him what organ the line seen represents.

The acquiring of the art of seeing beneath the skin is not only a matter of self-satisfaction, but infuses confidence in the patient and his friends who

happen to be around. It is not always that the patient has a ready-made history for us. Often he comes to tell us only that he feels weak and does not know what is the matter with him or concludes his history with one or two symptoms. Imagine what hold one gains over the patient if the physician is able to tell the patient many a symptom which the physician knows must result from a certain condition he observes. To be concrete I will give some illustrations. The patient tells us only of his weakness. He strips and lies down for examination. We observe tremulous, wave-like movements in the region of the stomach. This signifies gas within the stomach which transmits the concussions of the heart. We conclude from this a pressure of the distended stomach against the heart, and at once proceed to give the patient the symptoms of such interference with the heart's action. We say to him: I see you suffer from palpitation and that you cannot go up the stairs very well, etc. Now, the patient never said a word about that. The patient's face brightens up wondrously, and affirms your statement. Does one doubt the effect upon the patient? Or, we see a somewhat cylindrical bulging in the lower right quadrant of the abdomen running upward and outward. We conclude that this represents a distention of the cecum and ascending colon and tell the patient, pointing with the finger to the region: I see you have some uneasy sensation, some pain in this region. And again the patient looks surprised at our wisdom. When I speak here of bulging I mean such bulging as is seen only by the trained eye. For if the bulging is very marked there will be complaint of the pain. I was called to see a lady who could not move about because of her obesity; I was to tell her what was the matter with her from simply looking at her. On hearing this I smiled; the patient stripped. Assuming the necessary position I saw a certain elevation upon the skin of her abdomen. I approached her and began to palpate over that spot. Why, doctor, exclaimed the patient, this is the very spot that has given me pain for so very long, and I was always told that there was nothing the matter there. The result was that I treated her, her family, and some friends of her. Lest there be any mistake I will again mention that the fat person shows the outlines exceedingly well.

After this brief review I wish to return to the subject of this paper. Nephroptosis is quite a common occurrence among women, although not exclusively belonging to women. Nor does nephroptosis always produce symptoms, nor are there always evidences of a pathological change in a displaced kidney. Sensitiveness to the touch, pain, and tenderness are not always elicited in handling the ptotic kidney; such symptoms are found quite often. Speaking of nephroptosis, let me consider the alleged causes. I have been taught that nephroptosis is produced by tight lacing, by pregnancy, and, in the male by, well, here it is a reflex phenomenon, most likely. So long as I had no skill in palpation I accepted the teaching. But after I had learned how to palpate under the masterful personal tutorship of Kuttner, Ewald's assistant, and then was able to find nephroptosis not only in females but also in males, not only in the grown-up but also in the infant I found it impossible to reconcile the teaching with the facts. The fact that nephroptosis is found in very young infants—and I have seen and demonstrated many such cases—necessarily induced me to search for the origin of nephroptosis at a very early date when neither of the reasons at present accepted can possibly operate.

Anatomy teaches that the kidneys are held in place by thin, loose areolar tissue and some fat. As is well known the resistance of such binding material is not very great; it will tear with comparative ease. Thus the attachment of the kidneys differs from the ligaments and mesenteries of the other organs. In comparison the kidney is a very heavy organ held in place by a very flimsy means. Should the kidney be pulled, but very slight resistance is experienced; the ease with which the kidney is shelled out is known even to the ordinary housewife. It is immaterial whether the kidney is pulled out or is being catapulted; in either case the mooring of the kidney is too weak to offer effective resistance. And, should the comparatively very heavy organ be catapulted, the areolar tissue would very easily break and the kidney leave its normal site or rather be thrown from its normal site. This catapulting force within our body is produced by the centrifugal force. All organs within the body are movable, their motility being limited by the extent of their attaching medium, *i. e.* by the stretching point of their ligaments. Whenever the body is suddenly projected in either a verticle or a horizontal direction the movable organs within the body are thrown in the opposite direction by the centrifugal force. We feel that when we are suddenly raised or lowered in an elevator or whenever the motorman of an electric car suddenly releases all the power. Often the organs and vessels are thereby torn or bruised or their attachments are torn and bruised. Having these physical laws before us, how can we apply them to explain the cause of nephroptosis? It stands to reason that, if we can find physical laws to be responsible for nephroptosis, then we can readily see why males and females, young and old can have it. In accordance with the statements just made, if we could find that the body is at any time being projected forcefully or violently so that the centrifugal power would come into play then we could find the cause of nephroptosis. We do not have to dig very deeply for such facts. Such facts are known to all of us. We see them in the method a good many have of showing their joy over infants. The fond father, the fond mother, the happy family or the loving friends in their exultation throw the baby in the air. This procedure is often repeated, during which the kidneys are gradually loosened; the centrifugal force comes into play and catapults the kidneys away from their attachment, a little every time. What adults feel when shot down or up an elevator also happens in the infant. If we assume the truth of this theory we can explain nephroptosis in every case, male or female, old or young. The rope jumping of children which has claimed many a young life thus reveals and explains its danger.

The normal kidneys can be seen about one inch away from the spine and about two inches above the crest of the ilia. An oval-shaped body, one by one and a half inches in diameter, can be seen to recede with inspiration and come down suddenly and with a jerk at the end of expiration. If the kidneys are not present at that location, if there is nephroptosis such a phenomenon is absent and there is a hollow to correspond. It is this hollow that we can see, and whenever we see that hollow we can make the diagnosis of nephroptosis. The method

which I wish to bring out now differs from the one just mentioned and which appeared in my first monograph. My present method is to stand in front and close to the side of the patient, then bending down the head to the level of the patient's hip to bring the eyes to the plane of the patient's spine. I now observe the profile of the skin over the outer border of the longissimus dorsi muscle. In the normal body with the kidneys in the correct situation the line of the profile I see slopes down gracefully over the buttocks. The line runs down vertically, straight from the last rib to the region of the level of the crest of the ilium and then over the buttocks. But in nephroptosis the profile shows a bending in, a concavity at the level of the crest of the ilium.

A distended bowel may, however, partially or entirely obliterate that depression. If we place the patient on the back we will invariably see an elevation on the right side of the abdomen, its location corresponding with the location of the displaced kidney. This elevation upon the abdomen is seen now higher and again lower in different subjects and in different degress of nephroptosis. This method of diagnosis of nephroptosis by inspection applies to females; I am not yet satisfied that it applies as well to the male owing to the different anatomical construction of the pelvis.

In conclusion, I again ask that the profession take up the matter and attempt to learn, by practice, the art of seeing beneath the skin. I am sure that every one who so desires will gradually acquire that method of seeing beneath the skin which is not magic, is no superior or superhuman gift; it can be quickly learned by every physician and it is well worth our efforts.

616 Madison Avenue.

"LETTERS TO A NEUROLOGIST."

SECOND SERIES.

By JOSEPH COLLINS, M.D.,

NEW YORK.

PHYSICIAN TO THE NEW YORK NEUROLOGICAL INSTITUTE.

I.

Dear Doctor: I am bewildered. A few weeks ago I read in the paper an interview with one of your profession which set forth that alcohol in any form is not only injurious to the consumer, but that it entails disaster of some kind upon his descendants. A few days later I read in a magazine an elaborate article, by a physician, in which it was stated that alcohol is injurious even when taken most temperately, and that such use of it, even though not habitual, causes dreadful diseases, cruelly and effectively handicaps the drinker in the struggle for livelihood, stultifies his efforts, undermines his moral sense, accentuates his weaknesses, exaggerates his limitations, debases his character, curtails his effectiveness as a member of society, dwarfs him in his resemblance to his Creator, and unfits him for the honor in which he takes most pride, viz., to reproduce his kind. In brief, such indulgence emasculates him physically, mentally, and potentially. Yesterday I read a symposium on the subject in the Sunday *Planet*. From this I gather there is no unanimity of opinion on the part of authoritative writers, but the preponderance of evidence is that the temperate and non-habitual use of mild alcoholic beverages is not injurious to one's minds, morals, or descendants. Then I got interested in earnest and I devoted my evenings to scientific journals in which are set forth the results of deliberately planned and carefully conducted experimentation by physiologists and psychologists. The bewilderment that I have mentioned soon followed. I really do not see my way clear to advise my own son, who you know has just entered the Law School of ———— University, or what to do myself in regard to taking stimulant. Ever since we were in college together, I have taken, as you very well know, a small quantity of one wine or another with my dinner, and occasionally I have taken spirits. I am not dependent upon alcohol, so far as I know. That is, I mean to say, I could get along without it, just as I could get along with a smaller house, or one less servant, or one overcoat. But I prefer not to do any of them, for to do so would cramp my comfort. It would add a little friction to my life which I choose to avoid, and so long as my conduct in this respect does not encroach upon the rights or joys of others, why shouldn't I do as I am doing? Now that, is just my position about taking stimulants as I take them, and practically this is the point of view that I have tried to give my children. When Roger went to Concord to school, I told him that the assurance that he would not touch intoxicants before he graduated from college would give his mother more happiness than anything in this world, and also that I was convinced that if he would so abstain, not only would he not regret it, but that later in life when he had to assume the responsibility of steering the ship of life for others, he would hold this action one of his most valued possessions. I have every reason to believe that he did not know the taste of beer, wine, or spirits until this summer, when he took it at our table, and with the entire approbation of his mother and myself.

There is no more temptation for young fellows to drink in dear old ———— than there was when we were there twenty-five years ago, and were it otherwise, I hope Roger would still have exercised the same self-control. Now it is an entirely different matter. He has reached the age of decision and discretion. He is beginning to associate with young men who will be his peers and competitors in his chosen profession. The impression that he makes upon them now will endure throughout life, and it is similar to that he will make upon others with whom he comes in contact when he goes out into the world to win his way. I want him to be virile and poised as much as I want him to be courteous and modest. I don't want him to be thought a mollycoddle or to develop any vestiges of sanctimoniousness. A young man who is a total abstainer is to my mind a marked figure. When I encounter such a one, unconsciously I register a judgment that either he is a reformer or a weakling, and as I have a prejudice against the one and a pity for the other, no doubt I often do him an injustice and obstacle myself to a desirable intimacy. I want to have my boy spared such judgments.

But here is the crux of the matter. If this boy's health and usefulness and most obvious purpose is going to be shattered, impaired, and negatived by temperate consumption of those fluids that contribute to comfort, well-being, and *joie de vivre*, I should like to know it, for I feel that I am under pressing obligations to inform him convincingly concerning it. Moreover, if it is so, my own conduct is most reprehensible. In the first

place, I wish to avoid any such scene as Stephen Phillips depicts in the question,

"Why is my body then so weak?
Why do I falter in the race
And flag behind this mighty pace?
Why is my strength so quickly flown?"

and secondly, I am not keen on laying up for myself countless nights of pain and endless days of misery. So far as my drinking impairs my mental efficiency or encroaches upon my capacity to discharge my duty to the community, I don't need counsel. The use of alcohol may "diminish the intellectual functions by dulling the creative faculty, impairing judgment, vitiating the correctness of perceptions, and by generating timidity," as one of your confrères recently stated in the public prints, but until he or someone else proves it, I choose not to believe it, in the same way as I choose not to believe that Mars is inhabited by man, that disease does not exist, that there are more than five senses, much assertion to the contrary notwithstanding. I may not be the best judge, but I am an adequate judge, and I don't concede that a scietific investigator or solicitous neighbor has any right or justification to concern himself about these matters. If my conduct or mode of life entails pain or penalty to others, even though they are remote from me or my time, I want to know it, that I may compensate or indemnify, and give earnest of my regret so far as it is still within my power to do so. Therefore I turn to you, dear old friend and fellow-playmate, for orientation. I think I deprecate the curse of alcohol as much as anyone, and I appreciate what is meant when it is referred to as the bane of humanity. I know your views on this aspect of the subject and I am not asking you to reiterate them. What I want is a plain statement of the effects of the moderate use of alcohol upon the average adult. You may assume that I know that what is moderate for one man is excessive for another, than one man's meat is another man's poison; that we can do with impunity at twenty that which would be recklessness at fifty, etc. The one thing that I ask you not to assume is that I believe any statement of a zealot when not supported by positive proof. Statistics in the hands of total abstainers are, in my judgment, not necessarily appropriate material for the deduction of facts.

Yours affectionately.

Dear Paul:—I could answer your letter very briefly. There are no real facts founded on scientific investigation to show that the habitual use of alcohol in small quantities is dangerous to the adult consumer, or perilous to his descendants. I judge, however, that you do not want dogma, therefore I am going to reply to it in some detail and you can draw your own conclusions. You know what metabolism is, I have no doubt. It is the equivalent of all the chemical processes that go on in the human body. Metabolism is life—anything that interferes with metabolism interferes with life. When taken beyond a certain amount, alcohol interferes with metabolism; therefore it becomes all-important to know approximately what the amount is. The best advice at present would seem to be that furnished by Prof. Abel of Johns Hopkins University. The limit that is physiologically permissible is from two-thirds to three-quarters of an ounce of absolute alcohol; that is, one-half pint of champagne, one and one-half ounces of whiskey, or two to three glasses of beer. This is less than one-half the amount which has usually been considered safe for an adult to take in 24 hours.

I maintain that the question "Is alcohol a food?" is not germane to our discussion, even though so much is made of it and even though it permits the brilliant rejoinder, that if it is, it is a poisoned food. Let us grant that it is a poison. Is that any reason why we should not take it, if our intellect justifies us in so doing? Are not drinks and articles in common use poisonous? We do not hesitate to use strychnine and arsenic and mercury day after day for months and years although they are poisonous. The question is, can they be utilized to the advantage of the individual or to those who come into any relationship with him? I do not recall that any great amount of energy has been expended in endeavoring to find out if tobacco is a food; or if theater-going is an ailment, or if listening to music increases our oxidation. The question is, Does indulgence in one or all of them make life more worth living than it is without them? Their non-injuriousness being assured, there seems to me rather a general unanimity of belief on the part of those who have had experience, that temperate indulgence in the cup that cheers and likewise inebriates, contributes materially to the joy of living, smooths many rough places, cheers many despairing minds, and brings respite to many sorrowing souls. It likewise lightens the terror of many painfully prosaic and commonplace experiences of life, such as residence in the suburbs and commuting to the city, discharging domestics, moving day, etc. Nor do I gather from your letter that you wish to know from me whether or not alcohol is a real stimulant. You know, as well as I do, that it causes the individual who takes it to feel stimulated. Whether or not it is a physiological stimulant in the strict sense of the term remains to be determined; it certainly deadens fear, dispells apprehensiveness, and puts to flight morbid thoughts. It therefore displays itself in the garb of stimulation. That the majority of my profession think it is a real stimulant is amply indicated by the reports of practically all the hospitals in Christendom, in which the expenditure for alcoholics is a very considerable item.

"Alcohol has no place in the economy of nature," says one recent fanatical writer. If it is not one of Nature's economies to contribute to the happiness and well-being of her most advanced product, she is a spendthrift stepmother. "Alcohol stamps out initiation and interferes with creative thought," says another, but because von Helmholtz could not think so effectively or so creatively after he had taken small quantities, it does not follow that Smith or Jones cannot; in fact, both you and I know many of the Smith and Jones family who never have creative thoughts except after they have taken alcoholic stimulant.

It is probable that no one questions the fact that the intemperate use of alcohol is directly and indirectly a potent cause of insanity, imbecility, and illegitimacy, any more than one contends that mankind would be vastly improved physically, mentally, and morally if alcohol were taken out of the world. To satisfy the appetite for food is commendable and salutary, but to eat like a beast of the

forest until capacity is taxed, is fraught with danger to health and prejudicial to morality. Scrupulosity and veracity are qualities that adorn a character, as precious stones adorn a crown, but morbid scrupulosity and the New England conscience are the Scylla and Charybdis upon which many a fine character has foundered in its endeavor to get from a landlocked harbor to the open sea and plain sailing.

It means nothing to me, and I have no doubt it is equally meaningless to you, to be told that out of 25,000 idiots, imbeciles, and epileptics in the Bicêtre Hospital in Paris, 41 per cent. were of drunken parents, save that 51 per cent. of them had parents that were total abstainers! So much the worse for them. Moral: Don't be a total abstainer. Of course this is *reductio ad absurdum* with a vengeance. Anyone who amounts to anything cannot be frightened into abstaining from alcohol, and if he is not such a person, it isn't worth while. So far as any real incontestable facts exist to show that the so-called idiopathic nervous and mental disorders are caused by parental alcoholism, it is my belief that they do not exist. Furthermore, I do not believe that anything is to be gained by the use of statistics as they have been collected in the past. "Alcohol is a potent factor in the causation of nervous and mental diseases," is a statement that is frequently encountered in medical and lay writings. But aside from one nervous disease, multiple neuritis, and two or three well-defined varieties of insanity, there is not the slightest demonstrable evidence that such a statement is true. The same may be said of most, possibly all, of the organic diseases attributed to alcohol, such as arteriosclerosis, cirrhosis of the liver, diabetes, gout, obesity, etc. It is quite as easy to prove by statistics that chronic alcoholism has nothing to do with the causation of arteriosclerosis, as it is one of the commonest causes of it. I don't want you to think this is my say so; I refer you to the article by Cabot.

I believe with Kraepelin and his pupils that alcohol in small quantities for a considerable length of time diminishes all form of mental activity, but sometimes it is a very desirable thing to diminish mental activity. It is always diminished in reverie, oftentimes in meditation, two of the most pleasurable experiences that in man alone is permitted. But just because ten hours of sleep is gratefully received once a fortnight or year, it doesn't follow that it would be desirable and beneficial to have it every night. Zealous advocates of total abstinence have recently tried to make propaganda out of this work of Kraepelin's, for it is based on laboratory tests and accurate measurements. Alcohol kills the creative faculty, they say, then they help memorialize Poe and seriously discuss whether he or Hawthorne shall be called the premier of American letters. It impairs judgment, they say, yet the man of this country upon whose judgment time is setting the seal of approbation more conspicuously as the years go by took alcohol temperately, and at times, it is said, intemperately. "It vitiates the correctness of perception and generates timidity," but the greatest general of the Civil War didn't display any particular incorrectness of perception or timidity. If I were to make a list of all the great writers and creators or thinkers of the past or the present, who used alcohol habitually, you wouldn't notice any conspicuous absentees the first few times you read it. Would Burns have written more soulful lyrics if he had not drank, or would Charles Lamb's memory loom up more imperishably or would Oliver Goldsmith's niche be above Shelley's if he had not consumed more ardent spirits than the latter?

How absurd it all is! To publish yourself an advocate of total abstinence, to endeavor to convert persons to your views by intimidation is to publish yourself a crank and a fanatic. Most well-balanced persons are keen to learn what may contribute to their prosperity and well-being, and on being appraised, they conform their conduct accordingly.

Health and happiness encompass the desires of the average individual. The former often exists without the latter, but a considerable degree of health is necessary to the average individual if he is to be happy. Hence the necessity of avoiding those experiences that rob us of it. That alcohol does so when taken in excess, and particularly when taken steadily, is universally admitted, but that it does so when taken temperately and at irregular intervals most persons competent to judge deny. No one has the opportunity of witnessing the baneful, pernicious, and injurious effects of taking alcohol that the physician has, and probably few physicians maintain that the use of alcohol except on special occasions is beneficial to health. The physician's work soon teaches him to recognize limitations, and to see things as they are. Consumption of alcohol is well-nigh universal, and from time immemorial, whenever man has had the chance, he has had recourse to it as an adjuvant to every pleasurable indulgence and undertaking, and this condition of affairs is not going to cease under the influence of fanatical cries from the housetops about the injuries that temperate consumers of it are doing themselves. The way to bring about reform is by education, not by fright. The teachings of the past concerning hell retarded the progress of the Christian religion, and nowadays reference to it as a deterring factor to immorality is, I fancy, not considered very effective even by the most orthodox. You can't intimidate pleasure-loving man by threatening him with possibilities of pain. We can reason with him, however, and if our reasoning is sound, we can convince him. In other words, we can educate him. It is generally conceded that the plastic period of youth is the time when education is most easily acquired. My belief is that Roger needs only to be appraised of the dangers flowing out of the abuse of alcohol, and he will warn himself. Certain it is that if he doesn't contract the habit of becoming dependent upon alcohol for any purpose, emotional or physical, during the next ten years, he won't contract it at all.

As for yourself, you don't need advice, but I have great pleasure in referring you for encouragement in your conduct to one Quintus Horatius Flaccus, who I recall shared with me the intimacy of your youth, and whose lines,

> "Ille potens sui
> Lætusque deget," etc.

I have often heard you quote, even in the days when you were not so conspicuously adorned with the "mens æqua" as you are now. In Ode XXI you will find him thus apostrophizing his Wine Cask:

"You lend a gentle stimulus to minds 'tis hard to stir, you reveal by cheering wine the cares and secrets of the wise; to minds perplexed you hope restore, and to the poor man give both strength and power, for after you he fears not threatening crests of angry kings nor soldier's arms."

Devotedly yours,

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THE FIRST GUN OF THE ANTIVIVISECTION CAMPAIGN.

THE antivivisectionists so-called, that is the misguided, the ignorant, and the fanatics who have no objection to live-broiled lobsters, "live feather" pillows, spring traps for mice, sticky fly paper, and other forms innumerable of torture of the brute creation, but shudder at the use of animals for the manufacture of vaccine and antitoxins or for the gaining of knowledge that will aid in saving human life, have opened their annual campaign by an attack on the Rockefeller Institute. A newspaper of this city, whose proprietor is said to have a reason, though no excuse, for disliking medical men, has begun the publication of affidavits from discharged employees of the institute, picturing the "horrors" of animal experiments, particularly the epoch-making experiments of Carrel on blood-vessel anastomosis and the transplantation of viscera and other parts. It is made to appear that these are revelations of the secrets of the torture chamber, though all that these persons have to tell has already been told time and again in reports to societies and in the medical and other scientific journals, and even in the secular press. Among the horrors mentioned is that the experimenter after grafting a leg on a dog "twisted" it to see if the bones were knitting, and the impression intended to be conveyed is that the limb was turned round and round provoking howls of agony. An experimenter, no matter how "cruel" he was, would not be so foolish as to vitiate his experiment by breaking up the adhesions in this senseless way, and what he did, if he "twisted" the leg at all, was what every surgeon does with a fractured bone to assure himself that union is taking place. Another harrowing detail is that the dogs, when operated upon, under an anesthetic it is admitted, lost more or less blood. Still another is that when one of the operations failed and the dog was in pain he was chloroformed at once so that he should not suffer. And so with all the rest of this well-paid-for matter. The head lines are horrible, but any one of moderate intelligence, reading the affidavits and noting the character of the experiments and that they were always done under anesthesia, can see that they were conducted with no more "cruelty" than any surgical operation on man or beast. Many columns of equally hideous and bloody details could be written from the account of a scrubwoman or a day laborer who was allowed the run of the operating room and surgical wards of a hospital for a day or a week; and the surgeons who were racking their nerves and wearying their flesh in the endeavor to relieve pain and save life could with equal effect be called butchers in the stirring head lines.

In commenting on these "revelations" the *Herald* says that "no important discovery or improvement results from these tortures," which is, of course, untrue, and should have been known by the writer to be untrue. In a hearing on one of the antivivisection bills before the New York Legislature a physician told of the saving of the life of his child by an operation which would have been impossible without these very experiments at the Rockefeller Institute. A very large part of modern medical science is indeed based upon the knowledge gained by experiments upon animals, which could not have been gained in any other way. Diphtheria, tetanus, cerebrospinal meningitis, infantile paralysis, and many other scourges of mankind have been or are in course of being shorn of their terrors as a result of animal experimentation, many life-saving drugs have been given to the world by the same means, and the science and art of surgery might as well have been left to the barbers had animal experimentation been impossible. Millions of animals, birds, and fishes are tortured and slain every year to provide food, clothing, and mere sport for mankind, and the zoophilists say nothing; but when a few hundred or a thousand animals are sacrificed for the sake of knowledge that will save the lives of countless children and avert destructive epidemics, a cry of pain goes up, and the lawmakers are prayed to arrest the progress of medical science. They will not do it, of course, they cannot do it, for the great mass of humanity is sane, but the periodical agitation against animal experimentation is none the less distressing to the lovers of their kind. It is inevitable, we suppose, so long as there are ignorant and unreasoning people in the world, and we are not sure that it is not useful, for it provokes discussion and is the incentive to a campaign of education. Lincoln's faith in the common sense of the common people was founded upon his knowledge of them and is ever justified. The people need but to be instructed, to learn the facts, and to be shown the results of animal experimentation, and medical science will not be thwarted in its labors for humanity.

THE ROLE OF FATS IN THE TREATMENT OF DISORDERS OF THE STOMACH.

IT used to be thought that those who suffered from dyspepsia, or from any form of gastric trouble which induced undue acidity of the stomach, were better without the ingestion of fat, except to quite a limited extent. However, within comparatively recent times this theory has been overturned, or if not completely overturned, viewed with a considerable amount of doubt. In alluding to fat in the treatment of certain gastric disorders, the substance is not referred to as an article of diet only, but also as the basis of

a therapeutic régime designed to produce a definite remedial effect on the disordered secretory activity of the stomach and, as pointed out by F. Craven Moore and R. L. Ferguson (*Lancet*, December 11, 1909), based upon the recognition of the frequency with which excessive secretory activity of the gastric glands obtains as a pathological condition, and on the demonstration of the depressant action of fats on the activity of normal gastric secretion.

Penzoldt was one of the first to confirm in some degree the suspicion long held that the presence of fats in the stomach interfered, in an unknown way, with gastric digestion. He observed that a mixture of coffee and cream yielded a lower acidity of the stomach than coffee alone. Ewald and Boas, at a later date, proved more conclusively that the addition of bacon fat to the test breakfast, with which their names are associated, resulted in a prolongation of the period of gastric digestion and a marked diminution in the amount of free hydrochloric acid in the stomach contents. These observations did not favor, at the time, the employment of fat as a therapeutic agent in the treatment of disordered secretory activity of the stomach, for the belief was prevalent that the administration of fats in gastric disorders, and especially in those of the acid dyspepsia type, was contraindicated, because it was deemed that they would induce further depression of functional activity, and perhaps be the means of providing a source for the harmful acids themselves.

The German school showed the fallacy of these beliefs, and demonstrated the fact that in acid dyspepsia the ofttimes excessively high acidity of the stomach contents was not due to organic acids, but to an abnormally high content in hydrochloric acid itself. The foregoing view of the disorders of secretory activity is perhaps that now most generally held, although it must be allowed that belief in the acid dyspepsia of organic acid fermentation is by no means dead, but is still the conception of the matter by many well-known authorities.

The new theory owes much to the investigations of Pavlov and his fellow workers, who have placed it upon a more accurate basis and have likewise thrown out valuable suggestions as to the treatment of disorders of functional activity. The workers in the laboratories of Pavlov seem to have established by their observations that liquid fats, olive oil and cream, are devoid of any stimulating influence on gastric secretion when introduced directly into the stomach of the dog, and that really their presence exerts an inhibitory influence on the normal energy of the secretory process excited by other food stuffs. Subsequent to these demonstrations with regard to the dog, some European investigators employed liquid fats in the treatment of morbid conditions of the human stomach which were associated with hyperacidity of its contents. Cream and butter were first used, then almond oil, and lastly pure olive oil. The outcome of this treatment is said to have been so satisfactory that the method well-nigh attained the dignity of an "oil cure." Drs. Moore and Ferguson, by their own observations, confirmed the beneficial nature of this mode of treatment. Cohnheim was one of the first to advocate the employment of pure olive oil, and on the appearance of his paper on the subject Moore and Ferguson tried it in a few cases with such obviously beneficial results, not only in diminishing the acidity of the stomach contents, but also in relieving the subjective discomfort and promoting the general nutrition of the patient, that further investigation of the influence of fats appeared to them desirable and they carried out a series of experiments. The oil treatment was employed in cases of gastric ulcer, duodenal ulcer, carcinoma of stomach, nervous dyspepsia, dilatation of stomach (atonic), alcoholism, and constipation. The tests were made with a plain test breakfast and an oil test breakfast on consecutive days and the results compared. The oil test breakfast was an ordinary breakfast preceded 30 minutes by one ounce of almond oil, and in the stomach contents the free HCl and the total acidity were estimated. On averaging the results in each of the several series it appeared that the greatest absolute diminution in the acid values after the administration of oil obtained in those which presented the highest average acidities with the plain test breakfast, and as appeared from a comparison of the average results in the cases of gastric ulcer, duodenal ulcer, and nervous dyspepsia, irrespective of the presence or absence of any lesion of the stomach.

As to the peptic activity of the stomach contents, it was found in 12 cases in which observations were made that the digestive power was diminished with the acid values, a result, according to the authors, due in part no doubt to the deficiency in HCl, but also, as shown by the dilution method, to an absolute diminution in the peptic content of the filtrate. Moore and Ferguson conclude from a clinical standpoint that their experience of the administration of fats, such as cream, butter, or almond oil, in conditions in which hyperacidity of the stomach contents have been found to exist, has shown this action of fats to be associated with a very definite amelioration of the subjective manifestations of the condition. In simple forms of hyperacidity depending upon slight degrees of hypersecretion the addition of cream and butter in abundance to the diet, with a diminution of the starches, will often suffice to remove the subjective manifestations. Almond oil is used only in the more severe types of hypersecretion, and then in doses of one ounce the first thing in the morning and repeated before subsequent meals if necessary. It is stated that in all cases oil thus administered has been well tolerated and has in no instance proved objectionable.

The oil treatment as a means of neutralizing extreme acidity of the stomach contents is founded on sound premises if the belief is correct that such hyperacidity is more frequently due to the fact that excessive secretory activity of the gastric glands obtains as a pathological condition, than to defective activity of the same. At any rate, it is certain that fats have a depressant action on the activity of normal gastric secretion, and it seems to be certain that this depressant action has a favorable influence on extreme acidity of the stomach contents, therefore, it may be argued that fats should be administered in cases in which this

condition exists. Possibly the treatment has not been sufficiently tested to warrant the advocacy of its use with absolute confidence, but in these days when nervous dyspepsia and hyperacidity of the stomach from many causes are so prevalent the method is, at least, worthy of a trial. It is simple and harmless. There is one point in the paper in the *Lancet* to which exception may be taken, and that is, that oil is well tolerated in all cases. There are, without doubt, cases of hyperacidity in which there is a distinct repugnance to oil.

PRECISION IN THE TREATMENT OF WHOOPING COUGH.

THERE are but few diseases in which the dicta of the therapeutic nihilists are justified to the degree to which they are in whooping cough, and there is probably none in which the layman is more cognizant of the ineffectiveness of medicines. The result of this is twofold, either the mother of the whooping child bows to Fate, does not call in the services of the physician, and allows the child to mingle unrestrictedly with its mates, or else the physician, on being consulted, feels that there is so little that he can do that he either does nothing or is so half-hearted in his instructions that the mother makes little effort to carry them out. It is therefore with pleasure and profit that one reads in the November issue of the *Cleveland Medical Journal* an appeal by E. F. Cushing for more care and attention to detail in the treatment of this disagreeable, dangerous, and highly contagious disease.

The first point emphasized in this article is the early diagnosis, which, in order to raise the physician above the grandmother as a diagnostician, must be made long before the first whoop. For this a careful blood examination should be made, for even in the early stage of the disease there is a marked leucocytosis with a preponderance of lymphocytes. Such a blood picture, combined with a catarrhal cough, when pertussis is prevalent, is strong evidence of the onset of the disease. When the diagnosis has once been made, the child should be put to bed, and kept there during the initial days of fever. Later, by taking the temperature each evening and again putting the child to bed and notifying the physician whenever the thermometer registers over 100° F., complications such as bronchitis and pneumonia may be discovered and treated in their incipiency. Fresh air treatment is of the utmost importance, as the preponderance of paroxysms at night is entirely due to the close atmosphere of the sleeping rooms. "The cold, fresh air of the winter night," says Cushing, "is far the most efficient nocturnal sedative for the coughs of pertussis," with which he is familiar. For this reason the windows must be kept open, or, better still, the child should be in one of the outdoor sleeping porches now becoming so popular as a part of the modern house. When the patient is up and about he should be confined to the house or grounds. Driving is allowed, but motoring, except in a slow machine, owing to the irritating effect of dust and rapid air currents, is interdicted. Running, romping, loud laughing, and screaming must be prevented, as each of these tends to precipitate a paroxysm, and, according to the writer, the reduction of the number of these is of the greatest importance, so much so that he requires that each paroxysm be recorded with care, the chart showing not only the number during the day, but the hour at which each occurred. Such a record not only teaches the general progress of the disease, but by giving valuable information as to the immediate exciting cause of the attacks, aids in correcting improper details in the régime. The vomiting may often be prevented by the child lying down for an hour after meals, by giving frequent feedings in small quantities, or by applying Kilmer's abdominal belt. The common drugs, as belladonna, antipyrin, heroin, and opium, all have their place in quieting the cough; belladonna especially being pushed to the physiological effect of flushing. They are, however, secondary in importance to the two main therapeutic factors, namely, fresh air and a precise régime.

These directions as to the treatment of pertussis contain a lesson possibly deeper than the writer intended to impart. In it we are told how to treat the case of whooping cough occurring in the family of the millionaire. A physician who has the personality and force of character which demands and obtains implicit obedience on the part of his patients and their parents, and whose practice is confined largely to the mansions of the wealthy, can easily isolate a child to its own grounds, of possibly several acres of lawn and garden, to the broad piazzas and the sleeping porches, under the supervision of intelligent mothers and a corps of well-trained and well-tried nurses. Under such surroundings the precision of details may easily be carried out and beneficial results obtained.

The lesson, however, which the paper teaches to the rank and file of the profession, is the extreme difficulty or even impossibility of carrying out such a régime in the vast majority of the cases of pertussis, occurring as they do in the tenement house districts of our large cities. No doubt, with the proper care and precision in treatment, much could be accomplished and many hundreds of the urban poor could be saved from this disease. Most of the cities, however, make no provision for the child with whooping cough. For scarlet fever, diphtheria, or measles, typhoid, pneumonia, or enteritis the portals of the public and private hospitals are thrown wide, but the poor child with pertussis is driven from pillar to post, from clinic to hospital to find all doors closed, and to return to the small, dark overcrowded rooms of its tenement house home. Let those who control our private charities and our city funds take heed of this question of the treatment of whooping cough, supply adequate institutions where fresh air and porches abound. If this is done, we may then hope, with the proper isolation and care of the children, for a decrease, not only of pertussis, but of its sequelæ, bronchitis, pneumonia, and tuberculosis as well.

Recurrences in Cancer.

The question of the cause of recurrence in cancer is not always one that is easy of solution. It may be that the operator has not removed sufficient tissue and diseased cells have remained behind, or possibly, and most probably, reinfection takes place by means of the lymphatics. If the latter is the case, how may we prevent this reinfection? There is much evidence to show that cancer cells are grafted on new soil in the course of operative procedures for the removal of malignant growths. The method of this grafting comes about through the use of the same instruments for extending the denuded area that have been employed in the removal of the growth. Another way is by contact of the operator's hands, which have not been sterilized since the early stages of the operation, during which the growth has been handled. F. Jacoulet, in the *Archives Générales de Chirurgie*, for October 25, 1909, gives some interesting illustrative cases showing how recurrence was produced by these methods in operations on the tongue. The removal of two incisor teeth to give room for the operation gave occasion and opportunity for recurrence in this location, which was previously healthy. The lymph channels are ready to take up and carry along cells that have contaminated the wound of entrance, and only a passing contact of tissues containing these cells is necessary. The preventive treatment of such grafts consists in avoiding the morcellation of the tumor during removal; in the resterilization of every instrument that has been used in the removal of the growth before it is employed in the further procedure of closing the wound or suturing the skin; in the resterilization of the operator's hands, or the removal of rubber gloves and the substitution of freshly sterilized ones after the extirpation of the cancer, before completing the operation. As small a wound as possible should be made, forceps without teeth should be used in operations on the tongue and insertion of a thread to aid in handling the tongue should be forbidden. This subject merits further study. We must not forget that in a cancer subject we have undoubtedly to deal with a special susceptibility of the tissues, and that autoinoculation is an ever-present danger.

News of the Week.

Physical Training in New York Schools.—Physical training has been placed on the same basis as other branches of education in the schools of this city. Pupils are to be graded for their physical training work, their progress or lack of progress counting in the credits necessary to graduation. This innovation has just been introduced by an order issued by Superintendent William H. Maxwell, upon the authority of the Board of Education. In estimating the ratings for graduation, the order says, the following points are to be considered: First—The effort and the success of the student to follow out the instructions in hygiene, particularly with regard to cleanliness of face, finger-nails, mouth, teeth, hair, and clothing. Second—Both the ability to assume a correct posture and the habitual posture, particularly when the student is writing or at rest, and the posture when marching, walking, or standing to recite; because good posture is an expression of vigor as well as an evidence of a correct physical habit. The ability of boys to "chin" themselves by raising their weight by their biceps and the facility of the girls in folk dances also are to count. Ability in these dances is to be determined under three heads: Memory, form, and spirit. A child who fails to receive a passing mark in physical training and hygiene will be referred to a school physician for examination and a special report on the case will be made to the district superintendent. Similar standards are to determine the progress of the student from grade to grade.

Care of Sick Immigrants.—Commissioner of Immigration William Williams has issued notice to the steamship companies saying that since they had notified his office that they would not hereafter be responsible for the hospital or maintenance charges of immigrants who on arriving are found to be afflicted with apparently temporary sickness the Government must decline to incur any expense in connection with the care of sick immigrants before they are landed. He also wrote that the Government insisted that the steamship companies were responsible for all charges, but could not be put in the position of being compelled to sue for them. The notice tells the companies that the Government will begin as soon as possible to make preliminary medical examinations of immigrants aboard ships "in order that those who are physically or mentally unfit to land under the immigration law may be detained on the vessels which brought them and not become charges on the public funds. The companies are warned that they must be prepared to have sent back to their vessels such other cases of sickness as may be discovered after the landing of the immigrant at Ellis Island; also, that if it is necessary to place immigrants in hospitals on shore for treatment the companies will be held "responsible for all expenses in accordance with the practice of the last twenty years."

Crusade Against Tuberculosis in Canada.—The following resolution has just been proposed and carried in the Canadian Parliament. That in view of the encouraging results which have come from the money already spent in disseminating information regarding tuberculosis, and of the interest which the people of Canada are taking in the question, and also in view of the great saving in life which has been brought about in other countries by practical work in this connection, the House is of the opinion that Parliament should now take more active steps to further lessen the great suffering and mortality.

Phipps Institute for the University of Pennsylvania.—The trustees of the University of Pennsylvania have announced that Henry Phipps of New York, founder of the Phipps Institute in Philadelphia, has presented to the university $500,000, to be used in the campaign against tuberculosis. The management of the Phipps Institute will be in the hands of the university trustees, and the study, treatment, and prevention of the disease will be continued in a new hospital to be erected at Seventh and Lombard streets.

Charitable Gifts.—The president of the New Haven General Hospital Society has announced a gift of $300,000 for the treatment of tuberculosis. It is understood that the aim of the hospital in accepting the gift and beginning the treatment will be to apply current methods for relieving and curing the disease rather than to pursue original research work in seeking new cures. For the present the name of the donor of the gift will not be made public. As soon as the weather will allow work will

be begun on new buildings. Some of the structures will be placed on the hospital grounds, in Cedar street, while others will probably be in the country at a higher altitude. The Lowell (Mass.) General Hospital has received a gift of $50,000, to be added to the endowment fund of the institution from Mr. Frederick Fanning Ayer of New York. By the will of the late Augusta Bechtel of Philadelphia, the sum of $5,000 is bequeathed to the German Hospital, for the endowment of a free bed in memory of the parents of the deceased, and $5,000 to the Germantown Hospital in memory of her husband.

Civil Service Examinations for the State and County Service.—The State Civil Service Commission will hold examinations on January 22, 1910, for the following positions: Assistant Bacteriologist, Department of Health, $900 to $1,200. Assistant Superintendent, Monroe County Almshouse Hospital, $600 and maintenance; open to women of Monroe County only. City Physician, Rochester, N. Y., under Monroe County Superintendent of the Poor, $200 per annum. Director of Laboratories, Department of Health, $3,000 per annum. Photographic Assistant, Pathological Institute, New York City, $720; men only. Physician, homeopathic, and physician, regular, $900 to $1,200. Resident Medical Superintendent, Monroe County Almshouse, $1,000 to $1,200 and maintenance; men only. Trained nurse, State institutions; men and women; $420 to $600 and maintenance. Water Analyst, Department of Health, $720 to $900. Woman physician, State hospitals and institutions, $1,000 and maintenance; to fill vacancy at Craig Colony. Applications should be filed on or before January 15th. For detailed circular and application blank, address State Civil Service Commission, Albany, N. Y.

Edward N. Gibbs Fund for Research in Diseases of the Kidney.—The Council of the New York Academy of Medicine desires to announce that the income of the Edward N. Gibbs fund, amounting to five hundred dollars a year, will be granted for a period of years to any qualified worker to be selected by the Council from those who may apply for its use in research in the clinical, pathological, or chemical problems of diseases of the kidney. Applications stating the qualifications of the applicant and the topic which he proposes to pursue should be sent to the Secretary of the Council of the New York Academy of Medicine, 17 West 43d street, New York City, N. Y.

The Mary Putnam Jacobi Fellowship.—The Women's Medical Association of New York City offers the Mary Putnam Jacobi fellowship of $800 available for post-graduate study. It is open to any woman graduate in medicine. The fellowship will not be awarded by competitive examination, but upon proof of ability and promise of success in the chosen line of work. Applications for the year 1910-11 must be in the hands of the committee on award by March 1, 1910, and must be accompanied by: 1. Testimonials as to thoroughly good health. 2. Letters as to ability and character. 3. A detailed account of educational qualifications. 4. A statement of the work in which the applicant proposes to engage while holding the fellowship. 5. Examples, if any, of her work, in the form of articles or accounts of investigations which she has carried out. When possible it is considered desirable that the applicant should present herself in person to the committee. Two reports will be expected from the holder of the fellowship, one to be presented about the middle of the work and a detailed report upon its completion. As a rule, the fellowship will be awarded but once to an applicant; in case of unusual ability a reaward will be considered. All applications for this fellowship should be forwarded to the chairman of the committee on award, Emily Lewi, M.D., 35 Mt. Morris Park, West, New York City.

The Metropolitan Life Insurance Company has recently had a list compiled of all institutions in the United States and Canada having for their object either the prevention or treatment of tuberculosis. It has also issued a pamphlet entitled, "A War Upon Consumption," to be distributed among the policy-holders, giving in simple and concise form the fundamental facts concerning tuberculosis. The company requests in this article that if for any reason a policy-holder should think he had tuberculosis, he should fill out the form blank on the last page of the pamphlet and return it. As soon as this blank is received a list of the institutions in his locality will be immediately forwarded.

Fire in a State Hospital.—Three wards of the Vermont State Hospital at Waterbury, Vt., were destroyed by fire on December 24. The loss was in the neighborhood of $100,000. No lives were lost.

Epidemic of Acute Anterior Poliomyelitis in Ontario.—There is an outreak of acute anterior poliomyelitis on a somewhat large scale in a country district of Ontario. An inspector of the Ontario Public Health Board has been dispatched and a report will be issued shortly.

Dr. George Morewood Lefferts of this city has resigned from his position of collaborator in the *Internationales Centralblatt für Laryngologie*, which he has held for the past 25 years. Until the year 1900 he held the position of sole collaborator for America, since which time in association with Dr. Emil Mayer, of this city, the latter being now the only collaborator.

Dr. William J. Robinson, editor of the *Critic and Guide*, the *American Journal of Urology*, and *Therapeutic Medicine*, has purchased the Chicago *Clinic* and has consolidated it with *Therapeutic Medicine*.

"Annals of Surgery" Jubilee.—The *Annals of Surgery* with the December number has completed its fiftieth volume. The event is celebrated by the publication of a jubilee number of nearly 400 pages, containing articles from surgeons of many different countries and an exceptionally profuse set of illustrations.

The Bulletin of the Municipal Commission on Tuberculosis of St. Louis has recently been put in charge of Dr. Kenneth W. Millican as editor. Dr. Millican was formerly associate editor of the *New York Medical Journal*, was on the editorial staff of the *Journal of the American Medical Association*, and editor of the *St. Louis Medical Review*.

Philadelphia Academy of the Natural Sciences.—At the annual meeting held December 22 the following officers were elected for the ensuing year: *President*, Dr. Samuel G. Dixon; *Vice-presidents*, Dr. Arthur E. Brown and Dr. Edwin G. Conklin; *Recording Secretary*, Dr. Edward J. Nolan; *Corresponding Secretary*, Dr. Percy G. Moore; *Treasurer*, George Vaux; *Librarian*, Dr. Edward J. Nolan; *Curators*, Dr. Arthur E. Brown, Dr. Samuel G. Dixon, Dr. Henry A. Pilsbury, and Witmer Stone; *Councillors*, Dr. Philip P. Calvert, Dr. Thomas Biddle, Frederick Prime, Frank J. Keeley.

The Eastern Medical Society of the City of New York, at a meeting held recently, elected the following officers to serve during the year 1910: *President,* Dr. J. Rongy; *Vice-presidents,* Dr. A. Hymanson and Dr. M. M. Stark; *Recording Secretary,* Dr. M. O. Magid; *Corresponding Secretary,* Dr. H. E. Isaacs; *Treasurer,* Dr. J. Bieber.

The East Side Physicians' Association.—The annual meeting of this society took place at Scheffel Hall, December 23, 1909. Dr. Simon Flexner delivered an address on "Medical Education and Medical Publications of 1890." The following officers were elected: *President,* Wm. M. Leszynsky; *First Vice-President,* Max Ghertler; *Second Vice-President,* Sigmund Epstein; *Secretary,* David L. Satenstein; *Treasurer,* Herman C. Frauenthal; *Trustees,* Robert Abrahams, William S. Gottheil, Abram Brothers; *Chairman Committee on Admissions,* Armin Nettle; *Chairman Committee on Ways and Means,* George Dow Scott.

The United States Pharmacopeal Convention will be held in Washington on May 10, 1910, for the first time as a corporate body. The chairman of the committee on credentials and arrangements is D. Oliver T. Osborne, of New Haven, Conn., and the secretary is Dr. Murray Galt Motter, 1841 Summit Place, N. W., Washington, D. C.

The Cass County (Iowa) Medical Society at its meeting, December 9, elected officers for the ensuing year: *President,* Dr. Mynard of Adair; *Vice-President,* Dr. Morris of Atlantic; *Secretary and Treasurer,* Dr. Max Emmert of Atlantic.

The Central Willamette Valley (Ore.) Medical Association, at a meeting, December 3, 1909, elected officers for the coming year as follows: *President,* Dr. Dale of Harrisburg; *Vice-President,* Dr. J. C. Booth of Lebanon; *Secretary,* Dr. Kavanaugh of Albany, and *Treasurer,* Dr. Ellis of Albany. The association is composed of doctors from Linn, Benton and Lincoln counties.

The Cumberland County (Maine) Medical Society held its annual meeting in Portland, December 10, 1909, and elected the following officers: *President,* Dr. Alfred W. King; *Vice-President,* Dr. S. E. Sylvester; *Secretary,* Dr. George Knight; *Treasurer,* Dr. A. S. Gilson; *Censor,* Dr. Willis Bryant Moulton.

The Dallas County (Tex.) Medical Society, at a meeting held December 4, elected the following officers: *President,* Dr. Edward H. Cary; *Vice-President,* Dr. Thomas Benton Fisher; *Secretary,* Dr. Albert W. Nash.

The El Paso County (Colo.) Medical Society has elected the following officers: *President,* Dr. Gerald B. Webb; *Vice-President,* Dr. Z. H. McClanahan; *Secretary,* Dr. L. H. McKinnie, and *Treasurer,* Dr. George G. Gilmore.

The Jackson County (Mo.) Medical Society at a meeting at Kansas City, held December 7, elected officers as follows: *President,* Dr. B. C. Hyde; *Vice-President,* Dr. J. D. Griffith; *Secretary,* Dr. E. L. Stewart; *Treasurer,* Dr. F. Kuhn.

The Johnson County (Iowa) Medical Society has elected officers for the coming year as follows: *President,* Dr. C. L. Van Epps; *Vice-President,* Dr. C. W. Harned; *Secretary and Treasurer,* Dr. L. W. Littig; *Censor,* Dr. F. L. Love.

The Kent County (Mich.) Medical Society at its annual meeting at Grand Rapids, elected the following officers: *President,* Dr. Richard R. Smith; *Vice-President,* Dr. J. D. Brooks; *Secretary,* Dr. J. D. Hastie; *Treasurer,* Dr. A. V. Wenger.

The Kent County (R. I.) Medical Society meeting at Providence, elected officers for the ensuing year as follows: *President,* Dr. John A. Mack; *Vice-President,* Dr. William S. Reoch; *Secretary,* Dr. Thomas F. Darby; *Treasurer,* Dr. Frank D. Smith.

The Lake County (O.) Medical Society met at Painesville December 6, and elected the following officers: *President,* Dr. J. W. Lowe, of Mentor: *Secretary,* Dr. H. L. Spence, of Painesville; *Treasurer,* Dr. C. M. Hawley, of Painesville.

The Lane County (Ore.) Medical Society has reelected the following officers: *President,* Dr. William Kuykendall; *Vice-President,* Dr. A. W. Kime; *Secretary and Treasurer,* Dr. J. F. Titus.

The Morgan County (Ala.) Medical Society at a meeting held on December 2, elected the following officers: *President,* Dr. W. L. Dinsmore of Decatur; *Vice-President,* Dr. F. B. Hunter; *Secretary-Treasurer,* Dr. J. L. Gunter; *Censor,* Dr. W. B. Watson.

The Racine County (Wis.) Medical Society has elected the following officers at a meeting held at Racine, December 9, 1909: *President,* Dr. W. P. Collins; *Vice-President,* Dr. W. A. Fulton, of Burlington; *Secretary and Treasurer,* Dr. Susan Jones of Racine.

The St. Joseph-Buchanan County (Mo.), Medical Society, meeting at St. Joseph, elected the following officers: *President,* Dr. C. R. Woodson; *Vice-Presidents,* Dr. F. H. Ladd and Dr. Levi S. Long; *Secretary,* Dr. Charles W. Fassett; *Treasurer,* Dr. J. M. Bell; *Censor,* Dr. O. B. Campbell.

The Shawnee County (Kan.) Medical Society has elected the following officers: *President,* Dr. C. F. Menninger, of Topeka; *Vice-President,* Dr. M. C. Porter; *Secretary,* Dr. H. M. Connor; *Treasurer,* Dr. S. A. Johnson.

The Sonoma County (Cal.) Medical Society has elected the following officers: *President,* Dr. S. Z. Peoples of Petaluma, *Vice-President,* Dr. J. Walter Seawell of Healdsburg; *Secretary,* Dr. Jackson Temple of Santa Rosa; *Treasurer,* Dr. Lizzie Lane, of Santa Rosa.

The Waukesha County (Wis.) Medical Society, meeting at Wales on December 3, elected the following officers: *President,* Dr. A. J. Hodgson of Waukesha; *Vice-President,* Dr. William T. Murphy of Waukesha; *Secretary and Treasurer,* Dr. R. E. Davies of Waukesha.

Obituary Notes.—Dr. Samuel Benedict St. John of Hartford, Conn., died at his home December 22, 1909, aged 64 years. He was a graduate of the College of Physicians and Surgeons of New York in 1870. Dr. St. John was well known as an ophthalmologist, having practised in New York before going to Hartford. He was a member of the New York Academy of Medicine, the American Ophthalmological Association, the American Otological Association, and the American Medical Association. Dr. St. John was the ophthalmic and aural surgeon to the Hartford Hospital and consulting ophthalmic and aural surgeon to the St. Francis and the Litchfield County Hospitals.

Dr. J. Preston Miller of Washington, D. C., died recently at his home, aged 58 years. He was

a graduate of the Medical College of Ohio in 1877 and was a member of the Medical Association of the District of Columbia and of the American and British Medical Associations.

Dr. Robert Miller of Providence, R. I., died at his home December 17, 1909, after a long illness. Dr. Miller was a graduate of Brown University in 1858 and of the medical department of the University of Pennsylvania in 1861. He was assistant surgeon of the Fourth Rhode Island Regiment during the Civil War. For many years Dr. Miller was a member of the visiting staff of Rhode Island Hospital and was a member of the Providence District Medical Society and the Rhode Island Medical Society.

Dr. William Kelly Newton of Paterson, N. J., died at his home December 19, 1909, aged 59 years. He was a graduate of the College of Physicians and Surgeons of New York in 1877. Dr. Newton was visiting physician to the Paterson General Hospital and president of the New Jersey Sanitary Association and the Passaic County Medical Society. He was also president of the first meeting of the Pure Food Society in Washington.

Dr. Albert H. Blanchard of Sherborn, Mass., died at his home December 5, 1909, aged 81 years. He was a graduate of the Harvard Medical School in 1851 and was a member of the Middlesex County Medical Society and the Massachusetts Medical Society. During the Civil War Dr. Blanchard was surgeon to the Third Massachusetts Cavalry.

Dr. Eugene G. Wood of Oakland, Cal., was shot on December 9, 1909, aged 40 years. He was a graduate of the College of Physicians and Surgeons of San Francisco in 1900 and was a member of the Alameda County Medical Society, the Medical Society of the State of California, and the American Medical Association.

Dr. Oscar K. Richardson of Minneapolis, Minn., died at his home December 10, 1909. He was a graduate of the medical department of the University of Minnesota in 1893.

Dr. Thomas M. Curran of Felton, Pa., died on December 20 at the age of 48 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1882.

Dr. Daniel T. Pope of Edisto Island, S. C., died at his home recently, aged 72 years. He was a graduate of the Medical College of the State of South Carolina in 1860 and served as surgeon in the Confederate Army.

Dr. John Emil Traub of New York City died at his home December 25, 1909, aged 46 years. He was a graduate of the College of Physicians and Surgeons of New York in 1886. He had been retired from practice for several years.

Dr. Henry Martin Weeks, superintendent of the Eastern Pennsylvania Institution for the Feebleminded and Epileptic, died at Spring City on December 17, at the age of 59 years. He was graduated from the New York University Medical School in the class of 1873. He was a member of the New Jersey State Medical Society.

Dr. Benjamin R. Perkins died at Philadelphia on December 22 at the age of 83 years. He was graduated from Jefferson Medical College in the class of 1877.

Dr. John R. Ruffell died of pneumonia at Philadelphia on December 22 at the age of 32 years. He was graduated from the Hahnemann Medical College and from the Medico-Chirurgical College in the class of 1898.

Correspondence.

THE PHYSICIAN AND HIS FEES.

To the Editor of the Medical Record:

Sir:—At a recent meeting of the New York Medico-Surgical Society, Dr. Otto Kiliani read a paper with the above title. The burden of his theme was that the physician is underpaid—that the price of living is high, and that the doctor's income is often less than that of the bricklayer, and sometimes no greater than that of the hod-carrier. That in order to obtain a livelihood some doctors resort to dishonorable means. This is probably a plain statement of the facts, and we may ask, in the language of the immortal Tweed, "What are you going to do about it?" This the doctor does not tell us—he points out the evil and leaves us to seek the remedy. It would seem to the writer that the only way to cure the evil is to remove its cause. The cause is not far to seek—the overcrowding of the medical profession and the abuse of medical charity. It cannot be denied that there are more doctors in this country than there is any necessity for, "and the cry is still they come." Our medical colleges annually vomit forth thousands of medical graduates—good, bad, and indifferent—with utter disregard for the law of supply and demand. What becomes of these graduates after they leave college is no concern of the faculty. The students' fees are necessary to the existence of many of these institutions, and therefore their doors are open to all comers. The talk that we hear about severe "entrance examinations" is only a little pleasantry indulged in by the facetious members of the managing boards of these establishments. Many of their graduates cannot write a sentence in English correctly, and they know no other language. Is it probable that they were educated when they entered the medical college and so fearfully ignorant when they left it? That would not reflect much credit on their Alma Mater. It seems that we have at present in this country 141 medical schools (notwithstanding that several of them have perished from inanition recently), probably more than in the United Kingdom, France, Germany, Italy, and Russia put together.

The baneful effects of overcrowding in the medical profession are become manifest. Active competition develops the commercial spirit in medical men and makes them willing to sacrifice professional dignity and self-respect in order to increase their income. If physicians were all equally intelligent and honorable, the danger to the profession from overcrowding would not be so great as it is at present. Young men are allowed to begin the study of medicine with an entirely inadequate preliminary mental training. No man should be allowed to enter a medical college who has not a good general knowledge of English and some knowledge of Greek and Latin. He should be able to speak, read, and write French or German fluently. Some practical knowledge of natural philosophy is exceedingly desirable. During the first four years of his medical curriculum the student should be compelled to devote all his time to the study of anatomy, histology, chemistry, physiology, and pathology. A knowledge of anatomy, normal and pathological, constitutes the very foundation of a medical education. An old French physician said to the writer when about to begin the study of medicine: "Faite de l'anatomie, et encore de l'anatomie—un anatomiste est un médecin." With these views the writer is entirely in accord. The perfunctory, slipshod way in which anatomy is taught in most of our medical schools is disgraceful in view of the great importance of the subject. Not 5 per cent. of our medical graduates know anatomy as they should know it in order to be safe practitioners. If left to himself, the average student soon tires of the preliminary branches. He wants to attend clinics and witness operations. He wants to get what he considers practical knowledge; in other words, to put on the cupola before he has laid the foundation stone. In this he is encouraged by the method of teaching in vogue in our schools. He is allowed to pummel a chest and maul an abdomen with no accurate knowledge of the structure, topography, and functions of the viscera contained in those cavities. He witnesses operations without knowing the surgical anatomy of the parts involved, and the only result of his attendance at these surgical clinics is a waste of valuable time. The writer would advocate a four years' course devoted

entirely to the fundamental and scientific branches. Having passed a satisfactory examination, the student should receive the degree of M.D. This, however, should not entitle him to practise; he should be compelled to devote one year to post-graduate work in a post-graduate school having a large hospital attached. In such an institution all the practical branches should be taught by competent men. This would afford an opportunity for actual clinical study, that is, study at the bedside, not from the last row of benches in the ampitheater of a hospital with the patient at such a distance as to require the use of an opera glass. As a large number of cases would be congregated in the same hospital, the student would save much of the time which is now wasted in going from hospital to hospital. This would necessitate a change in some of our post-graduate schools. They would be recognized as legitimate and most important seats of learning, and would be forced to modify their methods of teaching so as to adapt them to the requirements of men thoroughly trained in the preliminary scientific branches, and therefore quick to discern incompetence in their teachers, instead of being, what they now are, places to which the verdant practitioner from the rural districts comes with the idea of putting himself *au courant* of everything relating to advanced medical science in the space of six weeks. Post-graduate schools should be devoted to clinical teaching only. At the end of the year, if the post-graduate has been diligent and faithful in his clinical work and passes a satisfactory examination, he should receive a certificate entitling him to present himself for examination for license to practise. Licenses should be granted by a national examining board to all candidates who have fulfilled the requirements and passed a satisfactory examination on the final branches only. The license issued by the national examining board should entitle its owner to practise medicine anywhere within the territory of the United States. Four years devoted to the study of the fundamental branches would prepare the student to undertake intelligently the study of disease in the living body. This system of medical education would effect a great reform. Every graduate of a medical school would be a doctor in the true sense of the word. Our present system of teaching is radically wrong. Didactic lectures, so-called, should be abolished. Any intelligent student can learn more by carefully reading a good book than by listening to a tiresome lecture in a close, vitiated atmosphere. Moreover, he could select his author; unfortunately, he cannot select his teacher—the faculty does that for him, and he must swallow his dose *nolens volens*. If men were chosen as lecturers on account of their special fitness to teach the subject assigned to them, the case would be different; didactic lecturing might then claim certain advantages. But it often happens that a man is appointed to teach a subject that he does not understand, and that he could not teach even if he did understand. Teaching is an art which but few possess. This fact is overlooked by the faculty and trustees of our medical colleges. Very often it happens that the only claim of the appointee to preach medical doctrine is his unfitness to practise. The poor, unfortunate student listens patiently to this would-be teacher until study becomes "a weariness of the flesh."

The study of gross and minute anatomy cultivates the kind of memory designated by the French, "la mémoire des yeux," and enables the student at the bedside quickly to create a mental picture of an inflamed lung, liver, or kidney, and of the relation of the parts involved in a surgical operation. A practical knowledge of this subject is the only kind of knowledge that is worth anything, and the sooner our teachers find this out and mend their ways the better. No man can master the preliminary branches in two years, even if he devotes his whole time to them, but when half his time is wasted by the stupid arrangements as regards lecture hours, he is badly handicapped.

The multiplicity of medical colleges of all grades in the United States undoubtedly tends to lower the standing of the medical profession. Large numbers of medical graduates are turned loose on the community every year who are absolutely unfit to practise. If, according to Bacon, "knowledge is power," ignorance is also power; and the influence exerted on the profession and the public by ignorant medical men is a power for evil which is much to be deprecated. If, in the language of Shakespeare,

"Ignorance is the curse of God,
Knowledge, the wing wherewith we fly to heaven,"

let us try to increase the knowledge of the medical profession by improving our methods in medical education and prolonging the period of study. Let us raise the standard of medical education in this country until the diploma of any medical college that owes allegiance to the Stars and Stripes shall command the respect of the whole medical world. When we shall have done that we shall have done our whole duty to the profession and to the public; for our medical men will then become educators of the public and will aid in the eradication of ignorance, superstition, and blind faith in drugs, and substitute therefor a substantial knowledge of the laws of health and the conservative force of the *vis medicatrix naturæ*. It is true that the adoption of the plan herein suggested might prove the death knell of some of our medical schools, but this would not cause a deluge of tears from the intelligent members of the profession. Many of these schools have no *raison d'être*, except the love of self-aggrandizement which springs eternal in the breast of certain disciples of Esculapius and causes an undying yearning to be known as "professors." These professors, like Othello, would find their occupation gone, but the general improvement in the ranks of the profession would more than offset the feeling of woe experienced by the surviving members of the defunct faculty.

As regards the abatement of the abuse of medical charity, the writer has no suggestion to offer. That the abuse of medical charity exists to a shameful extent there can be no question. That it tends to pauperize and degrade a large proportion of the population, and to rob the struggling young doctor of his legitimate income, there can be no doubt. The advent of a Moses to lead us out of the wilderness is "a consummation most devoutly to be wished for."

G. H. Balleray, M.D.

Paterson, N. J.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

INFUNDIBULAR EXTRACT—RÔLE OF FATS IN GASTRIC DISORDERS—STRANGULATED INTESTINE IN A CHILD—ANOTHER TUBERCULOSIS EXHIBITION—HOSPITAL FUNDS—COLLEGE OF SURGEONS—OBITUARY.

London, December 10, 1909.

Infundibular extract has recently been placed on the market in a form convenient for use. We may consequently expect it will be tried by therapeutists in the direction pointed out by Dr. Blair Bell, whose researches on the pituitary body have added considerably to our knowledge and who last month read a paper before the Liverpool Medical Institution in which he indicated the clinical results he had obtained in the Royal Infirmary. Oliver and Schäfer found that an extract from the pituitary body raised the blood pressure, but to a less degree than adrenal extract. Howell found that it was only the infundibular portion which produced the effect. In the form of powder it has been at times given as a diuretic by a few prescribers. Dr. Blair Bell took up the investigation of it some three years ago and he has now little doubt that it will have a permanent place in therapeutics. He says it not only raises the blood pressure, but keeps it up for several hours and is therefore of special value in shock in which the effect of adrenalin is too evanescent to be of use. It should be followed at once by saline infusions which it cannot supersede. A further and even more important effect of the extract is to cause powerful contractions of the uterus. Having found that it had a special action on the uterine muscle of the rabbit, he proceeded to apply this knowledge to therapeutical investigation and found that the contractions produced in the pregnant, puerperal, and menstruating human uterus are more powerful and more prolonged than those caused by any other preparation, not excluding the most active preparations of ergot. In serious cases this is most important. In two of cesarean section the naked eye effect of a single injection was immediate—the uterus becoming a "blanched ball," and only relaxing subsequently to a moderate extent. The importance of this in relation to subinvolution, hemorrhage, etc., is obvious. Dr. Bell thinks it should only rarely be given before delivery, but he has for some time kept it in his obstetric bag. Further, the extract produces strong peristalsis in the intestines, more than once causing expulsion of the feces. In collapse or shock after serious operations, flatus was observed to pass per rectum within twelve hours—" a happy state of affairs rarely occurring." It

is recommended as a reliable remedy in paralytic distension of the bowels. A special effect on the heart and kidney was observed. After a short initial increase of frequency, the heart's pulsation became slower, with more powerful contractions, and that, too, though in less degree, with patients under the influence of atropine. On the kidney the diuretic effect was marked and in this respect opposed to adrenalin. Dr. Bell concludes from his experiments that the chief effect of the extract is peripheral and he expects the active principle will shortly be isolated.

Sir James Barr, while congratulating Dr. Bell on his research, said the drug is likely to produce arteriosclerosis and so should be used cautiously. If given as Dr. Bell advised, only when the pressure was low, it would be of great value.

Dr. Pentland Hick, who had assisted in the experimental work (as was fully acknowledged by Dr. Bell), said the extract would be dangerous in cases of heart failure.

Mr. Paul had had remarkable success with it in post-operative intestinal naresis. So also had Mr. F. Jeans.

Drs. Hope Simpson and Buchanan reported relief in splenic anemia with ascites, given at intervals over several weeks. The fluid was kept down and the spleen diminished in size.

Dr. Glynn thought it of less use in intestinal atony from acute general peritonitis than in that due to other causes.

The rôle of fats in gastric disorders, since the investigations of Pawlow, has excited a good deal of attention among general practitioners and also among a number of their dyspeptic patients, on account of the prescription of that which had been popularly held to be injurious. But the fact that the gastric secretion is hindered by fat naturally led to its use when that secretion seemed to require checking. The subject was brought before the Medical Section of the Royal Society of Medicine by Drs. Craven, Moore, and R. L. Ferguson, who tried the effect of giving olive oil or almond oil and found that either diminished the digestive power of the stomach, both with regard to the degree of acidity and peptic activity. They gave about one ounce of oil before a test breakfast in some sixty cases. The effect was pretty constant, but there were some variations, according to the condition of the digestion in the different cases. The acid regurgitation and tendency to spasm in pyloric or duodenal ulcer seemed to be relieved by the oil and was perhaps opposed to the view that these symptoms were due to regurgitation of the contents of the duodenum.

Dr. Hertz reported that for two years he had been treating ulcer of the stomach and duodenum for a day or two with an exclusively oil diet, which he found quite removed the pain. In cases of hemorrhage it was better than rectal feeding, which is always accompanied by gastric secretion. In no case had he met with intolerance of the diet, which he continued after the few days to such an extent as to give a dose of oil before every meal. Recurrence of symptoms was thus avoided. Dr. Saundby thought the oil relieved hyperacidity. He gave it as emulsion. Dr. R. Hutchison thought less unpleasant treatment sufficient for hyperchlorhydria, and that rest in bed would be enough to relieve the pain of ulcer. The effect of oil on the pancreatic secretion had yet to be investigated. He rather took a chemical view of the matter.

In the Section for Children's Diseases there was a good show of cases on the 26th ult., after which Dr. Lockhart Mammery read an account of a case of strangulation of the small intestine in a child aged fifteen months. An operation for intussusception had been performed when the patient was five months old and on the appearance of acute obstruction again it was assumed that a similar cause was at work. There was a distinct tumor on the right side of the abdomen. An opening was therefore at once made, when a loop of the small intestine was found acutely strangulated by a narrow band. This was divided and the abdomen closed. The operation was done within nine hours of the onset of the symptoms. Recovery was uninterrupted.

Princess Marie Louise of Schleswig-Holstein opened on Wednesday a Tuberculosis Exhibition for Paddington. Lady Aberdeen was to have been present and speak, but the sad motor accident to her son prevented. The Mayor of the borough said the death rate from consumption was not so heavy as in some places, but in the part where the exhibition is placed it is above the average. It is the poorest and the most thickly inhabited district. The Medical Officer of Health said that, serious as things now are in London, there has been improvement throughout the country in the period from 1851 to 1907. It was now held that the disease was preventable and even curable. The public needs educating on this matter, and these exhibitions are for that purpose.

This one will be open free daily from noon to 9:30 P.M. until the 16th inst., and every day there will be popular lectures and demonstrations with lantern slides by well-known medical men, and ladies and gentlemen will be present to explain to visitors the exhibits.

At a meeting last week of the Hospital Sunday Fund, the Lord Mayor presiding, it was announced that the year's collection (the thirty-seventh) amounted to £72,650. The working expenses for the year were £900 less than in 1908. The report was adopted on the motion of the Lord Mayor, who congratulated the Council on the vigorous and healthy condition of the fund.

The Saturday Fund up to the present, I learn, amounts to £19,734, which is an increase of £50 on last year, although the books for 1908 were kept open a week longer than usual. This year's amounts will close on January 10, so there is a prospect of something more coming in as the honorary collectors forward what they may have in hand.

Yesterday the College of Surgeons admitted a number of new Fellows and Dental Licentiates and adopted the recommendations of the joint committee of the two colleges to recognize the schools of medicine for women in London and Edinburgh, the Royal Free Hospital of London, and the health laboratories of the Edinburgh colleges.

Recommendations of the museum committee relating to the admission of female medical students to the Hunterian Museum were also approved.

Mr. Charles R. B. Keetley, F.R.C.S., senior surgeon to the West London Hospital, died quite suddenly on Saturday, the 4th inst., aged sixty-one. Mr. Keetley was a Bart's student and became a demonstrator of anatomy there, having qualified at the two colleges in 1873. In 1876 he took the surgical Fellowship and soon after found his place on the West London staff, on which he steadily worked for above thirty years. He contributed freely to the societies and journals. You will no doubt remember his "Index of Surgery," a favorite with the younger men, now in its fourth edition.

Department Inspector-General Frederick William Blake, M.D., died on the 4th inst. at the age of eighty-five.

Another Department Inspector-General has passed away in Thomas Seccombe, M.D., in his ninety-first year. He was an Edinburgh student and graduate, entered the naval medical service in 1845, and retired in 1880 with the Burmese medal and other honors.

Lieutenant-Colonel C. E. W. Bensley, late of the I. M. S., and formerly H.E.I.C.S., died on the 5th inst. at Kensington in his seventy-sixth year. He was M.D., St. Andrews, and M.R.C.S. and had a long and varied career in India; he served in the Mutiny campaign, 1857-1858, for which he had the medal.

Another Mutiny veteran passes away in Dr. Alex. Groves Duff, whose death is reported from New Zealand, where he had lived many years and was at one time surgeon to the Totura Hospital. He was born at Calcutta in 1834.

Progress of Medical Science.

Journal of the American Medical Association, December 18, 1909.

The Optic Thalamus.—C. L. Dana recognizes three groups of symptoms from thalamic lesion: one consisting of such symptoms as disturbance of the intelligence due to the general effects of an injury to the brain; second, pressure symptoms on the adjoining parts or their partial involvement in the lesion; and third, the disturbances due to the injury of the thalamus itself. The general symptoms vary according to the individual, and have little bearing on the question of localization. The most important of the second class, the pressure symptoms, were those causing the hemiplegia, and were due to the thalamic clot pressing on or tearing the internal capsule and the quadrigemina and midbrain. These, in his cases, consisted only in pupillary inequalities and paralyses of reflexes. Disturbances of ocular movements and forced movements of the body, and choreic and athetoid movements, which have been seen in

other cases and might have been expected, were not observed by him in his cases. The same is true of hemianopsia, which occurs when there is involvement of the primary visual centers, including the lateral geniculate body and posterior quadrigemina or their connecting tracts. The most definite symptoms connected with injury to the thalamus itself seem to be central pain, some anesthesia, and perhaps some hemianopsia. The two latter may be due to a lesion which is extrathalamic. Whether vasomotor and temperature changes occur or the visceral centers can be affected, is yet to be proved, but the more recent cases observed by Dana seem to indicate that extensive lesions in the thalamic zone at least do cause such results. The pain involved the paralyzed side only; it involves the arms and hands most, the leg and foot next, rarely the head; it is most severe in the most peripheral parts, *i.e.* the hands and feet, and it may be very distressing. It is different from ordinary pain as a rule, being a sort of burning discomfort more distressing than sharp or aching pain. Even when it is only slight it seems to annoy the patient intensely. Sometimes it is said to be neuralgic or shooting, but he has not observed such. In all his patients with autopsies, there were pupillary changes. They were usually unequal, and one or the other was rigid. In none of his cases did he observe the so-called paralysis of the emotional expression or any decided explosive laughter or crying unless there were symptoms indicating lesions of other parts than the thalamus. The hemiplegia, if persistent, as it usually was, was not accompanied by any increase in the reflexes or signs of involvement of the motor tract. The lack of choreic or athetoid movements has been noted, and he thinks, whatever their cause, they are more likely to happen in children than in adults. He thinks his studies confirm, in a general way, the views of Roussy, whose elaborate memoir is praised by Dana, especially for its clinical and pathological work. Both he and Roussy apparently have come to the conclusion that the old idea that the thalamus controlled the movements of the emotional expression, is incorrect, but he still believes that thalamus lesions extending into other tracts do produce these results. The tendency of the investigation of Sachs as well as those of Roussy, and the comparative anatomical studies of Edinger, is to show that the thalamus is essentially only an organ for the reception and distribution to the cortex of sensory impressions, and that it has the function assigned to it by Meynert thirty years ago, when he said that it was an organ which received sensations and registered them in consciousness. There is still some dispute as to whether it has efferent tracts to the cranial and spinal motor nerve, acting as a reflex center of a high order. It does, however, send efferent fibers to the longitudinal bundle. There is also some question as to whether there are fibers from the cortex to the thalamus, and the question whether the thalamus has centers for vasomotor and thermic regulation or for the visual organs is still unsettled. We know enough, he says, however, to recognize thalamic lesions, and may know still better from future investigations. The syndrome varies a little according to the location of the lesion, as it has vascular supply from several sources and cannot be easily destroyed altogether by one vascular lesion.

Levulosuria in Hepatic Cirrhosis.—E. H. Goodman reviews the literature of the levulosuria test in hepatic cirrhosis and gives details of his own experiments made by giving 100 grams of levulose dissolved in 500 c.c. of tea or water given on a fasting stomach after the morning evacuation of the bladder. The urine was collected each hour, for four successive hours, in four separate bottles, after which breakfast was taken. Each specimen, including that that passed before the beginning of the test, was examined separately by the Fehling, Nylander, Seliwanoff, and fermentation tests, and the combined urine after the administration of the levulose by the above tests and, in addition, by Rosin's method and by the polariscope. As the number of cases increased the spectroscopic examination was omitted. The results are tabulated in the case of 32 patients suffering from cirrhosis or congestion of the liver in all but two or three cases. He sums up his results as follows: "(1) Alimentary levulosuria is almost a constant phenomenon in cirrhosis of the liver. (2) The early or late appearance of levulose may be regarded as a sign of severe or mild hepatic disease. (3) Alimentary levulosuria is a useful aid in diagnosing between cirrhosis on the one hand and chronic passive congestion on the other. (4) A study of the hepatic function with glucose and with saccharose in addition to levulose is to be desired, inasmuch as there may be an individual intolerance to carbohydrates. (5) While not indicative of any specific organic lesion of the liver, alimentary levulosuria is most frequently observed in cirrhosis."

Localized Subphrenic Tuberculosis.—C. A. Powers reports the case of a young man with arrested pulmonary tuberculosis who suffered from subphrenic symptoms diagnosed as from gallstones, for which operation was performed. Instead of gallstones, however, a caseous mass about as big as the bowl of a dessert spoon was found between the middle of the upper surface of the liver and the diaphragm and involving both. It was excised with difficulty, together with some outlying tuberculous nodules, and its bed scraped and disinfected with carbolic acid and alcohol. The patient made a smooth convalescence, but some months afterward had a tuberculous appendix removed. Now two years after the first operation the patient is apparently well, with no abdominal or thoracic signs of disease. Powers has not found an exactly similar case in the literature at his command.

Tuberculous Pleurisy.—E. G. Beck discusses the diagnosis and surgical treatment of tuberculous pleurisy. He quotes Widal's rules for the differentiation by cytodiagnosis and says that the inoculation method is not altogether reliable and not very practicable and the tuberculin test is still under question as to its true value. The radiographic test has not been fully appreciated, and he mentions the stereoradiograph as specially valuable. The clinical history, the physical findings, the chemical and bacteriological examination of the blood and secretions, the cytodiagnosis, inoscopy, the tuberculin and inoculation tests, and the stereoradiograph are all aids in determining the character of pleuritic cases. In the treatment there are some inconsistencies. The idea of immediate removal of pleuritic effusion being necessary is still too prevalent among practitioners. There is, however, a growing opinion that the pleural effusion in incipient cases is a factor promoting the cure of the disease by collapse of the diseased lung. Whether the disappearance of the pleuritic effusion under autoserotherapy is of permanent value is questioned by Beck, who thinks that the pleuritic effusion in itself should not be considered a disease and treated as such. It is only a symptom and one of a process that conduces toward healing. The compression of the lung in the treatment of unilateral tuberculosis, as inaugurated by Forlanini and independently practised by Murphy and others, is noticed at length, and Beck is satisfied that this principle of immobilization is correct. He looks at it as one of the most promising fields in the treatment. He gives his own experience in the treatment of empyema with bismuth-vaseline injections and discusses the cause of its healing action. Bismuth vaseline paste (one part bismuth and two parts vaseline), coming in contact with the walls containing the tubercle bacilli induces chemotaxis, and the leucocytes thus drawn to the injected regions destroy the microorganisms present. Their chemical chemical action is slight, and distention of the cavities with the paste and pressure can exercise only a subordinate part in the cure. The exposure of the injected parts to the *x*-ray can likewise be only a secondary factor. He describes his technic. After a radiograph of the cavity has been taken and the secretion examined, he injects 100 grams of bismuth paste and applies gauze dressings daily until the sinus closes. Repetition of the injection is not needed unless the bismuth paste is discharged with the pus and the secretions still show microorganisms. If the temperature remains normal and no unpleasant symptoms arise, the 100 grams of paste injected may be left in for absorption, but if the temperature rises above 101° F., or the patient complains of severe pressure, the accumulated fluid should be drained off and the opening again allowed to close. If bismuth intoxication symptoms appear, the bismuth must be at once dissolved by warm olive oil and withdrawn by suction pump. These tuberculous empyemas are usually preceded by the serofibrinous pleurisy, which, either by tapping or spontaneously, has become infected, and the treatment is usually tedious and unsatisfactory as compared with this method of inducing leucocytosis by bismuth-vaseline injections, according to his experience with these thirteen cases.

Fractures of the Extremities.—E. Denegre Martin says that, while our technic is nearly perfect, we are nevertheless treating more deformed and ununited fractures as secondary conditions than any others in surgery. The reasons for this are given by him as follows: First, the subject is too hurriedly gone over in medical schools, and students have to learn it from the benches. Unless the student secures an interneship in some hospital, his ideas of the treatment of fractures are vague and his experience *nil*. Second not all physicians possess the mechanical skill required. No inexperienced physician would attempt to do a laparotomy for some abdominal condition with which he was not familiar, yet Martin asks how many physicians

would think of referring a simple fracture to a surgeon. It is time, he says, for every practitioner to realize that unless he has had some surgical experience and is equipped with an *x*-ray outfit, it is his duty when possible to refer these patients to properly qualified surgeons. He is glad to see so many medical men now advocating the operative treatment, and sees no reasons why we should not expose a fracture whenever we cannot get good apposition. He suggests that we lay more stress on this branch of surgery, which furnishes more material for malpractice suits than any other.

British Medical Journal, December 4, 1909.

Kala-Azar in the Far East.—P. W. Bassett-Smith says that during the past few years our knowledge of the relationship of the peculiar organisms known as the Leishman-Donovan bodies to many undifferentiated fevers has largely increased. It was long supposed that the chief endemic center of kala-azar was the northeastern part of India, but a disease has been found in North Africa characterized by prolonged fever, enormous enlargement of the spleen and liver, analogous blood changes and a high mortality, in which these same organisms are found. The author gives the history of one case seen in England on his return from the East. The spleen filled nearly one-half of the abdomen, red cells were reduced to 3,000,000 per cm., white cells to 2,000, with a relative increase in the large mononuclear cells. Under treatment with atoxyl the patient greatly improved. Later he returned to the East, where he died. Films are made in this disease by drawing off blood from the liver and the characteristic Leishmann-Donovan bodies are easily demonstrated.

Efflorescence of Urea in Uremia.—J. Cameron refers to the case of a young man in the terminal stage of what was apparently small white kidney without previous symptoms. The patient died or uremia, profuse diaphoreses occurring, partly as a result of spasms and partly as a result of the therapeutic means used. After death relatives called attention to a profuse powdery scurf all over the body, which was explained to them as probably due to urea left by the perspiration after evaporation. Under the microscope the powder showed minute crystals scattered in the deposit, probably those of NaCl. After solution in alcohol, filtration, and evaporation on a glass slide, crystals of urea formed a copious deposit and gave several of the ordinary microchemical reactions. It was noticeable that though free elimination of the urea had been secured the fatal result was not obviated, and this is in accord with previous experience.

The Pituitary Body and the Therapeutic Value of Infundibular Extract in Shock, Uterine Atony, and Intestinal Paresis.—W. H. Bell details his experimentation along this line. He speaks of the anatomy and development of the pituitary body, especially of its posterior lobe, the infundibular. His own work was conducted by injecting an extract of it into animals and by observing the effect of the removal of it in part or wholly. He finds that it raises the blood pressure, and that better when the animal is in a condition of shock than in a normal state. Moreover, it keeps the pressure raised for several hours, whereas the effect of adrenalin in this respect is but temporary. It will not take the place of salines, for on the latter rests the responsibility of maintaining the improvement produced by any remedy. The extract also causes powerful contractions in the pregnant, puerperal, and menstruating uterus. It probably acts better on an atonic organ than on a normal one. The remedy can be employed in a normal labor. Subinvolution due to the defective contraction and retraction is one of the dangers in Cesarean section, especially if performed before the onset of labor; in such circumstances secretions and blood clots may be retained and become infected—a state of affairs favored by any contraction of the pelvis which may be present, for this condition leads to a sagging forward of a subinvoluted organ. The remedy ought to be given, but rarely before delivery. For general post-partum purposes it is better than ergot. It also excites active peristalsis in the bowel. There is little doubt that its chief effect is peripheral, for if we place a rabbit's isolated and active uterus in Ringer's solution the organ contracts violently on the addition of a small quantity of the extract. The remedy is sold in "vaperole" flasks, each of which contains 1 c.c., which is the ordinary adult dose. Solutions are not spoiled by boiling. The dose may be repeated in one hour. After a few doses a short refractory period is established.

Some Uses of Opium.—Eustace Smith discusses the therapy of opium from the older standpoint, before so many sedative remedies were at the disposal of the physician, and he thinks that we have gone astray in forgetting much old knowledge. For relief of pain it is still to be used, for small doses are stimulating as well as sedative. This stimulating action is well seen in cases of indolent ulcers of the skin and mucosa, and can be turned to account in obstinate sores in cachectic children. The circulation is also stimulated and the resistance of the body to depressing influences is notably increased. To old people mentally depressed, nervous people in presence of some depressing event, children wearing drainage tubes, etc., it is especially grateful. Too large doses should, of course, be avoided, and care should always be taken to fit the dose to the susceptibility of the patient. In old persons with bronchial catarrh and profuse expectoration it is contraindicated if the skin is livid, lips blue, and chest oppressed, but it can be profitably and safely used if the breathing be easy, skin clear, and cough quite loose. In inflammation of the serous membranes it must be freely given. It may be given to infants. For a child of twelve months 1/40 gr. morphine may be injected, combined with 1/100 gr. atrophine in cases of spasm, and in half an hour the dose may be repeated if the spasm is not relaxed. When the air passages are alone affected it is better to use grindelia. Opium is of great value in all forms of loose bowels, useful in cystitis combined with painful spasm at the neck of the bladder. As a hypnotic it is free from the depressing effect of many of its modern substitutes, etc. In eight days the drug will have passed out of the system, and if it is found in the urine (during that period) of habitues who are under treatment, it is safe to assume that they are continuing the drug secretly.

Münchener medizinische Wochenschrift, November 23 and 30, 1909.

Bodily Pains of Intestinal Origin.—Ebstein discusses at length the pains and aches of various portions of the body which may be caused by chronic constipation. Not an uncommon location for these toxic neuritides is the region of the nervus trigeminus. Not only is there neuralgia, but there may be point tenderness, especially in the supra- and infraorbital notches. The occipital nerve may also be affected, and constipation is a not uncommon cause of occipital neuralgia. The brachial plexus and its branches may be involved and cause point tenderness in various spots, especially over the radial nerve in the lower third of the upper arm, in the sulcus bicipitalis internus, and between the internal condyle and the olecranon. These are usually accompanied by points in the supraclavicular notch and the neck. Outspoken neuralgias of the brachial plexus arising from constipation have not been seen. Local ostealgias of the thorax, especially over the xiphoid and false ribs, may be caused by the same thing. In the lower extremities the usual seat of the painful points are below Poupart's ligament, to the inner side of the knee, and on the internal malcolus. Knee-joint neuralgias are especially common, and hip-joint affections are not unknown. In such cases the tendon reflexes are often much increased. All of these conditions, even when so severe as to cripple the patient, clear up rapidly as soon as the points are kept well open for a few days.

Intravenous Injections of Suprarenal Extract in Cardiac and Vascular Collapse.—John says that intravenous suprarenal injections are indicated in severe cases of cardiac and vascular collapse which do not respond to the usual cardiac stimulants. The effective dose varies from 0.2 to 1.0 c.c. of the simple suprarenal solution. The use of the same dose in dilutions of 1:10 is of no advantage. After intravenous suprarenal injections the use of other stimulants is superfluous. The danger of death from suprarenal poisoning is present only in the most severe cases of cardiac weakness in the presence of contracted kidneys.

Advance in the Use of Atmospheric Pressure Differences in Thoracic Surgery.—Willy Meyer describes the new high and low pressure chambers which he has had constructed at the Rockefeller Institute and German Hospital for experimental and practical thoracic surgery. His apparatus consists of two chambers, one for the operator and one for the anesthetist, so arranged that either or both may be made positive, negative, or normal, and during an operation these conditions may be varied at will without change in position of any of the parties concerned or interruption of the operation. The operating table is in the middle of the chamber, allowing the surgeon two assistants and plenty of room to move around. Unobstructed relations of understanding between the operator and the anesthetist are possible during the operation. There is sufficient room to allow the general anesthetic to be controlled by two assistants. It is so arranged that neither surgeon nor anesthetists is exposed to the anesthetic. The surgeon can see the

patient's head and the anesthetist the operation field. The ventilation is good, the direction of air currents are controlled, and the pressure can be changed quickly. The rubber collar is adjustable to the patient's neck. There is complete understanding between those within and without the chamber. The apparatus is light and portable, so that it can be used in war.

Surgical Treatment of Chronic Jaundice.—Kehr says that the indications for operation for chronic jaundice are absolute or relative. The absolute indications consist of acute or chronic empyema of the gall-bladder, or chronic closure of the bile ducts. The relative indications are chronic colic, interfering with the patients earning a living. Of 125 gallstone operations during the past year, 100 gave absolute indications and 25 relative. The differential diagnosis between stone and tumor is discussed. If the disease begins with colic, it is probably stone; if insidiously, it is probably catarrhal, pancreatic, or tumor. Catarrhal jaundice lasting over four weeks in an elderly person must be looked at with great suspicion. After six weeks, with loss of appetite and weight, operation must be considered. The danger of chronic jaundice lies in the development of biliary cirrhosis, cholangitis, or a cholemic diathesis. The fear of postoperative hemorrhage should not deter a physician from advising operation. With proper technique there is but very little danger of peritonitis.

The Early Stage of Poliomyelitis.—Müller has studied fifty early cases of poliomyelitis. He reports numerous instances of the disease being carried by a third person. In the febrile stage there may be febrile symptoms alone, or combined with digestive or respiratory affections. Tonsillitis and bronchitis were very common initial symptoms. In many cases others in the family had tonsillitis or gastro-enteritis, without paralytic symptoms. There are three cardinal symptoms for the early diagnosis of poliomyelitis, or of the disease without paralytic symptoms. The first is the inclination to perspire. The second is the frequent and pathogomonic hyperesthesia. The children cry out under the most gentle examining or the slightest movements, and they hold the arms and legs perfectly still. There is weakness of the neck. The head falls backward, but is not held rigidly. The third chief initial symptom is leucopenia, a decrease in leucocytes in spite of fever, angina, or bronchitis. Lumbar puncture showed a clear fluid under pressure, without organisms. The portal of entry is the digestive or respiratory tract, often the tonsils.

Deutsche medizinische Wochenschrift, December 2, 1909.

Serumtherapy, Prophylaxis, and Vaccination for Foot and Mouth Disease.—F. Loeffler says that the foot and mouth disease belongs to the immunity producing diseases. The persistence of the immunity varies, depending upon the intensity of the attack and the virulence of the virus. Definite antibodies are found in the blood of recovered animals. It is possible to increase the amount of antibody by inoculation of a highly virulent lymph. It is possible to prevent the mortality among animals by inoculation of a highly immunized serum. The course of the disease among cattle may be shortened and the after-results decreased by serum treatment. The greatest value of the cattle serum lies in its prophylactic use. Active immunity may be obtained by inoculation of attenuated lymph or a mixture of lymph and serum. The active immunity appears only after five weeks, and is therefore not of great value. The passive immunization by serum is without danger. It appears immediately, but lasts only about two weeks. Repeated injections every ten days of relatively small amounts of serum produces a lasting immunity. The serum prophylaxis has shown its value in numerous epidemics. The serum protects against infection with relatively small quantities of the virus. Contagion from farm to farm occurs by the transference of small quantities of the fresh lymph by carriers, either men or animals. The farm workers are usually ignorant of the danger of carrying the disease, and education in the subject of disinfectives is needed. Prophylactic serum injections are indicated in every infected farm. Systematic inspection is demanded. One of the most important things in the overcoming of foot and mouth disease is the recognition of chronic "carriers." The number of these is small. How long these animals continue to be dangerous is not known. They have been proved infectious seven months after the disappearance of the disease. Convalescent animals must for at least seven months be isolated and treated as dangerous. If this is not possible, the well animals must be given prophylactic doses of serum. The Prussian Ministry of Agriculture has instituted a station for the production of foot and mouth serum, and it is to be hoped that other similar stations will soon be formed.

Therapeutic Value of Hyperemia in Erysipelas.—Jochmann and Schöne conclude a clinical study of the value of Bier's passive hyperemia by saying that in the majority of the cases rapid recovery, characterized by sudden fall of temperature and improvement of the general symptoms, follows the use of this form of treatment. One-fourth of the cases, however, showed no improvement. The author explains this failure to act in all cases by the assumption that in the mild cases and those of medium severity the venous hyperemia increases the resistance of the affected portion of the body against the streptococcus infection, and tends to aid in recovery, whereas in very severe cases this does not occur.

The Identification of Tubercle Bacilli in the Sputum by the Double Method of Ellermann-Erlandsen.—H. Kögel describes this method, as follows: (1) One volume of sputum (10-15 c.c.) is mixed in a stoppered glass with one-half its volume of 0.6 per cent. sodium carbonate solution. The mixture stands twenty-four hours in the thermostat at 37° C. (2) The greater part of the supernatant fluid is decanted and the remainder is centrifugated in a graduated centrifuge tube. The fluid is poured off. (3) Four volumes of 0.25 per cent. sodium hydroxide are added to the one volume of the precipitate. After very careful agitating this is raised to a boil. (4) Centrifugate. The result of this is that practically the entire bacillary content of the whole amount of sputum is spread on one or two slides and 20 to 30 times the number of tubercle bacilli occur per field. The method takes time. In an old sputum the autodigestion may have gone far enough to make the first stage of the procedure unnecessary. Very thick sputa may require 48 hours in the thermostat. Very purulent sputa give poorer results than slimy ones. These must be left longer in the incubator and must be boiled longer, with larger amounts of the caustic. A powerful centrifuge is required, and the centrifugation must be continued long enough to precipitate completely all the solid matter. The final precipitate consists almost entirely of bacteria. A rapid glance is often all that is required for a diagnosis. Specimens which in the usual smear showed 10 tubercle bacilli to the field by the double method showed 300 to 400. As a rule, 15 to 30 times as many were seen. Of 105 specimens of sputum examined, by the usual method 21 were positive. Of those negative, 8 by the double method gave positive results, or an increase of 28 per cent.

French and Italian Journals.

Use of Sterilized Linen in Nurslings.—Edmond Weill has demonstrated that sterilized linen used for dressing infants is a preventive, as well as a curative measure, in the skin suppurations of infants. In an old hospital connected with the University of Lyons there were many cases of pemphigus and pyodermatitis, the buildings being permanently infected by long use with pus microorganisms. Almost all of the children who came there suffered from these skin affections. The author now has all the linen sterilized in bags, in which it is kept until it is to be used for dressing the children. The clothing that has been only washed shows by cultures plenty of colonies of streptococcus and staphylococcus, while the sterilized clothing gives none at all. He recommends the sterilization of all clothing to be used in infants' hospitals. Even when a child has become infected, he says, the use of sterilized linen will promptly cure him.—*Lyon Médical,* September, 1909.

Splenomegaly.—Menotti Bucco finds that the spleen hypertrophies in many neoplastic and inflammatory states. The functions of the spleen are lymphoid. In intrauterine life it is an important hematopoietic organ, but in the adult, when the medulla of the bones is fully developed, this function is lost. Splenomegaly is frequent in many forms of anemia, especially of the chlorotic type. It has been demonstrated that from the spleen originate toxic and infective processes which by way of the splenic vein reach the liver and cause cirrhosis. The toxic and infective principles may also originate in the intestines. The splenic origin of hepatic cirrhosis is common to all cirrhoses, especially malarial cirrhosis. Bucco is of the opinion that one is not justified in affirming the nosological entity of Banti's disease. We can say definitely that the splenic tumor in cirrhosis is in part antecedent and in part consecutive to hepatic cirrhosis. It is possible experimentally to reproduce in animals conditions similar to those in the spleen and liver of Banti's disease.—*Giornale Internazionale delle Scienze Mediche,* September 15, 1909.

Book Reviews.

PYE'S SURGICAL HANDICRAFT. A Manual of Surgical Manipulations, Minor Surgery, and other matters connected with the work of House Surgeons and Surgical Dressers. Fifth Edition, Revised and largely Rewritten by W. H. CLAYTON-GREENE, B.A., M.B. (Cantab.), F.R.C.S. (Eng.), Surgeon in Charge of Out-Patients, St. Mary's Hospital; Lecturer on Anatomy in the Medical School. With 343 illustrations and plates newly drawn for this edition. New York: E. B. Treat & Co., 1909.

THE first edition of this work appeared twenty-five years ago, and during the whole of that period it has enjoyed an established place as a most useful book for internes and medical students. This new edition is thoroughly revised and brought up to date; at the same time it is increased in size by about only fifty pages. The work remains true to its original plan of showing that surgical excellence can be attained only by the acquisition of manual skill or handicraft. For the medical student about to enter the surgical wards there can be no better companion than this book.

DIE CHIRURGISCHEN KRANKHEITEN DER BRUST UND IHRE BEHANDLUNG. Von Dr. CARL BECK, Professor der Chirurgie an der New York Postgraduate Medical School (University of the State of New York); Chef-chirurg des St. Mark's Hospitals, Mitglied des Offizierkorps der Bundesarmee, Präsident der deutschen medizinischen Gesellschaft der Stadt New York, usw. Aus dem Englischen übersetzt, von Dr. SCHRÖDER, Düsseldorf. Mit 16 kolorierten und 251 anderen Abbildungen. Berlin: Verlag von August Hirschwald, 1910.

IN his preface the author calls attention to the fact that American surgeons, while deeply interested in the surgery of the abdomen, have more or less neglected that of the chest. To his original work in English many additions have been made in this, the translation, and the book now contains 471 pages of reading matter and many excellent illustrations. The translation has been well done, and the book has distinct value, though the difficulties inherent in a work of this kind, dealing with a large region of the body, are quite apparent, for it attempts to cover diseases that usually fall to other specialists. For example, the picture of a plaster jacket shows a rather crude product. The chapter dealing with pyothorax is one of the best in the book. The author pays his respects to the advocates of half-way measures in this disease, and describes the technique of operation so clearly that the general practitioner could perform it. This is in marked contrast to what is said on the subject of cervical ribs. A writer is expected to explain his subject as best he can, and to state the difficulties of operation where they exist, but to advise his readers that such and such an operation should be turned over to a skilled surgeon always has an unpleasant sound. The fact that among Germans so large a proportion of whom speak or, at least, read English, the book is considered worthy of translation, is of itself a high compliment.

DAS PROBLEM DES LEBENS IN KRITISCHER BEARBEITUNG. Von Prof. Dr. BERTHOLD KERN, Generalarzt. Berlin: August Hirschwald, 1909.

IT is probable that the average physician reads but little philosophy of the abstract sort, and he certainly writes none. Indeed, if we except Master Francois Rabelais, that early prophet of a joyous pragmatic philosophy, and our own Professor James, who has made the "cash value" philosophy peculiarly his own, the number of physicians who have added to the literature of the attempted solution of the final meaning of life is scant indeed. Professor Kern has, however, contributed two volumes to this important subject, one of which we must now consider. The author is careful to state his fundamental position in the preface, namely, that philosophy and science must unite in considering the physical and spiritual substance of life as identical, and also that in all future investigations the two disciplines must work together. This sets aside at one stroke the crude brain secretion materialism of Cabanis and Vogt, on the one hand, and the pure idealism of the Berkley school, on the other. The only certain thing is that the universe is a world of concepts, and science an attempt to comprehend nature refining and classifying such concepts. With final causes we have nothing to do. To understand life, the laws governing the growth and repair of the body must be appreciated in terms of physics. The psychic mechanism must be studied in the same fashion, for it is a part of the body. No sharp distinction can be drawn between the two; substance and concept are identical. Evolution in all its phases is important as furnishing a guide to the laws of psychic as well as somatic development. Each individual, though bound by laws governing the race, has the intellectual right to set up for himself a philosophy of life, and even a personal religion, if such ideas are not contrary to scientific concepts. In this our author is a pragmatist. Finally, the problem of life is in the last analysis nothing more than the knowledge which we can obtain of nature by the use of criticism and investigation, from both a philosophic and a scientific aspect.

VORLESUNGEN ÜBER HERZKRANKHEITEN. Von Dr. H. BOCK. I Heft. Die Erkrankungen des Herzmuskels, Histologie, Pathologische Anatomie, Diagnose, und Therapie. München: Verlag von H. Thoma, 1908.

THIS pamphlet contains the rather elementary lectures on the diseases of heart muscles delivered by the author in a postgraduate course. The only original element in them consists in the description of a complicated stethoscope invented by the author, which enables the observer to measure mechanically the pitch and value of cardiac sounds. The author claims that the information obtained by this means is much more useful and trustworthy than that given by the usual methods of auscultation.

DIE GICHT UND DIE SALZSÄURE-JODKUR. Von San.-Rat. Dr. FALKENSTEIN, Oberstabsarzt I. Kl. a. d. Gr.-Lichterfelde. Berlin: Hirschwald, 1910.

THE old saying that no physician who has not suffered himself from gout is in a position to treat intelligently patients with that disease seems well exemplified in the person of our author, who has suffered from this complaint for thirty-five years, and who has finally, in his opinion, found a certain remedy for the disease. This consists in the use of dilute hydrochloric acid, four glasses of water, each containing six to ten drops of the acid, being taken each day. If this condition be fulfilled, all will be well. The author indignantly rejects the idea that alcohol should be forbidden, and thinks that smoking after meals is beneficial. Such treatment must inevitably be very popular with many of those afflicted with the disease. In the line of food, also, the author is somewhat iconoclastic, considering that tomatoes and red meat are not to be forbidden to the sufferer, who should avoid only substances with high purin content, such as sweetbreads, liver, and kidney. A purely vegetable diet is not to be recommended, for the human race has been omnivorous for many thousands of years, and probably before that time was strictly carnivorous. It is, therefore, necessary to take only a sensible mixed diet, with a goodly allowance of fresh vegetables. The strictly medicinal treatment of acute attacks follows very closely the traditional notions, with the exception that the author considers that alkalies may be distinctly harmful.

TEXT-BOOK OF ANATOMY AND PHYSIOLOGY FOR NURSES. Compiled by DIANA CLIFFORD KIMBER, Graduate of Bellevue Training School; formerly Assistant Superintendent New York City Training School for Nurses, Blackwell's Island, N. Y.; formerly Assistant Superintendent Illinois Training School, Chicago, Ill. Third Edition. Revised by CAROLYN E. GRAY, R. N. Assistant Superintendent, New York City Training School for Nurses. New York: The Macmillan Company, 1909.

THE former edition of this work contained 271 pages of text, with 149 illustrations and three pages of index. The present edition contains 420 pages of text, 212 illustrations and an index of sixteen pages. But it is not only in quantity that the present revision is apparent. Almost every page shows evidences of careful and painstaking effort on the part of the revisor; the new illustrations have been well selected, and are admirably adapted to the text, and each chapter closes with a summary of its contents clearly outlined, and which cannot fail to be of value, both to the tired and hard-worked student and also to the teacher. The book is compiled for nurses, and the work has been done by one who combines in an unusual degree the threefold knowledge of their peculiar educational needs, of the limited time they have for study, and of how to make the subject both interesting and attractive. After a very careful perusal of this work, and being well acquainted with most of the books written for nurses during the last ten years, we have no hesitation in saying that this is easily the standard work on the subject; and, further, it is a model of what such a text-book should be. Unusual skill has been shown, both in the selection of the subject matter and also in the handling of the same, and the book is remarkably well balanced. The paper and press work are in keeping with the general excellence of the book.

NEW YORK ACADEMY OF MEDICINE.

Regular Meeting, Held December 2, 1909.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

Election of Officers.—The following nominees were elected to office: *Trustee*, Dr. Abraham Jacobi; *Vice-President*, Dr. L. Emmett Holt; *Secretary*, Dr. John H. Huddleston; *Corresponding Secretary*, Dr. Charles Stedman Bull; *Member Committee on Library*, Dr. Louis A. Conner; *Member Committee on Admission*, Dr. John Rogers.

Report of the Library Committee on Need of Increased Facilities.—It having been reported to the Library Committee that on account of lack of room the functions of the library were being seriously interfered with, and that no provision was being made for the growth of the immediate future, both these questions were taken up by the committee for investigation. If, as seemed probable, all the unoccupied space would be exhausted by January, 1912, it was essential to have new accommodations ready by the summer of 1911, that the books might be shifted during the months when the closure of the library would be less serious. To accomplish this, building must be begun by June, 1910, at the latest, and to this end plans should be laid at once. The only satisfactory way to meet the present situation was to build on a new site with a plan which would prove much more economical of space than the present structure, and which would lend itself to future requirements. The disadvantges of tearing down the existing building and rebuilding on the present site were too obvious to need discussion. In view of the facts brought out by the investigation, the Library Committee felt that it could not too strongly urge upon the Academy the necessity for immediate action in this matter. The following were appointed a committee by the president to consider this subject and to report back to the Academy at its next meeting: Members of the Counsel of the Board of Trustees and of the Library Committee, the chairmen of the various sections, and the surviving ex-presidents.

The scientific session was held under the auspices of the Section on Surgery.

The Medical Aspects of Affections of the Colon.—Dr. LEONARD WEBER read this paper. (1) Dysentery was caused either by the Shiga bacillus or by the ameba. The drugs that had been employed were ipecacuanha, sulphate of magnesium, and the subnitrate or subcarbonate of bismuth. In the few cases of rather severe dysentery which were under his care in 1868 and 1878 he relied upon ipecac, and obtained good results. The main objection to this drug was obvious: the patients could not take it without becoming nauseated. It also depressed the nervous system. English army surgeons and others had reported very good results in hundreds of cases of dysentery with magnesium or sodium sulphate. Bismuth in doses from gr. xv to xxx to 1 drachm, given every three hours, followed by suitable doses of castor oil every third or fourth day, had given him very good results in the limited number of cases, acute and subacute, that he had treated during the past twenty-five years. He asked if it was commendable to use nitrate of silver or other antiseptic solutions for irrigating the colon in acute dysentery. He did not think it was, because the tenesmus and intestinal tormina were generally so acute that the introduction even of a soft nozzle and tube was almost impossible to bear and would add torture to the existing distress. Again, nothing was more unlikely than that of the amebæ could be dislodged from the mucous membrane. (2) Diphtheritic inflammation of the ileocolon in the course of acute infectious disease, or as a terminal process in chronic affections, or through metallic poisoning, might spread over large areas of the mucosa, leading to extensive sloughing. Large doses of bismuth, accompanied by hypodermics of camphor oil, or strychnine to overcome the asthenia, might be of service. When mercury had been the exciting cause, iodide of potassium should be employed. (3) Ileocolitis. Many such cases got well by the use of an absolute milk diet and the use of the gray powder, with an occasional dose of castor oil; but there were many cases of this form of intestinal infection that did better after intestinal irrigation with mild astringents or antiseptic solutions. Dr. Weber preferred the non-irritating solutions of argyrol to those of silver nitrate. In cases of ulceration and perforation of the bowel occurring during the course of typhoid fever, the surgeon should be consulted as to the advisability or necessity of doing a laparotomy. With reference to the question of infection or non-infection in mucous colitis, Dr. Weber stated that he sided with those who looked upon it as a form of neurosis. He had seen a number of cases among apparently healthy women, stout as well as thin ones, such as had had the stigmata of hysteria or other neurosis, as well as among those women who had not. Such patients he advised to take ordinary food, a dose of castor oil occasionally, and to cease by all means inspecting their stools, which they were invariably in the habit of doing. Small doses of the bichloride of mercury and arsenic seemed to be of some service in these cases. In the chronic cases of invasion of the ileocolon catarrh with infiltration, or with hypertrophy and atrophy of portions of the mucosa alternately, which did not offer the signs of ulceration, as in all cases of subacute and chronic diarrhea, there should be made a careful examination of the stools for mucus, pus, shreds of mucous membrane, parasites, and particularly organized material indicating new growth. This was of the utmost importance for diagnosis and treatment. In the chronic infectious diseases of the ileocolon which lead to ulceration and subsequent cicatricial contraction, adhesions, stenosis, and perforation, surgical aid would often be called for: a correct diagnosis of such conditions was often a task of great difficulty. Tuberculosis and syphilis were much more frequently the determining factors here than in dysentery. It was still an open question whether those chronic luetic ulcerations of the rectum which advanced gradually as far as the sigmoid, and led to severe cicatricial stricture, were always due to syphilis and not sometimes to gonorrheal infection. The tuberculous ulcers and strictures occurred mainly in the ileum, and were not infrequently multiple; but in the ileocecal portion veritable tuberculous tumors were met with, and might be mistaken for carcinoma. The highest degree of dilatation in the cecum and colon that he had ever observed occurred in cases of stricture in the sigmoid flexure. Frequent alternation of obstipation and diarrhea should always arouse suspicion of intestinal obstruction. The ribbon-shaped stools seemed to him rather an exceptional sign; of much more importance was the presence of mucus, blood, and pus in the stools. Before closing, Dr. Weber reported three cases. One was a case of hepatic abscess in the left lobe, occurring ten years, or longer, after an attack of dysentery; this patient could and ought to have been saved by timely operation, but the case terminated fatally by perforating into the right pleural cavity. Another case showed that the entire colon might remain filled with feces for two years or more and return to its normal condition after operation. The third case reported proved that even a very aged person could get along without a colon for nearly three years and maintain her health and weight.

Affections of the Colon.—Dr. EDWARD MARTIN of Philadelphia read this paper. The large intestine was commonly regarded as an organ the main function of

which was to accumulate the feces until such time as their final extrusion from the body might be a matter of convenience or pleasure. In conditions of health there was apparently little but water absorbed from the fecal mass by the large intestine; but this condition did not obtain when the mucous membrane of this organ was either actively or chronically inflamed, or when through muscular atony or displacement there was colonic stasis. Under such circumstances the function termed by Reichert biosmosis no longer remained protective, and toxines were readily absorbed. In profoundly toxic conditions the large intestine certainly had an eliminative function. There was reason to believe that many of the ulcerative lesions were those of elimination rather than of absorption. In an experimental work upon colitis due to mercuric bichloride poisoning Saxon demonstrated the absence of colonic lesions after bile exclusion, and believed that the intestinal lesions were not caused by the direct excretion of the poison into the intestinal canal, but by its reabsorption after being excreted by the liver and carried to the intestinal cavity by the bile. The bacterial content of the large intestine was much greater than any other part of the intestinal tract. One-third the weight of the dry feces was said to consist of bacterial bodies. The normal mucous secretion of the large intestine was feebly bactericidal in action. Concerning that class of colonic lesions which, though not regarded as appertaining to the surgeon, was sometimes refractory to medical treatment, the present discussion seemed timely. On theoretical grounds the treatment of acute enterocolitis, if rapidly progressing toward a fatal issue, should be treated by jejunostomy and diversion of the biliary secretion, containing as it probably did the bulk of the toxine absorbed. The operation might be supplemented further by an appendicostomy or cecostomy, provided sufficient colonic lavage could not be given. In typhoid fever accompanied by a profound toxemia progressively overwhelming in type, a fecal diversion some three feet above the ileocecal valve would seem indicated, thus lessening toxic absorption, protecting the lesions against the irritating effects of putrescent intestinal contents and allowing of cleansing irrigations. When dysenteric lesions were considered, the theoretical advantages incident to surgical interference were reinforced by clinical experience, and in the main were distinctly encouraging. The clinical evidence in favor of surgical intervention in cases of mucous colitis, an affection of middle-aged, constipated, neurasthenic women, luminously described as a secretory neurosis, and characterized by the passage of gelatinous mucus, intesinal casts, and occasionally sand, was not convincing. The symptoms of intestinal toxemia were not characteristic, and did not differ essentially from those incident to toxemia from other sources. There were certain urinary and fecal findings which were suggestive. Perhaps as characteristic of intestinal toxemia as any one symptom was the relief occasioned by a thorough evacuation of the bowels, and the pronounced exacerbation of symptoms incident to the ingestion of an inefficient laxative. A thorough evacuation often implied not only the administration of a purgative, but copious colonic flushings. The commonest ptosis of the large intestine was that of the transverse colon downward, associated with a gastroptosis. At times the entire colon descended The benefit afforded to patients with nephrocoloptosis by the Weir Mitchell treatment of rest and forced feeding was attributed in the main to the recumbent position, since on the assumption of the ordinary routine of life nutritional disturbances again became manifest, and the colonic drag upon the kidney and duodenum began again. In the prophylaxis of visceroptosis the wearing of an abdominal support on getting up after a wasting disease would seem indicated. These ptosis cases, if taken off their guard in a standing position, exhibited a characteristic conformation, a midline pouch hanging down over the pubis made by the stretching of the muscles below the umbilicus. The support should be upward and backward, and was perhaps most effectively accomplished by a carefully fitted double truss with broad plates. There was a class of cases described by Lane in which the intestinal stasis was due to gut fixation dependent upon bands passing from the parietal peritoneum and producing such functional derangement that the large intestine became a foul, undrained, and undrainable sewer. His treatment consisted in an ileosigmoidostomy either with or without complete removal of the colon, the more radical operation being indicated in cases characterized by pain. He had operated upon many patients, but he gave neither the total number nor information concerning the perseverance and skill with which a previous unavailing hygienic, medical, and mechanical treatment was applied, nor were ultimate results noted. It was probably that many of the patients on whom he operated were women with the operation habit, and that they all promptly perished, since the temptation to report a successful case would be a difficult one for an easily fired enthusiast to resist.

Dr. Robert G. LeConte of Philadelphia said that he approached the subject matter of Dr. Martin's paper with diffidence, as his experience was limited and his ideas too vague to frame into definite rules. At the Pennsylvania Hospital their widest experience was with the acute forms of intestinal intoxication, while the chronic form of intestinal stasis had either been infrequent or rarely recognized. As an example of one form of acute intoxication, a case of chemical poisoning was recently admitted to the hospital which illustrated peculiarly the elimination of poisons by the colon. A young woman drank an aqueous solution of phosphorus match heads. On admission she did not seem sick, but the stomach was thoroughly washed out and an antidote allowed to remain in it. Death occurred suddenly twelve hours later, and at the autopsy the transverse and descending colon and sigmoid contained sufficient phosphorus to make the mucous membrane luminous in the dark, while the stomach and small intestine were apparently free. Did this young woman die as a result of an overdose of phosphorus ingested by the stomach, in which the luminous colon was only an expression of elimination, or, had colonic lavage been instituted, might not death have been averted by removing a source of secondary absorption? It would seem to indicate that in such chemical poisons as phosphorus, mercury, etc., colonic lavage was important for the prevention of secondary absorption, as such poisons were eliminated largely through the colon. In the severe forms of acute autointoxication, so-called cholera nostros, they had recently had two typical examples. Both were in middle-aged Italians. The symptoms were sudden onset of abdominal colic, muscular cramps, vomiting, and purging, the bowel movements at first being mucoid, then bloody, and lastly watery, associated with severe tenesmus. The patients were stuporous and in profound shock, exhibiting pinched facies, sunken eyeballs, cyanosis, cold perspiration, subnormal temperature, and rapid pulse, with a shriveled appearance of the skin, a typical picture of shock with dehydration of the tissues. Immediate stimulation with intravenous normal salt solution tided over the crisis, when the colon was irrigated with the same solution, and large quantities were given subcutaneously, by bowel, and by mouth. Both patients recovered. In the acute cases of intestinal intoxication, whether of chemical poisoning or autointoxication, it would seem that there was small indication for surgical intervention. In the chronic cases it was a much more difficult problem to decide when surgery should be undertaken. Their rule was, first, thoroughly to exhaust all medical measures, including medi-

cated colonic lavage. If after a reasonable time the case did not improve, they turned to surgery. As an expression of the difficulty in deciding on the proper treatment, he reported two cases, in one of which a good deal of surgery was done, and in the other the knife was not used. Both patients were strong and vigorous men, in the prime of manhood. Both were suffering from a long-standing dysentery, nonamebic, with the frequent passage of bloody stools and occasional casts of the bowel. Each was ill about a year and wasted almost to a skeleton, with marked anemia and profound prostration. Ulcerations in the rectum were deep and numerous. In one, his colleague, Dr. Gibbon, did an appendicostomy, and when, later, stricture of the upper portion of the rectum developed, an anastomosis was made between the lower end of the ileum and the rectum, below the stricture. The appendical sinus was closed at a subsequent operation. In the other, medical treatment was persisted in, with colonic lavage, and when strictures of the rectum formed they were dilated gradually with long bougies. In each case the duration of the illness was about two and one-half years before full recovery was established. They had, therefore, one case recovering after several severe surgical procedures, and the other without surgery, the disease lasting in each case practically the same length of time. It was hard to state which case received the proper treatment. They had had but one case recently at the Pennsylvania Hospital of fixation of the colon by bands of adhesions of the type that Mr. Lane so graphically described. This patient was also under the care of Dr. Gibbon. Two years previously she had had her breast amputated for carcinoma, and she entered the hospital with symptoms of partial obstruction of the bowel, which had existed for two months, with progressive loss in body weight and pain in the left iliac fossa, which was increased during defecation. The stools were ribbon-like. A diagnosis of carcinoma of the colon was made, probably of metastatic origin. There was no tumor of the colon on opening the abdomen, but the sigmoid flexure was found straightened and rigid by adhesion of its outer wall to the pelvic peritoneum above the brim of the true pelvis, and the omentum was attached in several places to the inner wall. Division of these adhesions restored the mobility of the sigmoid, and recovery was complete during the five months she was under observation. In connection with amebic dysentery, he desired to report another case which might perhaps illustrate the preformative stage of liver abscess. A young man of twenty-three had been out of sorts for about three weeks, with symptoms of mild gastric and intestinal disturbance. The movements were loose and averaged about two daily. Pain developed in the abdomen, which rapidly centered in the gall-bladder region, with marked tenderness and rigidity, elevation of temperature, and slight leucocytosis. The diagnosis was gastrointestinal catarrh with cholecystitis. On opening the abdomen a mild grade of adhesive peritonitis was found in the gall-bladder region, the transverse colon completely covering the gall-bladder and being adherent to the liver for a distance of three or four inches. On freeing these adhesions, the gall-bladder was found normal, but in the adjacent portion of overlying liver there was a tumor mass the size of a large walnut, infiltrating the liver, of a grayish color and fibrous in appearance. There was an encircling pinkish zone shading from the gray tumor to the normal liver substance. The picture presented was decidedly characteristic of gumma, but the diagnosis of syphilis was not established either by history, examination of a portion of the tumor removed, or by therapeutic test. Ten days after the operation the loose daily bowel movements changed into an active dysentery, and an examination of the stools revealed amebæ in large numbers. The dysentery promptly yielded to medical treatment, and the tumor of the liver gradually subsided. The recovery was uneventful, without further referable symptom to the liver. The microscopical examination of a section of the tumor removed showed only a fibrous hepatitis. The case was undoubtedly one of amebic dysentery from the start, and the question comes up, Was this fibrous hepatitis an early stage of liver abscess, which was absorbed by the treatment, or was it an intercurrent condition unconnected with the ameba?

Dr. Charles L. Gibson said that he would consider in his discussion only the surgical treatment of colitis. He was pleased to note the passing interest in the formation of an artificial anus; ten years ago this procedure would have been entertained, but not to-day. The serious consideration of making an artificial anus in the treatment of colitis did not last long. Its presence was as bad in many cases as the disease itself, and often did not cure the disease. This was merely a palliative method. It occurred to Dr. Gibson in studying the best way to relieve these cases that if they could apply some surgical measure, some simple, safe, and easy procedure for flushing the intestine from the beginning of the colon which would allow constant drainage, a great deal would be gained in the treatment of colitis. He had never felt that colonic irrigations were effective, except possibly temporarily. What was desired was some way to flush out the intestine thoroughly. He thought this might be done by imitating well-known procedures, making an opening into the intestine, placing in a tube, and, from time to time, flushing out the intestine with large quantities of water. This was the procedure which had been made so popular by Dr. Robert F. Weir, using the appendix as a point of entry into the intestine, and this was a simplification of Dr. Gibson's technique. In New York City alone this treatment had been successfully employed in over one hundred cases. This procedure was a great advance, and he was glad that they had given up the making of an artificial anus in the treatment of these cases.

Dr. Willy Meyer said that the cases that came to the surgeon after weeks, and sometimes years, of medical treatment were principally those of chronic dysentery, which might be tuberculous, amebic, or specific. In former years, when they made an artificial anus in the treatment of these cases, the patients were left in a terrible condition because of the fluid condition of the intestinal contents. A great advance had been made with the introduction of Dr. Gibson's and Dr. Weir's method, which produced a watertight entrance to the cecum and colon. The use of the appendix certainly was a great advance in the treatment of this class of cases. One should be very careful in making a differential diagnosis in patients who presented themselves with a bloody discharge. By means of the proctoscope or sigmoidoscope a diagnosis could, as a rule, be readily made. When patients suffered from repeated relapses operation was clearly indicated. Dr. Meyer used the McBurney incision. If the appendix appeared healthy, it should be used in preference to doing a cecostomy. In doing an appendicostomy it was very necessary in every instance to attach the root of the appendix to the parietal peritoneum. Flushing the large intestine was easily accomplished through a comparatively small appendix. Of course, its permeability must first be determined. If not permeable, a cecostomy must be performed. It made quite a difference whether one did an appendicostomy or a cecostomy. In the former operation it was hardly necessary for the patient to wear any dressings over the stump; it was only necessary to place a little gauze in the opening to guard against leakage. In the latter operation, however, a tube must be worn permanently. Dr. Meyer said that they certainly had made great advance in the treatment of such cases with the help of these two operations.

Dr. George E. Brewer said that the correction of chronic constipation relieved a great many of the nervous disorders, especially those that were associated with the various forms of toxemia. These were the cases that were very rebellious under medical treatment, and all should appreciate the importance of these colonic conditions that were associated with cases of chronic constipation and the consequent toxemia. Dr. Brewer said he would like to speak in reference to one point mentioned by Dr. Martin, the lesion he described as a thin vascular membranous veil covering the ascending colon and easily stripped therefrom. This he noticed several times. It showed conclusively that these adhesions might exist, and advance almost to a point of complete obstruction. In one patient he had under observation there were three or four distinct attacks of intestinal obstruction, with meteorism, vomiting, and acute abdominal pain. Certain medical measures relieved this patient, but the attacks were becoming so frequent that something had to be done surgically. The abdomen and the condition described by Dr. Martin was found. There was this thin vascular membranous veil covering the ascending colon and extending from the parietal peritoneum over the mesentery. This vascular membrane was removed without difficulty, being easily stripped therefrom, and this was followed by a complete relief of all the symptoms. Not infrequently had Dr. Brewer seen this same condition extending from the appendix over the cecum. This condition, he believed, might be one of the causes of chronic constipation and chronic toxemia. He believed, furthermore, that in not a few cases it might give rise to symptoms of obstruction.

Dr. James P. Tuttle said that he had been disappointed in that more attention had not been paid to the diagnosis of colonic disease, especially in regard to the significance of the presence of blood, mucus, and pus in the colon. He felt that, in the large majority of the malignant conditions connected with the rectum and colon, the condition became incurable, because the existing constipation or diarrhea was improved under treatment, and the real condition was not suspected. As Dr. Weber had stated, most physicians delayed the diagnosis of tumor or cancer of the bowel until obstruction took place, or a stasis of the fecal material occurred. The first symptoms of neoplasm were diarrhea, borborygmi, cramps; these symptoms appeared even before the appearance of blood, mucus, and pus, and evidenced simply the existing condition by little nagging pains in the bowels, which the physician thought to be nothing but an intestinal toxemia. The diagnostic methods should be studied more. The stools and urine should be more often examined, because often they revealed much of value. Another condition Dr. Martin referred to which interested Dr. Tuttle very much was coloptosis or enteroptosis. He was an advocate of fixation in these cases; on eight or ten occasions he had fixed the transverse colon after it had prolapsed into the pelvis, and with excellent results in all the cases. It was not a difficult operation, and the condition described was frequently one of the causes of constipation. Lane's work had interested him very much, and Dr. Tuttle had been given an opportunity to see fifteen of his cases. He thought that the lower colon had been much maligned, especially in the statement that there was no use for it except as a sewer. He believed it had an important function in the absorption of fats. Lane's cases were not done in private practice—they were experimental studies. He did an ileosigmoidostomy; he left the colon in. Fecal matter backed into the colon from below, or came in from above, and the patients suffered from a worse toxemia than before. Lane then planned to take out the colon, an operation of no great difficulty. The individuals were a sorry lot, with putty-like skins, with autointoxication symptoms and countenances; these fifteen cases composed that lot. Dr. Tuttle wished it to be understood that he did not recommend appendicostomy in the treatment of all cases of amebic dysentery. Over fifty per cent. of these cases could be cured by local measures. He wished to endorse what Dr. Weber had stated in regard to the use of bismuth; it was superior to ipecac and other remedies used, but it should be given in an enteric capsule. With regard to the irrigations with the patient in the knee-chest position, or in Matthew's posture, it sometimes happened that the remedies employed did not seem to reach the amebæ; in such cases excellent results would follow pouring into the patient's rectum two quarts of coal oil.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Held November 15, 1909.

Dr. J. M. Van Cott in the Chair.

The Infectiousness and Contagiosity of Acute Poliomyelitis.—Dr. Le Grand Kerr of Brooklyn read this paper. He said that the occurrence of poliomyelitis in epidemics clearly established its infectiousness. The question then arose, Was it possible in a given epidemic to establish a relationship between the different cases, either through the agency of direct contact or otherwise? In the previous epidemics no systematized record had been made of the general distribution of the cases or their relation to one another. The speaker has made a careful investigation of sixty-five cases that he had personally observed. The first fifty-three of these had occurred in the Brownsville section of the borough of Brooklyn, city of New York, and had been limited to an area of thirty-four city blocks in one direction and eighteen blocks in another (approximately one mile by one mile and a half). August 3 was the date of the beginning of the epidemic, and the last case seen in this particular area had taken suddenly sick on September 4. Twelve cases had been studied in districts remote from the Brownsville section. These districts were from one to seven and a half miles from Brownsville. The parents of case 59 had been in the habit of frequently visiting the section in which cases 54 and 56 occurred, but had known of no direct contact. Cases 60 and 61 had been frequently in contact with the Brownsville section, the families exchanging visits, but there had been no history of direct contact with sick children. No definite history of exposure had been obtained. The parents of seven of the cases had been positive that their children had not been in direct contact with an affected child, and had not recently visited a section known to be affected. In seven instances there had been cases that developed in the same house in which had been other cases, but in different apartments, and in every instance the families had visited freely. The second cases had followed the first ones at the following intervals: In 3 days, 1; in 7 days, 3; in 8 days, 1; in 9 days, 1; in 11 days, 1. In twenty-three instances cases had occurred among children living in the same block (exclusive of the cases occurring in the same house), and in only nine instances did the families visit one another. The children mixed freely in the street. In the determination of the infectious or contagious nature of the disease the following factors were considered: Individual susceptibility, acquired individual susceptibility, tissue susceptibility, and the probable nature of the microbe. Individual susceptibility was subject to the following factors: (a) Inheritance. There was nothing in the histories of any of the cases to suggest the probability of an inherited individual susceptibility. (b) Racial susceptibility. Fifty-four of the cases occurred in children of Hebrew parentage, but the possible import of this was offset by the further fact that the cases were at first limited to an area the population of which was almost exclusively Hebrew. After the disease had been observed outside of this area the racial character changed. Of the

children of American parentage there had been 7 cases; of German, 2; of Italian, 1; of the colored race, 1, and Hebrew, 1. (c) Familial susceptibility. Of the sixty-five cases there was but one instance in which more than one in a family were affected (cases 62 and 63), so that this factor seems to have no bearing. (d) Individual susceptibility. There seems to be clear evidence that there existed an individual susceptibility. This was borne out by the fact that in a very large proportion of instances but one child in a family was affected. In the large majority of instances the disease occurred before the end of the third year of life in fifty-nine out of sixty-five cases. The fact was to be noted that with increasing age in children there was a decreasing aptitude for all infections. Acquired individual susceptibility was due to several factors, as follows: (a) The results of previous disease. Four children had had rubeola, two weeks, one year, sixteen months, and seventeen months, respectively, before the onset of the poliomyelitis. Pertussis was present in one child. Tonsillitis developed with the onset of the poliomyelitis in four instances, lobar pneumonia in one, and gastroentritis in two. There was a history of bronchopneumonia having occurred previously in eighteen children from three months to two and a half years before the onset of the poliomyelitis. Such histories seemed to show that the influence of previous disease was negative. There was a preponderance of gastroenteric symptoms in the onset of the disease in this series. Thirty-two of the cases showed constipation, diarrhea, or vomiting, or a combination of these symptoms. Similar symptoms were the rule in the other acute infections of children. The histories of cases 62 and 63 were detailed. A family of two adults and four children had arrived from California on September 20, and had moved into a new detached, modern house. On October 9 an infant eight months old had a fall, and on the following day there were fever, vomiting, and constipation. On October 11 both lower extremities were paralyzed. The infant had been fed from birth on peptonized and then on sterilized milk. On October 17 a sister of this child, who was twelve years old, complained of headache, and on the following day had fever and malaise. These continued on the 19th. At 11 P. M., after having retired, she awoke unable to turn over in bed, and, calling for aid, it was discovered that both lower extremities were completely paralyzed. Before daybreak both arms were involved in the paralysis, and the voice was so weak that it was impossible to hear her. All four extremities became cold and cyanotic, particularly the left ones. The right side of the face also was paralyzed. There was slight effort of the chest muscles to carry on respiration. The bladder was full, the neck musculature was rigid, and any motion caused pain. Death took place at 11 P. M. that night from respiratory paralysis. This case was autopsied by Dr. Flexner and Dr. Kerr the following morning. These cases were instances of two cases developing after removal into an infected district, one probably from direct contact with her infant brother, but with hygienic surroundings ideal and the food, in at least one of them, sterile. (b) The result of injury. The occurrence of an injury might favor infection. This need not be local, for a decided shock to the entire body might result from such an injury. In this series there were histories of recent injuries in but four cases. It was impossible to estimate the injury of overexertion on the very young. It was known that bacteria had a decided tendency to settle in those parts that were functionally most active. (c) The result of malnutrition. In all of the infants under the age of one year the feeding was by breast, with the exception of two upon modified milk. All except one of the latter showed unmistakable, although slight, signs of rachitis. Of those children over one year of age thirty-one exhibited some of the bony changes of rickets. In its broadest sense rachitis was a disease of malnutrition in which the nervous system suffered as completely as did the bones and other tissues, and the rachitic age was the age in which there was a relatively great development of the nervous system. Interference at this age with nerve nutrition might determine to some extent the development and localization of future disease. (d) The result of general exhaustion. This factor would naturally be present after several days of hot or depressing weather. The past summer was peculiarly free from hot days, and particularly from a succession of them. There was, however, excessive dryness. This had been noted in previous epidemics. Tissue susceptibility might be: (1) Inherent. There was nothing in the histories of these cases to indicate this. (2) Acquired through the agencies of (a) injury. There was no history of a local injury. (b) Local exhaustion. (c) Local malnutrition. (d) Impairment of nerve supply. Excessive functional activity of a part favored the liability to disease, and local exhaustion, and subsequently the inability to perfectly resist microbic invasion. The cord was functionally more active in immature than in mature life, and was easily overtaxed and exhausted. (e) Local disease. This was absent in every case. The probable nature of the microbe—There was much to indicate that the offending agent was one of low virulence. In support of this was the fact that in this, as in other epidemics, there was a widespread distribution. The disease did not usually affect more than one child in a family, nor was the infection of adults of frequent occurrence. Its common occurrence after a heated term, and particularly after a prolonged dry spell, seemed to indicate either a low virulence of the agent which was unfavorably influenced by low temperature, or which was so low as to require the aid of the favoring factor of heat to give it its power. The indication seemed to be that it was carried by a third person, who remained healthy but who was capable under favoring circumstances of being the innocent agent in its spread. The speaker was convinced that in acute poliomyelitis we were dealing with a hematogenic infection of a microbic agent of low virulence, that this infection was engrafted upon a tissue susceptibility which was acquired through the agencies of local malnutrition, exhaustion, and nerve impairment, and that this local condition was dependent upon the two factors of functional activity and a general state of malnutrition, and that the most favoring factor of all was an individual susceptibility, over which we had absolutely no control.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

Stated Meeting, Held December 3, 1909.

Tuberculous Osteomyelitis of the Right Metatarsals.—Dr. V. P. Gibney showed a patient who had been suffering from tuberculous osteomyelitis of the right metatarsal bones, and in addition had shown signs of pulmonary and laryngeal involvement. The patient came to him for the first time in January, 1908, but had been receiving treatment elsewhere for some months previous, the foot having been put up in a plaster cast. The *x*-ray showed rarefaction of four of the metatarsals and without further treatment the patient was sent to Saranac in the Adirondacks. He was told to come back later for further treatment, which he did on May 8, 1908. Incisions were then made over the diseased metatarsals, the bones scraped and then wiped with iodoform gauze, and the wounds closed without drainage. (Smears and cultures made at the time of the operation from the diseased tissue were negative.) The foot was then put up in a plaster cast and the patient sent to Denver as soon as his condition permitted him to travel. From Denver he went to the Adiron-

dacks and later took a European tour. He was now seen for the first time since his operation and was enjoying the best of health. His foot was perfect in function and form and he had had no symptoms of further trouble. The signs of tuberculous infection elsewhere had entirely disappeared and he might well be pronounced cured.

Dr. Gibney said further: "This case presented all the clinical features of a tuberculous osteomyelitis. The history which I have shows that in the early part of his laryngeal troubles, as furnished by Dr. Coakley, a smear was taken by his Brooklyn physician, and the bacilli of tuberculosis found. Dr. Brown of Saranac treated him one or two seasons, but I have been unable to get a report from this gentleman. His assistant writes me that he was under Dr. Brown's care. My own pathologist, Dr. Jeffries, reported merely necrotic tissue. This kind of a report is frequently sent in by a pathologist, and later, after a little further search, they find in this same tissue the bacilli. Dr. Coakley treated him for some time for this laryngeal tuberculosis, and insisted on my using chloroform rather than ether at the time of the operation."

Dr. J. D. Bryant asked how much the constitutional treatment had to do with the cure of the local condition in the foot, and whether one should begin with the constitutional treatment in such cases or first operate on the local condition.

Dr. Gibney, in reply, said that it depended on many things, such as the patient's occupation, financial circumstances, etc., but that he should always have the proper general treatment if possible, depending on the severity of the case. In operating on such cases he advised closure of the wound without drainage, since cold abscesses were very frequently sterile and drainage only increased the danger of secondary infection.

Sarcoma of the Ankle.—Dr. Joseph D. Bryant reported this case. The patient was a policeman, forty-eight years of age, who had always enjoyed good health until the present illness. Twenty-seven years ago he was struck on the right ankle by a steel girder, but there was no fracture and the skin was not broken. Twenty years ago he slipped while getting off a car and received a lacerated wound of the lower right shin, extending to the bone. This was sutured with good result. Six years ago he slipped and sprained the right ankle and was unable to walk for several weeks. In February, 1908, the patient fell and injured his right ankle and was unable to stand on account of the pain. He was removed to a hospital and remained there two weeks with his foot and ankle in a plaster cast. Later he returned to police duty, but was forced to favor his right leg and complained that prolonged standing caused aching pain at the location of the callus at the junction of the middle and lower thirds. The last injury occurred in March, 1909, and was the result of a sprain while walking on a smooth pavement. After the injury he was unable to stand on the right foot and was taken home in a cab. The foot and leg swelled rapidly and he suffered great pain. He was treated for rheumatism for ten days and then the leg was splinted for two weeks. This treatment affording no relief, the foot and ankle were put up in a plaster cast and remained so for seven weeks. During this period he was never entirely free from pain and on removal of the cast was unable to stand on account of pain across the dorsum of the foot. He was able to move about with the aid of crutches, but could put no weight on the foot without suffering great pain as long as the foot was extended. Flexion of the foot to a right angle with the leg caused great pain. Since this last accident there had been constant redness of the lower third of the right leg and ankle, with some swelling and tenderness. This swelling had been increasing for the past few months. On admission to the hospital he complained of pain in the right ankle upon attempting to stand, loss of motion in the right ankle, and swelling and redness of the lower third of the right leg. The physical examination was negative, except for the local condition. The skin over the right leg was dusky red from the knee to the ankle, the lower third was much swollen, and an ovoid tumor was present on the inner side of this part of the leg. The skin over this region was very red, the leg pitted on pressure, and fluctuation was present on the inner side of the tumor. The tibia in its lower third presented some irregularities on the anteromesial aspect, with apparent loss of substance. The nodular irregularities felt like callus formation. The right ankle was swollen and dusky red, but extension of the foot was practically normal. Flexion was restricted and caused pain over the dorsum. Inversion and eversion were restricted and soft crepitation was felt in the ankle on manipulation. There were no palpable lymph nodes in the right leg. The urinary examination showed no albumin, but 0.9 per cent. of sugar. The patient was placed on antidiabetic diet on November 25 and again on November 29 was found to be sugar free and remained so. Blood examination showed white cells, 12,800, with 62 per cent. of polymorphonuclear cells, 28 per cent. large and small lymphocytes, and 10 per cent. transitionals and other mononuclear forms. The Wassermann reaction was negative, but the von Pirquet test with 25 per cent. tuberculin gave a slight reaction. On November 16 fluid was aspirated from the tumor mass and smears made from this showed many red blood cells, but no microorganisms. Cultures were made, but remained sterile. The patient was operated upon November 22, 1909, and an incision four inches long was made over the most prominent portion of the tumor on the inner surface of the tibia in the lower third. This incision was carried down through the membranous shell, following which about ʒiii of bloody fluid containing fat globules escaped. Some of the fluid was collected for examination. Upon the introduction of the finger it was found that the tumor was divided into six or seven cavities containing bloody fluid (resembling a multilocular cyst). By means of a chisel, portions of tibia were removed for examination. In all the cavity held about ʒviii of fluid, and extended completely through the tibia. The tissue removed at the operation proved on examination to be giant-cell sarcoma. The examination of the fluid showed red blood cells, fat globules, large flat crystals, and no bacteria.

Facial Hemiatrophy in a Child.—Dr. M. Allen Starr showed two photographs of a patient suffering from facial hemiatrophy which had been sent to him by Dr. Fiaschi of Sydney, Australia, the interesting fact being that the patient was now only eight years old and the disease began at the age of six after an attack of whooping cough. The atrophy involved the whole right side of the face from the supraorbital ridge to the lower border of the inferior maxilla, and had increased quite rapidly. The disease was not very uncommon among young adults, but Dr. Starr had been unable to find any record of a case in a young child.

Noma in Typhoid Fever.—Dr. Francis P. Kinnicutt reported the following case of fatal noma, developing on the thirty-fourth day of typhoid fever. He reported it on account of the very rare occurrence of noma in typhoid fever. The patient was a girl of eleven years, suffering from typhoid, who was admitted to his wards in the Presbyterian Hospital on the twelfth day

of the disease. Blood cultures were positive; Widal was negative at first, but later was positive. The patient was taking a fairly large amount of nourishment, 1,700 or 1,800 calories daily, of a semi-soft diet. On the thirty-fourth day of the disease the patient's temperature was normal for the first time, but she complained of toothache. Examination revealed a decayed tooth which was ulcerated about the base. The tooth was extracted, but the ulcer spread over the gum, the sublingual tissues, and the inner surface of the cheek. Later the ulcer perforated the cheek and rapidly destroyed a large portion of its tissues. The patient died on the tenth day after the development of the necrotic process, no treatment availing to arrest its progress. Agglutinins were entirely absent in the tenth dilution, but opsonins were present, as shown by the active phagocytosis and an opsonic index of 1.3 for staphylococcus. Pure cultures could not be obtained from the ulcerated area. Many organisms were present, the staphylococcus, streptococcus, and pseudo-diphtheria bacillus predominating. Stock vaccines of combined staphylococcus and streptococcus were given and the leucocytes rose from 10,000 to 17,000, with a marked increase in the polymorphonuclear forms, without influence, however, upon the rapid progress of the disease.

Radium as a Specific in Giant Cell Sarcoma.—Dr. Robert Abbe read this paper. (See page 1.)

Dr. Prudden remarked that it was an unfortunate classification that placed giant-cell sarcoma with general sarcomata, since the former were so specialized that some pathologists refused to include them with the truly malignant sarcomata. They might in time, however, become malignant.

Dr. J. D. Bryant said that there had been several cases of epulis in his service at Bellevue Hospital, the surgical removal of which had resulted in permanent cure. He asked Dr. Abbe if, in his opinion, the case of sarcoma which he had reported was a suitable one for radium treatment and suggested that he give the patient the necessary treatments.

Dr. Abbe thought the patient would respond to the treatment and said that he would be glad to give the necessary treatments and report the result at a later meeting.

Dr. Charles L. Dana asked why the *x*-ray men now disapproved of the use of radium.

Dr. Abbe, in reply, said that he thought the latter had given it up because they had neither studied its action carefully nor had been able to acquire a sufficient amount of the substance to obtain definite results. Radium probably acted similarly to the *x*-ray, but was much better in some cases. It had never failed to produce retrogression of certain sarcomatous tissue and nothing in surgery would compare with the specificity of its action except mercury and the iodides in syphilitic tumors. A wart, in a single treatment of one-half hour, would retrograde, not by caustic, cautery, or any chemical action, and disappeared entirely. It did not destroy tissues, though it might bring about necrosis by prolonged action; rather it caused a retrogression of the unnatural growth. Practically all cases of superficial epithelioma would disappear in a single treatment of from one-half to one hour's duration. There had been many failures in the treatment of carcinoma with radium, carcinoma of the tongue being especially refractory to this treatment. Dr. Abbe also spoke of the source of radium and pointed out the scarcity of pitchblende—its principal source. This substance yielded a refuse after the uranium had been extracted for the glass industry in Bohemia and the supply was very limited.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Idaho State Medical Licensing Board.

Boise, October 5 and 6, 1909.

ANATOMY.

1. Give the deep and superficial origin, course, and distribution of the pneumogastric nerve.
2. What constitutes the brachial plexus?
3. Give the origin, insertion, and nerve supply of the (a) longest and (b) shortest muscle in the body.
4. Name the flexor muscles of the forearm and describe one of them.
5. Describe the sternum, its articulations, and the important muscles attached to it.

HISTOLOGY.

1. From what primary layer is the nervous system developed? The peritoneum? The mucous membrane? The kidneys? The teeth?
2. What are the following: Corpus luteum? Macula lutea? Loop of Henle? Paccinian bodies? Stomata?
3. Describe the structure of the thyroid gland.
4. Mention all the histological bodies found in normal blood.
5. Name the layers of the retina.

PHYSIOLOGY.

1. Name the reflex centers of the medulla oblongata.
2. Is there any localization in the cerebellar cortex?
3. Name and give the location of the several sympathetic ganglia.
4. Name the principal secreting organs and the general types of structure.
5. What change takes place in the blood during its passage through the capillaries of the lungs?
6. Define external and internal secretions, and give an example of each.
7. Define proteoses and peptones, and say by what process those products are evolved during digestion.
8. Describe the structure of the uterus.
9. Give all the causes of contraction of the pupil.
10. Describe the act of deglutition. By what nerve centers is the process controlled?

CHEMISTRY AND TOXICOLOGY.

1. Give the chemical name and formula of (*a*) common salt, (*b*) marble, (*c*) plaster-of-paris, (*d*) borax, (*e*) blue vitriol, (*f*) sulphate of iron.
2. Give the symbol, atomic weight, and valence of five non-metals and of five metals.
3. Define molecular weight and molecular volume. Give an example of each.
4. Describe two experiments showing the difference between mechanical and chemical action.
5. Which is the most abundant element? Name the elements represented by the following symbols: K, Na, Ni, Si, Sb, S, Mg, Pb, Cu, Hg, Ag, Co, Mn, F, P.
6. How may poisons be classified? Give the manner of action of each class.
7. What is the difference between ptomains and leucomains? Give example of each.
8. Describe symptoms of toxic doses of strychnine, morphine, strophanthus, hydrocyanic acid, and aconite.
9. What antidotes should be used in phosphorus poisoning? Explain the action of each.
10. What is the chemical treatment for carbolic acid poisoning?

PATHOLOGY.

1. Define and describe thrombosis, embolism, metastasis, necrosis.
2. What is amyloid degeneration? In what organs does it generally occur?
3. Describe the process of parenchymatous inflammation.
4. Decribe the bacillus of tuberculosis. Describe a tubercle.
5. State the pathology of fibrinous or lobar pneumonia.
6. Give the pathological lesions of typhoid fever.
7. Give the pathology of chronic interstitial nephritis.
8. Describe the skin lesions occurring in psoriasis.
9. Locomotor ataxia; give its pathology.
10. What changes occur in the red blood corpuscles in progressive pernicious anemia?

DIAGNOSIS.

1. Tuberculin tests; give description of, uses, and results.

2. Give diagnosis of acute pancreatitis.
3. Differentiate cholecystitis and cholangitis.
4. Differentiate nephrolithiasis, chronic parenchymatous nephritis, and chronic interstitial nephritis.
5. Give blood findings in anemia.
6. Name three diseases caused by microorganisms, describe each organism, and give method of staining.
7. Differentiate between chronic pneumonia and tuberculosis of the lungs.
8. Give concise description of the heart murmurs, where found.
9. Differentiate between cerebral and gastric vomiting.
10. (*a*) Describe Hutchinson's teeth and state in what disease they are most commonly found. (*b*) What is Babinski's sign? (*c*) Koplik's spots? (*d*) Cheyne-Stokes respiration; when found?

THEORY AND PRACTICE.

1. Give methods of feeding infants who are deprived of mother's milk.
2. Stomatitis, varieties, symptoms, diagnosis, and treatment.
3. Give short description of serum therapy and name diseases in which it has been successfully employed.
4. Give etiology, symptoms, prognosis, diagnosis, and treatment of acute ileocolitis.
5. Give etiology, symptoms, diagnosis, prognosis, complications, and treatment of typhoid fever.
6. Same of gonorrheal arthritis.
7. Same of tabes dorsalis.
8. Same of cerebrospinal meningitis, including microscopic specimen; how obtained and findings.
9. Describe bronchiectasis, give symptoms, physical signs, and treatment.
10. Give etiology, symptoms, prognosis, diagnosis, and treatment of rachitis.

OBSTETRICS.

1. Give diagnosis of cystic degeneration of the chorion; treatment; prognosis.
2. Give mechanism of labor, vertex presentation.
3. Give presumptive and positive signs of pregnancy.
4. Give management of lateral placenta prævia.
5. Give management of threatened abortion; treatment of complete abortion.
6. How diagnose ectopic pregnancy?
7. What conditions would necessitate (*a*) version, (*b*) Cesarean section, (*c*) forceps delivery?
8. Why is it necessary hastily to deliver the head in breech or foot presentations?
9. What is the cause of phlegmasia alba dolens?
10. How diagnose and treat invertion of the uterus?

GYNECOLOGY.

1. Give the etiology, symptoms, and treatment of acute pelvic peritonitis.
2. Give the etiology, symptoms, and treatment of acute ovaritis.
3. Make a differential diagnosis between ascites and ovarian cyst.
4. Give the symptoms and treatment of membranous dysmenorrhea.
5. Define and give the etiology and symptoms of pelvic hematocele.
6. Give the etiology, symptoms, and treatment of abscess of the vulvovaginal gland.
7. Describe the symptoms of salpingitis. Name the varieties of salpingitis according to the tubal contents.
8. Give the symptoms and treatment of urethral caruncle.
9. Describe the symptoms and treatment of a rectovaginal fistula.
10. Give the symptoms and treatment of gonorrheal vaginitis. Name the complications.

SURGERY.

1. Define asepsis; mention a few of the best antiseptics.
2. Mention five common suture materials and tissues best joined by each.
3. Write less than two hundred words, stating your practice with regard to drainage.
4. Give treatment for paronychia, hordeolum, empyema.
5. How would you diagnose cystic calculi?
6. Give the differential diagnosis of appendicitis.
7. How treat peritonitis?
8. Give treatment for ingrowing toenail; treatment for actinomycosis.
9. Mention surgical complications of typhoid fever.
10. What is appendicostomy, dactylitis, osteomyelitis, Dubois' abscess, hysterotrachelorrhaphy?

HYGIENE.

1. Name the principal constituents of soil and its physical properties.
2. Define tilth, marl, loam, humus, peat, muck, and state which of those soils will retain the greatest amount of water, and which is most inimical to pathogenic organisms.
3. To what average depth is soil self-purifying, by what natural agents is the work accomplished, and how do the dwellers on the soil retard it?
4. Name the different sources of our water supply and its sanitary classification.
5. How may a well be polluted by a cesspool on a lower level or remain unaffected by one on higher ground? Answer by diagram if you wish.
6. Describe an ordinary filter bed for the purification of water, and say what is the fundamental principle of Dibdin's bacteria beds, and Cameron's septic tank.
7. Do we inspire and expire microorganisms?
8. Describe the atmospheric conditions desirable for the support of human life.
9. What effect upon the blood results from the inhalation of carbon monoxide and what per cent. by volume is fatal to animal life?
10. Tabulate the conditions of hygienic interest with regard to various employments.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

IDAHO STATE MEDICAL LICENSING BOARD.

Boise, October 5 and 6, 1909.

ANATOMY.

1. PNEUMOGASTRIC NERVE. *Superficial origin:* Groove between restiform and olivary bodies. *Deep origin:* Nuclei in floor of fourth ventricle. *Course:* Outward across the flocculus, to jugular foramen through which it passes, here it is joined by the accessory portion of the spinal accessory nerve. As it goes down the neck it lies in front of the rectus capitis anticus major and longus colli muscles. It passes in the carotid sheath behind and between the artery and vein. In the thorax the nerve on each side runs a different course. The *right* passes between the subclavian artery and vein, by side of trachea to root of lung, behind esophagus, through esophageal opening in diaphragm to posterior surface of stomach. The *left* passes between the subclavian and carotid arteries, in front of arch of aorta to root of lung, along anterior surface of esophagus, through diaphragm, to anterior surface of stomach. *Distribution* is shown by the names of the branches: Meningeal, auricular, pharyngeal, superior and inferior laryngeal, cardiac, pulmonary, esophageal, and gastric.

2. The *brachial plexus* is formed by the union and subsequent division of the anterior divisions of the fifth, sixth, seventh, and eighth cervical and the first dorsal nerves. The union of the fifth and sixth makes the upper trunk; the seventh forms the middle trunk, and the eighth cervical and first dorsal make the lower trunk. Each of these trunks is divided into an anterior and a posterior branch. The anterior branches, from the upper and middle trunks, make the upper or outer cord of the plexus; the anterior branch of the lower trunk becomes the lower or inner cord; the three posterior branches unite to form the posterior or middle cord. The plexus lies between the Scalenus anticus and medius. The *branches* are: (1) Above the clavicle; communicating, muscular, posterior thoracic, and suprascapular. (2) *From outer cord:* External anterior thoracic, musculocutaneous, and outer head of median. (3) *From inner cord:* Internal anterior thoracic, lesser internal cutaneous, ulnar, and inner head of median. (4) *From posterior cord:* Subscapular, circumflex, and musculospiral.

3. *Longest muscle* in body is SARTORIUS. *Origin:* Anterior superior spine of ilium, and notch below. *Insertion:* Inner and upper part of shaft of tibia. *Nerve supply:* Anterior crural. *Shortest muscle* is probably STAPEDIUS. Origin: Pyramid of tympanum. *Insertion:* Neck of stapes. *Nerve supply:* Facial.

4. Biceps, brachialis anticus, supinator longus, pronator radii teres. The *Supinator longus* arises from the upper two-thirds of the external supracondylar ridge of the humerus, and is inserted into outer side of the base of the styloid process of the radius. It is superficial for most of its extent; it is supplied by the musculospiral nerve. Besides being a flexor of the forearm, this muscle acts both as a pronator and supinator; it tends to bring the bones of the forearm into a position midway between pronation and supination.

5. The STERNUM is a flat, narrow bone, situated in the

median line of the front of the thorax. It consists of three portions: Manubrium, gladiolus, and ensiform. It is about seven inches long. At the junction of the first two pieces is the angle of Ludovic; and here the second costal cartilage joins the bone. It articulates with the clavicle and seven costal cartilages on each side. Muscles attached are: Pectoralis major, sternomastoid, sternohyoid, sternothyroid, diaphragm, triangularis sterni, and aponeuroses of external oblique, internal oblique, rectus abdominis, and transversalis.

HISTOLOGY.

1. The nervous system is developed from the epiblast; the peritoneum, from mesoblast; mucous membrane, from epiblast and hypoblast; kidneys, from mesoblast; teeth, the enamel from the epiblast, dentine from the mesoblast.

2. *Corpus luteum* is a yellow body formed in the ovary at the site where an ovum has been discharged from a Graafian follicle. *Macula lutea* is a yellow depressed spot at the center of the retina; vision is most acute here. *Loop of Henle* is a part of the convoluted uriniferous tubule of the kidney. *Pacinian bodies* are ovoid, laminated bodies surrounding the termination of certain nerves in the skin and mesentery and corpora cavernosa. *Stomata* are minute orifices between endothelial (and other) cells.

3. The thyroid gland "is surrounded by a capsule that sends in trabeculæ, which divide the gland into lobes and lobules. These divisions are irregular, and the lobules are composed of a number of short tubules, sometimes called follicles. Each tubule is lined by cuboidal epithelial cells that rest upon a basement membrane; outside of this is the intralobular, or intertubular, connective tissue that supports the blood-vessels. In the tubules is seen a peculiar, homogeneous substance, the colloid substance, that is supposedly the result of the activity of the cells. It has a yellowish color, and as blood cells are frequently seen in it, the color may be due to the hemoglobin from these."—(Radasch's *Compend of Histology.*)

4. Red corpuscles: white corpuscles (small mononuclear, large mononuclear, transitional, polynuclear, esinophile); platelets.

5. (1) Layer of pigment cells; (2) layer of rods and cones; (3) the external limiting membrane; (4) the outer nuclear, or granular, layer; (5) the outer molecular, or reticular, layer; (6) the inner nuclear, or granular, layer; (7) the inner molecular or reticular layer; (8) the layer of ganglion cells; (9) the layer of nerve fibers; and (10) the internal limiting membrane.

PHYSIOLOGY.

1. (1) Center for mastication, (2) for secretion of saliva, (3) for sucking, (4) for deglution, (5) for vomiting, (6) for voice, (7) center for expression, (8) cardiac centers, (9) respiratory centers, (10) vasomotor centers.

2. Strictly speaking, there is no localization.

3. *Ganglion of Ribes*, on anterior communicating artery. *Superior cervical*, in front of the transverse processes of the second and third cervical vertebræ. *Middle cervical*, opposite sixth or seventh cervical vertebra, and in relation with inferior thyroid artery. *Inferior cervical*, over back of first rib, and beneath vertebral artery. *First thoracic*, beneath head of first rib; sometimes blends with inferior cervical. *Second to eleventh thoracic*, on heads of ribs, under cover of pleura. *Twelfth thoracic*, on side of twelfth thoracic vertebræ, behind diaphragm. *Four lumbar ganglia*, in front of bodies of lumbar vertebræ, on inner side of psoas, and being overlapped by aorta and inferior vena cava. *Four sacrol ganglia*, on inner side of anterior sacral foramina. *Ganglion impar*, in front of coccyx. Also *ophthalmio ganglia*, at back of orbit. *Sphenopalatino*, in sphenomaxillary fossa. *Otic*, below foramen ovale. *Submaxillary*, above submaxillary gland and behind mylohyoid muscle.

4. Liver, pancreas, salivary glands, intestinal glands; sweat, and sebacceous glands; testes, Cowper's glands, mammary glands; lacrymal glands; small gland in respiratory tract; ductless glands (spleen, thyroid, thymus, and suprarenals).

General types of structure: I. SIMPLE GLANDS.—Duct undivided. (*a*) *Simple tubular:* Undilated at end. (*b*) *Simple acinous (alveolar or saccular):* Dilated at end. II. COMPOUND GLANDS.—Duct divided. (*a*) *Compound tubulor:* Branched elongated tubes, no acini. (*b*) *Compound acinous or alveolar (racemose glands)*, branched duct with saccular acini on terminal branches. (*c*) *Acinotubular.*—Branched duct, with elongated narrow acini on terminal branches.

5. (1) The giving up of the CO_2 by the venous blood, (2) the absorption of oxygen during inspiration, (3) cooling of the blood, (4) loss of a small amount of watery vapor, (5) the color becomes red.

6. *External secretions* are such as are carried off from the secreting gland by a duct; as, the bile. *Internal secretions* are such as are not carried off by a duct, but are discharged into the blood or lymph; as, the secretion of the thyroid (or other ductless glands).

7. *Proteoses* are intermediate products between proteids and peptones. *Peptones* are the final product of digestion of proteids. They are both evolved by the action of the pepsin of the gastric juice, and the trypsin of the pancreatic juice, during the digestion of proteids.

8. See Cunningham's "Anatomy" (1909), page 1187; or Gray's "Anatomy" (1908), page 1498.

9. (1) Stimulation by light; (2) stimulation of third cranial nerve; (3) paralysis of cervical sympathetic; (4) accommodation for near objects; (5) sleep; (6) myotic drugs, such as opium; (7) turning inwards of the eyeball.

10. *Deglutition:* "The masticated food is gathered up by the tongue and formed into a bolus between the tongue and the hard palate. The tongue is then pressed from before backwards against the roof of the mouth, and the bolus slips back, through the fauces, and is ultimately grasped by the pharyngeal muscles, and passed into the esophagus. The act of deglutition is divided into three stages: "The first stage is a voluntary act, by which the food is carried back to the anterior pillars of the fauces. The second stage consists in the passage of the bolus from the anterior pillars of the fauces to the commencement of the esophagus; this is a reflex act, and is performed very rapidly, as the food has to pass over the opening of the larynx. As soon as the bolus arrives at the isthmus of the fauces, the pharynx is prepared for its reception. The hyoid bone is drawn forwards and upwards, so that the larynx is protected by the base of the tongue, which projects over it; the epiglottis being closed at the same time, and the vocal cords approximated so as to close the rima glottidis. The pharynx itself is shortened and drawn forward by the contraction of the palato-pharyngei muscles; the soft palate is also raised and made tense, thus cutting off the upper part of the pharynx and posterior nares, and forming an incline under which the bolus is passed into the pharynx. This passage is effected by the elevation of the hyoid bone and the base of the tongue, and the simultaneous contraction of the pillars of the fauces. The bolus is then seized and carried rapidly down past the larynx by the pharyngeal constrictors. The third stage of the act of deglutition is due to the peristaltic contractions of the esophagus." The nerve centers are in the medulla.

CHEMISTRY AND TOXICOLOGY.

1.

	CHEMICAL NAME.	FORMULA.
(*a*) Common salt.....	Sodium chloride	NaCl
(*b*) Marble	Calcium carbonate	$CaCO_3$
(*c*) Plaster of Paris....	Calcium sulphate	$CaSO_4$
(*d*) Borax	Disodic tetraborate	$Na_2B_4O_7$
(*e*) Blue vitriol	Cupic sulphate	$CuSO_4$
(*f*) Sulphate of iron....	Ferrous sulphate	$FeSO_4$

2.

	SYMBOL.	ATOMIC WEIGHT.	VALENCE.
Five non-metals:			
1. Hydrogen	H	1	1
2. Oxygen	O	16	2
3. Nitrogen	N	14	3 or 5
4. Fluorine	F	19	1
5. Chlorine	Cl	35.5	1
Five metals:			
1. Mercury	Hg	200	2
2. Copper	Cu	63	2
3. Aluminum	Al	27	3
4. Gold	Au	197	1 or 3
5. Silver	Ag	108	1

3. *Molecular weight* is the weight of a molecule of a substance as compared with the weight of an atom of hydrogen. It may also be said to be the sum of the weights of the atoms composing the molecule. Thus, the molecule weight of sulphuric acid, H_2SO_4 is $(2+32+64)$, that is, 98; or 98 times the weight of an atom of hydrogen. *Molecule volume* is the molecular weight divided by the specific gravity.

4. "When a cylinder of lime is strongly heated it becomes white hot and emits light; it is still lime, however, after the action of the heat, as it was before. This is a physical phenomenon. If, now, we throw this lime into

hydrochloric acid it disappears, and, after the action has been completed, we find neither lime nor hydrochloric acid, but two new substances, one a solid, called calcium chlorid, the other a liquid—water; both of which differ in their composition from the original substances, which have disappeared. This is a chemical phenomenon."

5. The most abundant element is oxygen. K is potassium; Na, sodium; Ni, nickel; Si, silicon; Sb, antimony; S, sulphur; Mg, magnesium; Pb, lead; Cu, copper; Hg. mercury; Ag, silver; Co, cobalt; Mn, manganese; F, fluorine; P, phosphorus.

6. Poisons may be classified as: (1) Mineral, (2) vegetable, (3) animal, and (4) synthetic.

7. *Ptomains* are basic, nitrogenous compounds, produced from protein material by the bacteria which cause putrefaction. *Examples:* Cadaverin, and putrescin. *Leucomains* are similar substances produced in living animals during normal metabolism. *Examples:* Xanthin and hypoxanthin.

8. The *symptoms of strychnine poisoning* are as follows: A sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm or by exhaustion during a remission. The *symptoms of poisoning by morphine* are as follows: At first there is usually a period of excitation, marked by restlessness, great physical activity, loquacity, and hallucinations. The patient then becomes weary, dull, and drowsy; he yields to the desire for sleep, from which at first he may be roused. The lips are livid, the face pale, the pupils contracted, and the surface bathed in perspiration. The condition of somnolence rapidly passes into narcosis. The patient cannot be roused, and lies motionless and senseless, with completely relaxed muscles. The pulse, at first full and strong, becomes feeble, slow, irregular, and easily compressible; the respiration slow, shallow, stertorous, and accompanied by mucous râles. The patient rapidly becomes comatose, and in fatal cases, dies in from 45 minutes to 56 hours, usually in from 12 to 18 hours. *Strophanthus* causes: Nausea, colic, diarrhea, slow pulse, dyspnea, headache, vertigo, cold extremities, drowsiness, and syncope. *Hydrocyanic acid* causes: Constriction of throat, vertigo, mental confusion, loss of muscular power, quick pulse, slow respirations, tetanic convulsions, loss of control of sphincters, and paralysis. *Aconite* causes: Numbness and tingling, first of the mouth and fauces, later becoming general. Dryness and constriction in the throat. Persistent vomiting usually occurs, but is absent in some cases. There is diminished sensibility, with numbness, great muscular feebleness, giddiness, loss of speech, irregularity and failure of the heart's action.

9. Antidotes to phosphorus are: Old French oil of turpentine and potassium permanganate. The latter acts as an oxidizing agent. Fats and oils must not be given, as they would help in the absorption of the phosphorus.

10. For carbolic acid poisoning: Give sodium sulphate, or magnesium sulphate, or albumin; follow this with lavage. Alcohol is also recommended.

PATHOLOGY.

1. *Thrombosis* is the coagulation of the blood within the vessels during life. *Embolism* is the plugging of a blood-vessel by a foreign body. *Causes of thrombosis:* (1) Changes in the walls of the blood-vessels, due to the presence of infection or foreign bodies; (2) changes in the blood, whereby its tendency to coagulate is increased; (3) diminished rate of the blood flow, due to weak heart action or obstruction. *Embolism* is generally due to thrombi, but is also caused by fragments of vegetations or atheromatous or calcareous masses from the cardiac valves or the intima of the arteries; other causes are parasites, pieces of new growths, pigment granules, fluid fat, or air. *Metastasis* is the transfer of some pathological condition from one part of the body to another not immediately connected with it. *Necrosis* is the complete and permanent arrest of nutrition in a part; or local death of tissue.

2. *Amyloid degeneration* is a degenerative process in which the affected tissues have a whitish waxy appearance, due to the presence of a colorless, firm, translucent and lardaceous substance. With iodine it gives a blue stain. It generally occurs in: Liver, kidneys, spleen, lymphatic glands, intestines

3. *Parenchymatous inflammation* is the name occasionally given to an inflammatory process when it attacks the active cells and tissues of an organ; as in parenchymatous nephritis, where the renal epithelium is affected.

4. The tubercle bacillus is rod shaped, is from 1½ to 3½ mikrons in length, and about one-third to one-half a mikron in breadth, is a strict parasite, is not motile, and has no flagella; it has no spores, is non-liquefying, non-chromogenic, erobic, and acid-resisting. A *tubercle* is a small nodule, found in the lungs or other organs in cases of tuberculosis, but also found in other diseased conditions. It consists of three layers, the outer one consisting of lymphoid cells, the middle one of epitheloid cells, and the inner one of giant cells. These layers are squeezed or compressed into a firm mass, which may caseate or undergo other pathological processes. There is no blood supply to a tubercle.

5. See French's "Practice of Medicine" (1907), page 154; or Osler's "Practice of Medicine" (1909), page 170.

6. See French's "Practice of Medicine" (1907), page 70; or Osler's "Practice of Medicine" (1909), page 65.

7. See French's "Practice of Medicine" (1907), page 902; or Osler's "Practice of Medicine" (1909), page 695.

8. Round or oval red patches, covered with adherent, silvery, or gray scales; these occur chiefly on the extensor surfaces of elbow, knee, and limbs; also on scalp. There is more or less itching, and the condition is apt to be chronic. On removing the scales a red, punctate, bleeding surface is found.

9. See French's "Practice of Medicine" (1907), page 1047; or Osler's "Practice of Medicine" (1909), page 887.

10. (1) Diminution in number; (2) relative increase in amount of hemoglobin; (3) poikilocytosis; (4) some are nucleated; (5) variation in size.

DIAGNOSIS.

1. The *tuberculin test* consists in giving a hypodermic dose of 1 mg. of the fluid; if no reaction occurs in twenty-four hours, a dose of 2 mg. is given; if, again, there is no reaction in twenty-four hours, a dose of 3 mg. is given. The maximum dose is 10 mg. Its *use* is to aid in the diagnosis of tuberculosis. *Results:* It is said to be valuable; but some say it should never be used.

2. Pain in epigastrium, which is sudden and severe; vomiting; collapse; swelling and tenderness over epigastrium; and slight fever.

3. In *cholecystitis* are: Pain in and tenderness over gall-bladder; muscular rigidity; fever, rapid pulse, vomiting. In *cholangitis* the symptoms are much the same, but the pain is very much more severe, and radiates to right shoulder; the fever is also less.

4. *Neprolithiasis* is characterized by: Renal colic, with pain radiating to testicle; hematuria; tenderness over affected kidney; *x*-ray may show the calculus. This condition is not likely to be mistaken for the two forms of nephritis. In *chronic parenchymatous nephritis:* The urine is slightly diminished, turbid, has abundance of albumin, generally some blood, abundance of sediment, blood corpuscles, casts (especially fatty), diminished urea; may be cardiac hypertrophy; marked dropsy, and often uremia. In *chronic interstitial nephritis:* The urine is increased in quantity, pale, clear, of low specific gravity, little or no albumin, scanty sediment, few casts, diminished urea; the heart is hypertrophied, sometimes considerably; dropsy often absent till heart fails; uremia frequent.

5. In *secondary anemia:* (1) A diminution in the number of red corpuscles; (2) a diminution in the amount of hemoglobin, perhaps greater than that of the red corpuscles; (3) poikilocytosis, and variations in the size of the red corpuscles; (4) the presence of a few nucleated red corpuscles; (5) a moderate leucocytosis. In *pernicious anemia:* (1) A diminution in the number of red corpuscles; (2) a relative increase in the amount of hemoglobin; (3) poikilocytosis; (4) the presence of nucleated red cells; (5) variation in the size of the red cells; (6) the leucocytes *may* be diminished.

6. (1) TUBERCULOSIS. For *description* of bacillus, see above, PATHOLOGY, Question 4. For *staining* (in sputum): See French's "Practice of Medicine" (1907), page 1216. (2) GONORRHEA. The *Gonococcus* is a diplococcus with a special predilection for the mucous membrane of the urethra; it is sometimes found on the conjunctiva. The appearance is that of two coffee beans; the gonococcus is found in the pus cells, stains with ordinary anilin dyes, but not by Gram's method. It is erobic, and can be cultivated on human blood serum; it will not grow on gelatin, agar, bouillon, or potato. (3) DIPHTHERIA. The Klebs-Loeffler bacilli are from 2 to 6 mikrons in length and from 0.2 to 1.0 mikron in breadth; are slightly curved, and often have clubbed and rounded ends; occur either singly or in pairs, or in irregular groups, but do not form chains; they have no flagella, are non-motile, and erobic; they are noted for their pleomorphism; they do not stain uniformly, but stain well by Gram's method and very beautifully with Loeffler's alkaline-methylene blue.

7. The symptoms and physical signs of *lobar pneumonia* and *acute pneumonic phthisis* may be the same for the first

eight or ten days; at this period the fever in *pneumonia* drops by crisis; whereas in *phthisis* the fever continues for some time longer and the patient gets worse; the sputum contains tubercle bacilli and elastic fibers, and instead of retaining the rusty color it becomes purulent and greenish.

In *pneumonia*, the breathing is very rapid, the pulse-respiration rate is disturbed, the fever is usually high, and runs a regular course, crepitant râles are heard at first, then signs of consolidation follow, and crepitant râles again succeed. In *phthisis*, the breathing is hurried and there is dyspnea, the fever is often high, but does not run a regular course, at first the signs are those of bronchitis, followed by consolidation, a softening, or excavation in different parts of the lungs; sometimes there is nothing to be heard but scattered râles.

8. (1) A systolic murmur, soft and blowing, heard best at the apex, and transmitted to the left axilla and toward the angle of the left scapula, indicates mitral regurgitation. (2) A presystolic murmur, harsh and rough, heard best very near the apex, and not transmitted, denotes mitral stenosis. (3) A diastolic murmur, soft, heard best in the second right intercostal space, and transmitted down the sternum or toward the apex, denotes aortic regurgitation. (4) A systolic murmur, harsh, heard best in the second right intercostal space, and transmitted into the carotids, denotes aortic stenosis. (5) A systolic murmur, heard best over the lower end of the sternum, denotes tricuspid regurgitation. (6) A presystolic murmur, heard best over the ensiform cartilage, and not transmitted, denotes tricuspid stenosis. (7) A diastolic murmur, heard best in the second left intercostal space, denotes pulmonary regurgitation. (8) A systolic murmur, heard best in the second left intercostal space, and not transmitted to the large vessels of the neck, denotes pulmonary stenosis. (9) A murmur, usually systolic, soft, and blowing, heard best over the pulmonic area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, is a hemic or functional murmur, and denotes as a rule an impoverished condition of the blood.

9. *Cerebral vomiting* is projectile in character, and is accompanied by little or no nausea, is continuous even after stomach is emptied; there is no salivation, no tenderness over liver or stomach. *Gastric vomiting* relieves the previous nausea, and returns on ingestion of food; salivation is present, also tenderness over liver and stomach.

10. (*a*) *Hutchinson's teeth* are notched and stunted in permanent dentition; found in hereditary syphilis.

(*b*) *Babinski's sign:* When the sole of the foot is tickled, the toes (particularly the great toe) are over-extended, and separated from one another. (In primary lateral sclerosis.)

(*c*) *Koplik's spots* are small red spots with a bluish central area, found on the buccal mucous membrane, in measles.

(*d*) In *Cheyne-Stokes respiration* the respirations gradually increase in volume and rapidity until they reach a climax, when they gradually subside, and finally cease for from ten to forty seconds, when the same cycle begins again. "In the majority of instances it is associated with apoplexy (toward the end), chronic nephritis (uremia), tumor of the brain, tuberculous meningitis, or degeneration of the heart muscle. Less frequently it is observed as a result of cardiac valvular defects and consequent embolism, diabetes, and certain acute diseases, notably typhoid, pneumonia, pertussis, cerebrospinal fever, scarlet fever, and septicemic conditions."—(Butler's *Diagnosis of Internal Medicine.*)

THEORY AND PRACTICE.

1. By wet nurse; by milk of cow or goat; by whole milk and its dilutions; by cream-milk mixture; by top-milk mixture; by cream-whey modifications; by milk modified with cereal decoctions or dextrinized gruels; by diluted condensed milk; by "laboratory milk," which may be gravity-separated or centrifuged; by peptonized milk; or by any of the numerous advertised substitutes.

2. See French's "Practice of Medicine" (1907), page 707; or Osler's "Practice of Medicine" (1909), page 434.

3. "*Serum therapy* depends upon the fundamental fact that a group of body cells—for example, those of the central nervous system—have a way of rising to the emergency when compelled to defend themselves against a group of foreign cells (*e.g.* tetanus bacilli) and of producing in excess substances antagonistic to such foreign cells or to their products. Such an antagonism is known as immunity. To be immune against a given cell is to possess the power of poisoning or dissolving that cell. This is known as antibacterial immunity. When the body is attacked, not by cell groups but by cellular products, such as toxins, another type of immunity is produced by virtue of which the blood of the immunized individual is able to neutralize and render inert the toxin molecules."—(*Reference Handbook of the Medical Sciences.*) Diseases in which it has been successfully employed are: Diphtheria, tetanus, snake-bites, and rabies.

4. See French's "Practice of Medicine" (1907), page 771; or Osler's "Practice of Medicine" (1909), page 508.

5. See French's "Practice of Medicine" (1907), page 65; or Osler's "Practice of Medicine" (1909), page 57.

6. See French's "Practice of Medicine" (1907), page 216; or Osler's "Practice of Medicine" (1909), page 282.

7. See French's "Practice of Medicine" (1907), page 1046; or Osler's "Practice of Medicine" (1909), page 886.

8. See French's "Practice of Medicine" (1907), page 139; or Osler's "Practice of Medicine" (1909), page 157.

9. See French's "Practice of Medicine" (1907), page 656; or Osler's "Practice of Medicine" (1909), page 606.

10. See French's "Practice of Medicine" (1907), page 932; or Osler's "Practice of Medicine" (1909), page 426.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), page 576; or Hirst's "Obstetrics" (1909), page 116.

2. See Williams' "Obstetrics" (1909), page 254; or Hirst's "Obstetrics" (1909), page 395.

3. *Presumptive signs of pregnancy:* (1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness. *Positive signs of pregnancy:* (1) Hearing the fetal heart sound; (2) active movements of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) the umbilical or funic souffle.

4. See Williams' "Obstetrics" (1909), page 815; or Hirst's "Obstetrics" (1909), page 577.

5. See Williams' "Obstetrics" (1909), page 617; or Hirst's "Obstetrics" (1909), page 279.

6. See Williams' "Obstetrics" (1909), page 647; or Hirst's "Obstetrics" (1909), page 304.

7. (*a*) The *indications for podalic version* are: (1) In transverse presentations; (2) in placenta prævia; (3) in malpresentations of the head; (4) in simple flattened pelvis, and in minor degrees of pelvic contraction; (5) in prolapsed funis; (6) in sudden death of the mother; and (7) in any case where speedy delivery is imperative. (*b*) The *absolute indications for cesarean section* are: Extreme pelvic contraction or deformity in which delivery by forceps or version or symphyseotomy is impossible, and in which craniotomy is either impossible or would be more dangerous to the mother; the presence of extreme atresia of the vagina; rupture of the uterus; sudden maternal death. (*c*) *Indications for the use of forceps* are: "1. *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. 2. *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. 3. *Passenger at fault:* A. Dystocia due to (*a*) occipito-posterior, (*b*) mento-anterior face, (*c*) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute.) 4. *Accidental complications:* Hemorrhage; prolapsus funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both." (From Jewett's *Practice of Obstetrics.*)

8. The head should be delivered promptly to avert the chance of the child being asphyxiated.

9. *Phlegmasia alba dolens* is a form of manifestation of puerperal sepsis in which there is a thrombosis of the iliac or femoral vein. Sometimes it occurs after a uterine phlebitis, in which clots are carried from the uterine sinuses to the hypogastric veins, where they cause obstruction to the blood flow in the crural veins. The trouble may also begin as a crural phlebitis. It is thus due either to cellulitis or to thrombosis. It usually appears about the third or fourth week of the puerperium.

10. See Williams' "Obstetrics" (1909), page 824; or Hirst's "Obstetrics" (1909), pages 614 and 616.

GYNECOLOGY.

1. ACUTE PELVIC PERITONITIS. *Etiology:* Infection. *Symptoms:* Intense and diffuse abdominal pain, tenderness, and distention; vomiting, constipation, elevation of the temperature (103°-104° F.), small, hard, rapid, and wiry pulse (120-140), and increased respiration (30-40) of a painful character are also present. The dorsal decubitus with the legs and thighs drawn up is assumed. The duration is from six to nine days and the prognosis is unfavorable. *The treatment* consists in rest in bed, the administration of

opium or one of its alkaloids, and the application of hot or cold fomentations or turpentine stupes to the abdomen. If the affection is due to septic infection a saturated solution of magnesium sulphate should be given. If suppuration has occurred abdominal section should be performed with irrigation of the peritoneal cavity with normal salt solution (temperature 105°-110° F.) and the introduction of drainage.—(Gould's and Pyle's *Pocket Cyclopedia.*)

2. *Acute ovaritis* is usually secondary to salpingitis, as in gonorrhea and puerperal sepsis, but may occur as a complication of the eruptive fevers. The symptoms are pain and tenderness in the ovarian region, nausea, vomiting, rise of temperature, and rapid pulse. The *treatment* consists in rest in bed, hot vaginal douches, free purgation, hot fomentations over the lower abdomen, and removal of the diseased structures if the symptoms grow worse and suppuration ensues.

3.

ASCITES.	OVARIAN CYST.
1. Previous history of visceral disease.	1. No such history.
2. Enlargement comparatively sudden.	2. Gradual.
3. Face puffy; color waxy; early anemia.	3. Facies ovariana. Anemia absent, or later.
4. Patient on back, enlargement symmetrical; flat in front.	4. Asymmetrical until tumor is quite large; prominent in front.
5. Sitting up, abdomen bulges below.	5. No appreciable change.
6. Navel prominent and thinned.	6. Navel usually unchanged.
7. Fluctuation decidedly clear, diffuse throughout abdomen, but avoids highest parts in all positions, and always has a hydrostatic level.	7. Less clear; limited to cyst; not modified by change of position. No hydrostatic level.
8. Intestines float on top of fluid; hence percussion gives clear tympanitic note over the highest parts of abdominal cavity and dulness in lowest parts for all positions—*i.e.* areas of resonance and dullness change with position.	8. No change in areas of dulness and resonance with change of position. Dulness over cyst. Clear resonant note in all parts beyond cyst limits, *i.e.* in flanks and toward the diaphragm.
9. Vaginal touch detects fluctuation, bulging into vagina.	9. Vaginal fluctuation less clear or absent.
10. Uterus in prolapsed location, but position unchanged. Size and mobility unchanged.	10. Uterus displaced forward or backward, or laterally by pressure of cyst.
11. Hydragogues and diuretics temporarily remove the fluid.	11. Medicines have no effect.
12. Fluid light straw color and thin. Coagulates spontaneously.	12. Fluid light or dark and of varying consistency; albuminous, but does not coagulate spontaneously; may contain colloid matter.

—(From Dudley's *Gynecology.*)

4. MEMBRANOUS DYSMENORRHEA. *Symptoms:* Severe pain at the beginning of the menstrual period, which increases till the expulsion of a membrane, which may come away whole or in several pieces. After this the pain usually ceases until the next period. *Treatment:* Curettage, which may have to be repeated (perhaps more than once) before a cure is effected.

5. *Pelvic hematocele* is an accumulation of blood in the pelvis due to rupture of a blood-vessel; it is generally due to rupture of a tubal pregnancy, or to a tubal abortion. *Symptoms:* Pain which is sudden and severe, over abdomen and pelvis; nausea, cold perspiration, cold extremities, pulse rapid and weak, pinched features, and shock.

6. ABSCESS OF VALVO-VAGINAL GLAND. *Etiology:* Gonorrhea, or suppuration following cellulitis. *Symptoms:* The same as abscess anywhere else (redness, swelling, heat, pain, and sometimes fever and fluctuation). *Treatment:* Excision, or incision and drainage.

7. *Symptoms of salpingitis:* Pain or discomfort, made worse by pressure, examination, or defecation; or colicky pains over the tube; dysmenorrhea; increased menstrual flow; tubes are found to be dilated and swollen. *Varieties:* Hematosalpinx, when tubes are distended with blood; Pyosalpinx, when they contain pus; Hydrosalpinx, when they contain serous fluid or exudate.

8. *Urethral caruncle* is a small red fleshy growth generally situated on the posterior part of the meatus of the urethra. There are local pain and tenderness, which may be excessive; a burning sensation is experienced on urination; it may bleed. The proper treatment is to excise it or destroy it with the thermocautery.

9. RECTOVAGINAL FISTULA. *Symptoms:* Flatus and feces are passed by the vagina. Digital or speculum examination may show the fistula, and if milk is injected into the rectum, it will be noticed in the vagina. Vaginitis and vulvitis are present. *Treatment:* A plastic operation is necessary. The edges of the fistula are denuded and then approximated with sutures, the same as for vesicovaginal fistula.

10. GONORRHEAL VAGINITIS. *Symptoms:* Pain and burning in the vulva; pain and burning on micturition; dyspareunia; yellowish or greenish discharge, in which the gonococcus can be found; the vagina is hot, red, swollen, and tender. *Treatment:* Rest in bed, salines, mild unirritating diet, bathing of external genitals, copious vaginal douches of bichloride of mercury 1:2000 three or four times a day; later, the vagina may be swabbed daily with a solution of nitrate of silver 1 to 5 per cent., or with a solution of potassium permanganate 1 per cent. *Complications:* Cystitis, urethritis vulvitis, endometritis, salpingitis septic peritonitis, sterility, condylomata of vulva, abscess of Bartholin's glands.

SURGERY.

1. *Asepsis* means freedom from germs. *Antiseptics:* Heat, bichloride of mercury, carbolic acid, iodoform, formalin, formaldehyde, zinc chloride, albuminum acetate, potassium permanganate, hydrogen dioxide, creolin.

2. *Suture. Materials:* (1) Silkworm gut, used only on surfaces, from which it may subsequently be removed. (2) Silk, used in abdominal surgery, for suturing intestines and tying pedicles. (3) Catgut, used for buried sutures. (4) Kangaroo tendon, used for bone, and as an absorbable suture which will last a long time. (5) Silver wire, used for bone.

3. See Da Costa's "Surgery" (1908), pages 70 and 245.

4. *Paronychia:* Free and early incision, drainage, antiseptic dressings, tonics, and stimulants; the nail may or may not have to be removed. *Hordeolum:* Hot compresses, evacuate pus as soon as a yellow spot is seen, correct errors of refraction, look after general health. *Empyema:* Aspiration, drainage, irrigation, resection of ribs (Estlander's operation) or resection of chest wall (Schede's operation).

5. For diagnosis of *stones in the gall-bladder* see above, DIAGNOSIS, Question 3. *Stone in the urinary bladder* may be diagnosed by: Increased frequency of micturition; pain at end of urination, chiefly felt at the end of the penis or in the neck of the bladder; the urine may contain pus, mucous, or blood; a "click" can be obtained by using a searcher or sound; examination by the cystoscope may reveal the presence of the stone.

6. See Rose and Carless' "Surgery" (1908), pages 1044, 727, and 1115; or Da Costa's "Surgery" (1908), page 858.

7. See Rose and Carless' "Surgery" (1908), pages 975 and 980; or Da Costa's "Surgery" (1908), page 868.

8. See Rose and Carless' "Surgery" (1908), page 408; or Da Costa's "Surgery" (1908), page 1060. *Actinomycosis:* Treatment consists in free local excision; or incision with erosion and cauterization; slit up sinuses; drain pus cavities; give large doses of potassium iodide; tonics, stimulants, and best hygienic conditions are indicated.

9. *The surgical complications of typhoid fever* are: Gangrene; arthritis; abscesses and furuncles; otitis media; hemorrhage from stomach; intestinal perforation; infection of the gall-bladder; perforation of the gall-bladder; orchitis, epididymitis; parotitis; cerebral, laryngeal, thyroid, and thoracic troubles.

10. *Appendicostomy* consists in suturing the tip of the appendix to the abdominal wall, and then by opening the appendix at the tip access is gained to the cecum for the purpose of irrigating the large intestine. *Dactylitis* is inflammation of a finger or toe. *Osteomyelitis* is inflammation of the marrow of a bone (either with or without involvement of the bone). *Dubois' abscess* is an abscess of the thymus gland, found in congenital syphilis. *Hysterotrachelorrhaphy* is a plastic operation for the repair of a lacerated cervix uteri.

HYGIENE.

1. *Constituents of soil:* Silica, aluminum, lime, magnesium, phosphorus, sulphur, iron, manganese, chlorine, sodium, potassium, oxygen, nitrogen. *Physical properties of soil:* Porosity, permeability, capacity to receive water and

to contain water, heat, color, compactness, moisture, capacity for air and gases.

2. *Tilth* is the superficial layer of soil which is the result of the disintegration of rocks and the decay of animal and vegetable life; or that part of the soil which is moistened by the rain, warmed by the sun, permeated by the atmosphere, in which plants extend their roots and gather their soil food. *Marl* is a mixture of clay, sand, and amorphous calcium carbonate. *Loam* is a mixture of sand, clay, and humus. *Humus* is the entire product of vegetable decomposition in the various intermediate stages of the process. *Peat* is the result of the incomplete decay of vegetable matter under water, and is compact and fibrous. *Muck* is similar to peat, but is less compact, not fibrous, and when dry is easily reduced to powder. Humus will retain the greatest amount of water; and peat is probably the most inimical to pathogenic organisms.

3. The average depth to which the soil is self-purifying is about three feet. The dwellers on the soil retard the process by allowing organic filth and moisture to accumulate.

4. The sources and varieties of water have been classified thus:

- Wholesome:
  - 1. Spring water ..... } very palatable.
  - 2. Deep-well water... }
  - 3. Upland surface water ..... } moderately palatable.
- Suspicious:
  - 4. Stored rain water. } palatable.
  - 5. Surface water from cultivated land ..... }
- Dangerous:
  - 6. River water, to which sewage gains access ..... } palatable.
  - 7. Shallow-well water ..... }

5. A well may be polluted by a cesspool on a lower level, because it is not the location of the *outlet* of the well that determines the possibility of pollution; but rather the relative position of the cesspool and the *point where the water enters* the well.

In those cases in which the cesspool is on higher ground than the well, the latter may be protected by the geological formation of the ground, such as the presence of a ledge of rock.

6. Ordinary filter beds for the purification of water are tanks of varying size, shape, and construction; the walls may be vertical or sloping; upon the paved bottom are pipes to carry off the filtered water. Above these pipes are successive layers of coarse gravel, fine gravel, coarse sand, and at the top fine sand about four feet deep. Through these layers the water passes.

The fundamental principle of *Dibdin's bacteria beds* is based on "the idea that purification in a filter bed is not brought about wholly at the surface, but that the whole bulk of the filter is concerned therein, and experiments were made to determine the results of filling a bed and restraining the outflow for different periods, thus giving the organisms throughout the bed the same opportunity for action." (Harrington's *Hygiene.*)

The fundamental principle of *Cameron's septic tank* system is that "the sewage is first led into a tank from which air and light are excluded. Digestive changes take place in the sewage within this tank as the result of an anaërobic bacterial action, which is favored by the darkness, the absence of air, and the perfect stillness at which the sewage is maintained. Under these circumstances much of the solid matter is rendered soluble and dissolved."—(Notter and Firth's *Hygiene.*)

7. We inspire microorganisms; but, in health, we do not expire them.

8. For the support of human life, the air should contain nearly 21 per cent. of oxygen, about 78 per cent. of nitrogen, about 0.04 per cent. of carbon dioxide.

9. The result of inhaling carbon monoxide is that the carbon monoxide forms a very stable compound with the hemoglobin of the blood, and the result is that the hemoglobin cannot carry oxygen, and therefore asphyxiation occurs.

Less than 0.25 per cent. by volume in the air will cause poisoning; and but 1 per cent. is rapidly fatal to animal life.

10. "The occupations which are of particular hygienic interest embrace those which involve exposure to: Air vitiated by respiration; irritating and poisonous gases and fumes; irritating and poisonous dusts; infective matter in dust; offensive gases and vapors; extremes of heat; dampness; abnormal atmospheric pressure; constrained attitude; overexercise of parts of the body; sedentary life. Some occupations are conducted under such conditions that they may very properly be regarded as belonging to a number of these groups."—(Harrington's *Hygiene.*)

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of December 25, 1909:

	Cases	Deaths
Tuberculosis Pulmonalis	329	187
Diphtheria	347	44
Measles	487	13
Scarlet Fever	360	322
Smallpox	—	—
Varicella	186	—
Typhoid Fever	25	8
Whooping Cough	23	4
Cerebrospinal Meningitis	2	5
Malarial Fever	—	—
Totals	1,756	583

Hysterectomy by Anterior Separation.—T. de Martel advocates anterior separation of the tissues in hysterectomy as the best procedure. He clamps the round ligaments at a short distance from the uterus, separates and cuts the anterior layer of the peritoneum, perforates the posterior layer with a blunt instrument, through this opening clamps the urteine arteries, and then cuts off the cervix with curved scissors from left to right between two clamps. Traction on the body of the uterus is made while the index finger curves around the broad ligament and the adnexa form a pedicle and are separated. This method is easy, is applicable to all cases, no hemorrhage results, and there is no risk to the bladder. The removal of the uterus is a little slower than by other methods, but the benefits of the bloodless operation counterbalance this disadvantage.—*La Presse Médicale.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended December 24, 1909:

		CASES.	DEATH.
Kansas, Coffeyville	Dec. 4–11	1	..
Maryland, Baltimore	Dec. 4–11	1	..
North Carolina, (12 counties)	Sept. 1–30	60	..
Charlotte	Dec. 4–11	5	..
Ohio, Dayton	Dec. 4–11	2	..
Tennessee, Chattanooga	Nov. 6–13	3	..
Dowelltown	Nov. 27–Dec. 4	1	..
SMALL POX—INSULAR.			
Philippine Islands, Manilla	Oct. 23–30	1	..
SMALL POX—FOREIGN.			
Brazil, Bahia	Nov. 5–19	48	38
Egypt, Alexandria	Sept. 1–30	3	2
Cairo	Nov. 4–11	2	..
France, Paris	Nov. 13–27	3	1
Germany, Munich	Nov. 7–13	1	..
Greece, Athens	Oct. 30–Nov. 6	..	3
India, Bombay	Nov. 9–23	..	8
Calcutta	Oct. 30–Nov. 6	..	1
Italy, (general)	Nov. 21–28	35	..
Naples	Nov. 21–28	15	2
Java, Batavia	Oct. 30–Nov. 6	2	..
Mexico, Aguascalientes	Nov. 27–Dec. 4	..	1
Chihuahua	Nov. 22–29	..	2
Netherlands, Amsterdam	Nov. 29–Dec. 4	1	..
Portugal, Lisbon	Oct. 9–30	17	..
	Nov. 20–27	11	..
Russia, Moscow	Oct. 9–23	8	1
	Nov. 6–13	7	1
Odessa	Oct. 9–16	7	4
	Nov. 13–20	11	3
Riga	Oct. 16–23	2	..
	Nov. 13–20	8	..
St. Petersburg	Nov. 13–20	52	16
Spain, Almeria	Oct. 1–31	..	3
Barcelona	Nov. 22–29	..	1
YELLOW FEVER			
Brazil, Manaos	Nov. 13–20	..	1
Para	Nov. 20–27	6	4
Venezuela, Caracas	Nov. 13–20	1	..
CHOLERA—INSULAR.			
Philippine Islands, Manilla	Oct. 23–30	24	20
Provinces	Oct. 23–30	157	116
CHOLERA—FOREIGN.			
China, Amoy	Oct. 23–30	..	30
India, Bombay	Nov. 9–23	..	13
Calcutta	Oct. 30–Nov. 13	..	16
Rangoon	Oct. 30–Nov. 6	..	7
Japan, Kadono district	Oct. 11–18	187	76
Moji	Nov. 17	..	1
Russia, Moscow	Oct. 9–23	3	2
Riga	Oct. 16–23	4	..
Siam, Bangkok	Oct. 1–31	3	3
Siberia, Vladivostok	Oct. 21—28	7	4
	Oct. 28–Nov. 4	4	4
PLAGUE.			
Brazil, Bahia	Nov. 5–19	7	5
China, Amoy	Oct. 23–30	..	40
India (general)	Oct. 30–Nov. 6	5,725	4,479
Bombay	Nov. 9–23	..	9
Calcutta	Oct. 30–Nov. 13	..	10

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Original Articles.

PROTECTIVE APPENDICITIS.*

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THE time has arrived when we may conveniently classify four kinds of appendicitis.

1. Protective Appendicitis.—An irritative lesion, occurring in the course of normal involution of the appendix, and dependent upon irritation of nerve filaments which persist in the contracting hyperplastic connective tissue which has replaced other normal structures of the appendix.

2. Appendicitis with Intrinsic Infection.—An infective lesion which seems to be dependent upon any cause leading to rapid swelling of the inner coats of the appendix within the close outer sheath, with consequent compression anemia, and bacterial attack upon the tissues rendered temporarily vulnerable by such compression anemia.

3. Syncongestive Appendicitis.—An irritative lesion, due to the presence of serous infiltrates in the tissues of the appendix, and occurring synchronously with similar congestion of neighboring tissues. Such congestion is found with so-called lithemic swelling of lymphoid structures of the bowel; with obstruction of the lymph and blood circulation through certain diseases of vital organs, and with loose right kidney, which is said to cause obstruction by pressure upon the superior mesenteric vein.

4. Appendicitis with Extrinsic Infection.—An infective lesion, due to bacterial approach from other structures lying outside of the appendix, and progressing slowly enough to allow the appendix tissues to develop a good degree of leucocyte protection as a rule. This form of appendicitis is found with tuberculosis of the peritoneum or with infections proceeding from the uterine adnexa for instance.

We thus have appendicitis presenting itself in the form of two kinds of irritative lesion without infection, and two kinds of infective lesion.

The commonest lesion of the appendix vermiformis appears to be the irritative lesion which I formerly called fibroid degeneration of the appendix, but for which the term "protective appendicitis" is now proposed tentatively for the first time. The reason for this choice of nomenclature depends upon two facts: (1) Structures susceptible of acute infective processes are removed from the appendix by connective tissue replacement in the course of normal involution of the appendix, otherwise known as fibroid degeneration of the appendix. (2) I find nerve filaments persisting longer than most other structures in the appendix during the course of fibroid degeneration. These nerve filaments in the appendix are irritated by the contracting connective tissue, just as they are irritated in other contracting connective tissue in other parts of the body. The irritation of nerve filaments entrapped in the degenerating appendix, calls out a permanent local hyperleucocytosis which seems to protect such an appendix against bacterial attack.

Senn first called the attention of the profession to the lesion in question, in an article published in the *Journal of the American Medical Association* for March 24, 1894. He called the lesion "appendicitis obliterans," but did not separate it distinctly from the infective lesions. His nomenclature is not quite descriptive, because it leads to the conception that obliteration is due to the inflammation, whereas the contrary seems to be true, and the inflammation appears to be due to changes occurring in the course of an obliteration process.

FIG. 1.—An appendix which was quite normal in external appearance, but it felt harder than normal on palpation, and longitudinal section shows the inner coats to have been replaced by connective tissue, with total obliteration of the lumen. The patient had suffered from occasional attacks of pain in the appendix region, and from intestinal dyspepsia, both of which disappeared on removal of the appendix.

Ribbert in 1902 was the next author to give a position of importance to the lesion. On page 319 of his "Lehrbuch der speciellen Pathologie," he describes it as a normal involution of the appendix, and states his belief that the condition is provocative of infective processes. A study of the subject, with examination of what seems to be a sufficient number of specimens, leads me to the belief that we are to take at the present time, an exactly opposite view, and to note in practice if the irritative lesion called by Senn "appendicitis obliterans," by Ribbert "normal involution of the appendix" and formerly by me "fibroid degeneration of the appendix," is not actually protective against infective processes, and properly to be classified as "protective appendicitis."

*A paper presented at the International Medical Congress at Budapest, September 2, 1909. The author presented points in discussion without reading the paper, which will appear in present form in the published transactions of the congress.

The symptoms of protective appendicitis are of two separate and distinct kinds: (1) Local discomfort in the appendix region caused by the presence of sensory nerve filaments entrapped in contracting connective tissue. This discomfort persists for years. Sometimes there is acute local pain and tenderness, but not enough to send the patient to bed. In fact, these patients are particularly apt not to go to bed, on account of their general irritability. At other times there is merely a sensation of warmth in the appendix region, fluctuating in intensity from day to day—sometimes absent for short periods of time, and again attracting the attention of the patient for several days in succession. These patients are the ones who go the rounds of the profession asking whether they have appendicitis or not. Sometimes they are told that the discomfort is caused merely by the presence of gas in the bowel. At other times they are told that the condition is one of chronic appendicitis, and that operation should be performed for the removal of the appendix, on the ground that infection may suddenly supervene. We are to tell these patients, I think, that they are really protected against infective processes of the appendix, and that there is no need for removal of the appendix on the ground of impending danger. In some cases, symptoms of sensory and of functional disturbances seem to be altogether absent while the appendix is undergoing fibroid degeneration. (2) The second set of symptoms belonging to fibroid degeneration of the appendix has relation to sympathetic nerve filaments entrapped in contracting connective tissue. Sympathetic nerve filaments engaged in such tissue are irritated like the sensory nerves, but the demonstration appears to consist in a reflex irritation of the intimate ganglia of the bowel wall (Auerbach's plexuses and Meissner's plexuses). Disturbance of these plexuses appears to lead to chronic derangement of bowel function, and the patients form a considerable proportion of the class which is being treated for "chronic intestinal dyspepsia" with or without diagnosis referable to the appendix.

Fig. 2.—Two appendices in which all structures had practically been replaced by connective tissue, but enough nerve filaments had remained to cause persistent intestinal dyspepsia, for which the patients had received treatment by authorities without permanent result, until the appendices were removed. Both patients then became well.

There are three chief points for diagnosis of the condition of protective appendicitis, when they are observed in connection with the subjective history. (1) The most important point is hypersensitiveness on deep pressure at the site of the right group of lumbar ganglia, situated approximately an inch and a half to the right of the navel, and close to the lumbar vertebræ. If we make deep finger pressure at this point, finding a sensitiveness which is absent from the corresponding left side, we may look to the appendix as the original seat of irritation. Should there be hypersensitiveness at the sites of both right and left groups of lumbar ganglia, we may look to some pelvic structure instead of to the appendix, for the seat of original irritation, and this constitutes a point of considerable consequence in some cases in which we are not sure whether the appendix or some pelvic structure is at fault. (2) The second diagnostic feature of importance consists in a distention of the cecum and ascending colon to the hepatic flexure, with an undue amount or gas. The feature is not always present, but is found regularly enough to receive attention. It is my belief that the distention is not due to the presence of gas primarily, but that continued irritation of the motor nerves of the bowel in the region of the appendix leads eventually to relaxation of the muscularis and the formation of a receptacle in which gas readily collects in quantity. (3) Third in order for making a diagnosis, would come the testimony elicited by palpation, and the finding of an appendix that is harder to the feel than a normal appendix. Some very competent diagnosticians have expressed a doubt about our ability to palpate the appendix accurately, but it is my belief that palpation of the appendix can be accomplished pretty regularly after one has acquired a certain method of procedure.

The treatment for protective appendicitis must depend upon the particular case, rather than upon any rules. Many patients who obtain the mental relief of finding that they are not in danger, will get on very well under medical and hygienic treatment aimed at the intestinal indigestion. Other patients will have such a degree of persistent disturbance, that it is best to advise removal of the appendix.

Statistics of removal of appendices which are undergoing fibroid degeneration will probably be more favorable than statistics of any other form of appendicitis, for the reason that chronic irritation has called out chronic leucocyte protection of the vicinity. This one fact seems to make it desirable for us to classify cases of appendicitis for statistical purposes better than has been done in the past. Cases of protective appendicitis have usually gone into statistics along with the other three kinds, and it is now time for us to make a more scientific elaboration in

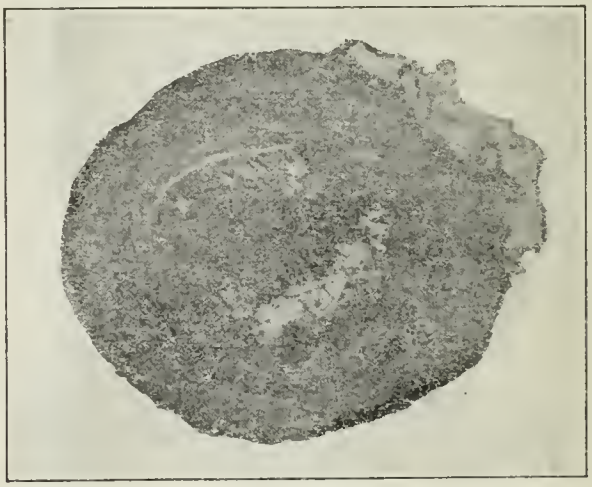

Fig. 3.—Cross-section of an appendix undergoing fibroid degeneration.

reports. The greatest danger from operation *per se* is probably in cases of syncongestive appendicitis, because resistance is apt to be lowered by the causes leading to serous infiltration. The next greatest danger from operation *per se* is perhaps when the perfectly normal appendix is removed, because we then open a point of infection in the midst of an unprepared field. On account of my interest in the subject of fibroid degeneration of the appendix, some of my assistants, for purposes of brevity, got to speaking of "Morris appendices," and this nomenclature at a distance began to be applied to normal appendices, but I have always been opposed to the idea of removing normal appendices, on the ground that it required a higher degree of skill and caution than I cared to exercise for the purpose. In cases of infective appendicitis, it is now possible for the surgeon to have a series of one hundred consecutive operations in unselected cases, including those with varying stages of suppuration, gangrene, and peritonitis, without having a single death, if he follows the principles of the fourth or physiological era in surgery.* In cases of appendicitis with extrinsic infection, we are apt to have a field protected by hyperleucocytosis. These facts seem to make it desirable to classify four types of appendicitis, and to make separate reports, particularly when dealing with fibroid degeneration of the appendix, *i.e.* the irritative lesion of protective appendicitis.

616 Madison Avenue.

WHAT MAY BE DONE TO IMPROVE THE HYGIENE OF THE CITY DWELLER.†

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The subject which I have the honor to lay before you to-day is such a vast one that I know I will not be able to do it full justice. But I am presenting it before men who are all experts in sanitary science and who, by practical experience as health officers, will all have superior knowledge to one like myself, who is only an ordinary physician and whose practice has for years been virtually limited to only one disease. The object of my paper, therefore, is not so much to present to you my own views as to bring out discussions which I know, when they will be published, will be of great value and benefit to the health of that vast army of human beings dwelling in cities.

To choose a type, we will imagine an American city of medium size situated in a climatic region where the extremes of temperature are not too pronounced.

General and Outdoor Hygiene.—The general hygiene which concerns all classes alike (using the word "general hygiene" in contradistinction to home and private hygiene) is that part for which federal, state, or municipal health authorities, through their officers or agents, may be held responsible. The federal department of health must, as far as practicable, protect all communities from the importation of epidemic diseases, such as cholera, typhus, plague, smallpox, etc. While the state and local health authorities will, of course, cooperate with the federal health department for the suppression of all kinds of epidemic diseases, their function is, in addition, to protect the inhabitant from all endemic infections, such as tuberculosis, typhoid, scarlatina, measles, malaria, cerebrospinal meningitis, etc. The municipal authorities will also have under their supervision that vast prophylactic work which consists in the ample supply of pure water for drinking purposes, private and public baths, and an equally ample supply for perfect sewerage, for occasional flushing of streets, for possible conflagrations, and for more public toilet facilities properly and hygienically kept.

I do not think it is necessary for me to dwell on the inestimable value of an ample water supply or the necessity of its purity. I only wish to emphasize a few points regarding the necessity of hygienic drinking fountains in a large city. It is a deplorable and well-konwn fact that in many of our cities there are few, if any, hygienically kept drinking fountains where the water is cool enough in hot weather to be palatable. The well-known sanitary drinking fountains which make infection impossible, some of which are installed in the better modern schools but which should be installed in every school of the land, should also be a feature of the streets of any city which means to improve the hygiene of its dwellers.

I must not omit to say a word on the hygiene of the soda-water fountains which are such an important feature of our modern American cities. While the quality and character (freedom from narcotics and poisonous substances) of the flavors dispensed in soda water must necessarily be regulated by the food and drug inspection, a subject which we cannot discuss here in detail, I would suggest that a more thorough supervision of the methods of cleansing glasses and spoons after use should be inaugurated. Some reform is needed here, not only in the cheap stands which we see in the poorer quarters of the city where soda water is sold at one or two cents per glass, but also in some of the fashionable drug stores. The education of the consumer to the necessity for clean glasses and clean spoons would seem, however, as essential, if not more so, as any ordinances issued by the Board of Health.

Another point relating to public hygiene which is responsible for a great deal of discomfort is the lack of sufficient properly and hygienically kept public toilet facilities. This is not only productive of discomfort, often leading to habitual constipation, but our specialists in skin and genitourinary diseases tell us that actual disease results from this situation. I am also convinced that because of this lack of toilet facilities, many a man visits a saloon and takes a drink which he would not do did not the calls of nature make a demand on him to go somewhere. He feels a moral obligation to spend some money for the facilities offered and as a result takes a stimulant which he does not need and which in many instances proves injurious. Speaking of my own city, New York, I do not believe that there are outside of the parks more than a dozen public urinals and still fewer complete toilet facilities. Paris, which is certainly a beautiful city, has many thousands. With the exercise of a little taste they can be hidden behind shrubbery or neat screens. I venture to say that the installation of a

*See *Journal of the American Medical Association*, August 22, 1908, pages 644-648.

†Address delivered before the Section of Municipal Health Officers of the American Public Health Association, at the thirty-seventh annual meeting in Richmond, Va., October 21, 1909.

few hundred of such places would add to the comfort and health of many and would certainly reduce the useless, and in many instances harmful, imbibing of a good deal of liquor.

While I am, of course, an advocate of public baths and think them indispensable as long as we have tenements without a bath room for each family, the ideal would be that facilities for bathing in his own house should be offered to every citizen, rich and poor, old and young alike. The municipal creation of swimming tanks, not only in connection with schools, so that every child may learn to swim, but also for adults at reasonable prices, would certainly be a factor in enhancing the physical vigor and resistance to diseases of all city dwellers.

The value of the occasional flushing of streets and gutters and the sprinkling of the streets in hot and dusty weather is too well known to all sanitarians to need more than a mention here. Street sprinkling, however, should not depend upon private enterprise and street car lines should be compelled by the city authorities to sprinkle their tracks regularly whenever conditions demand that this should be done.

The next equally important matter is how to give to the city dweller the purest air, at least outside of his dwelling or work rooms. Could we rebuild all our cities we would probably lay them out differently, but even as they are something can be done. We know that the lower strata of the air in many city streets are very little stirred up by the purifying winds passing over them, and this is all the more the case when the city is built in the valley. In my recent book on Tuberculosis[1], I have ventured to make the following statement: The city of Chicago is one of the healthiest cities in the United States, and, while I gladly pay homage to the men at the head of its excellent sanitary supervision, there is no doubt in my mind that the wind to which the city is so much exposed is in no small degree responsible for its healthy condition.

My good friend, the Hon. Commissioner of Health of Chicago, Dr. W. A. Evans, who is to open the discussion of this paper, will probably reveal additional secrets to you and teach us what else he has done to make his city deserve that distinction. Nevertheless, in a country like the United States, where the founding of new cities is nothing unusual, the builders of the future should bear in mind that a city situated on high ground with wide streets will be a healthy city and relatively free from tuberculosis, pneumonia, grippe, and other infectious diseases of the respiratory organs.

With my lamented master, Geheimrath Professor Dettweiler, I claim that not too violent winds ("bewegte Luft") are rather beneficial than detrimental to tuberculous and similarly afflicted patients. In existing cities the widening of streets and the lowering of too high buildings will help the freer circulation of air and the admittance of sunlight will very materially improve the sanitary condition.

We are now coming to that often discussed subject of the smoke nuisance from which all our American cities, with but few exceptions, suffer to an almost humiliating degree. I trust you will not consider me partial when I point again to Chicago as a shining example.

How to do away wtih the smoke nuisance is, I confess, an exceedingly difficult problem. In many cities the use of soft coal cannot be forbidden by law because hard coal is not available, or available only at a very high price. It has been demonstrated that with care the skilled stoker can diminish the amount of smoke produced even by the lowest grade of coal. It would thus seem that in cities and towns where hard coal cannot be universally used on account of its price, the municipality should offer gratuitous instruction in the proper methods of burning soft coal to all those handling furnaces. Where this is done, city ordinances should be enacted and enforced with a view of minimizing the smoke nuisance.

From a very interesting report on smoke in relation to health, by Professor A. Jacobi of New York, the nestor of American physicians, who has taken a lifelong interest in the combat against tuberculosis, we learn that the latter disease, and also bronchitis and pneumonia have decreased since 1895 in London, Liverpool, and Manchester; that is to say, since the time an active anti-smoke crusade was started in those cities. One of the most important features of this crusade is a law limiting the time when black smoke may be expelled. Thus, in London and Manchester no factory chimney may expel black smoke for more than a minute every hour.

Strange as it may seem, in my humble labors for the tuberculous, whether I pleaded with municipalities or State governments, employers, or even philanthropists for the establishment of sanatoria, for the treatment or for a more efficient prophylaxis of tuberculosis, I have always been more successful whenever I could show by figures that it would be more economical to treat the patients at the right time and at the right place, and still more profitable from a financial point of view to the commonwealth, to prevent tuberculosis.

Regarding the smoke nuisance I venture to think that the same tactics might be used. Chief Engineer Wilson of the Geodetical Survey submitted proof that the damage which smoke inflicts every year in the United States amounts to more than $600,000,000 in the destruction of merchandise, the defacement of buildings, the tarnishing of metals, the injury of plant life, and the greatly increased labor and cost of housekeeping.

In commenting upon this report an interesting editorial in the Medical Examiner and General Practitioner, of June, 1909, very pointedly says: "But the money loss is not the worst. For careful medical statistics show that the breathing of coal smoke predisposes the lungs to tuberculosis, and even more violent lung troubles, such as pneumonia.

"And these facts lead to the conclusions of Engineer Wilson's notable report, that we are wasting of that most precious of resources, human life, 112,500 men, women, and children each year. If we appraise each life lost at $1,700, as is the practice of some European insurance companies, and the annual average earnings as $700, the economic gain to be obtained from preventing tuberculosis through smoky and murky atmosphere would be $270,000,000 in one year.

"And all this loss of life and health and efficiency and actual money is waste—sheer waste—a waste of dividends, as well as a waste of the bodies and souls of men. For every belch of black, carbon-laden smoke from a factory chimney is a proof of industrial incompetency. Imperfect combustion means smoke; perfect combustion not only means a better and more economical utilization of the coal, but also smokeless conditions."

It will not be very long before manufacturers and engineers will cease to object to the compulsory

avoidance of smoke on account of the acknowledged economic advantage due to a saving of coal. It would seem that from the recent literature I have been able to peruse, the smoke nuisance can be solved by the installation of a device known as the Bunson smokeless furnace, so named by its patentee, Mr. O. U. Bean, because it applies to steam boilers, the principle of the old Bunson burner for kerosene lamps. The company controlling the device has adopted a novel method of exploitation. They install the "Bunson" entirely at their own expense, protect their customers against fines for violation of the smoke ordinances of any city, however strict and rigidly enforced, and accept as remuneration an amount equal to the fuel saved their customers during a period of one year by reason of installation of the device.

Just as necessary as it is to prevent the pollution of streams by forbidding factory refuse or sewerage to be poured into them, so should we endeavor to prevent dangerous and obnoxious gases emanating from factories, and smoking and odoriferous automobiles from polluting our atmosphere.

In some European cities the emission of smoke and gasoline fumes from motor vehicles is under police supervision, and its restriction must be a great comfort to pedestrians and persons in other vehicles alike.

Garbage and ashes should be collected in covered wagons. There are a number of devices now in vogue in European cities so arranged that no ashes whatsoever are blown into the street during the emptying of the receptacles.

I have already spoken of the necessity of sprinkling the streets. Even sterile street dust, from the wear and tear of the pavement and from building material as well as horse dung, if inhaled in quantities is apt to irritate the delicate membrane of the lower respiratory tract and thus make it more vulnerable to the invasion of the tubercle bacillus. The custom which is in vogue in some European cities of having the horse dung removed as frequently as possible from public highways would seem a good practice to imitate. However, the advent of the automobile has in some small degree diminished this source of vegetable dust, but it has increased the amount of mineral and certainly more irritating dust on our public highways. The use of oil to allay the dust on roads much frequented by automobiles cannot be too highly recommended.

The cleaning of streets should preferably be done at night time. It can then be done more thoroughly, with less interference with the traffic and with less inconvenience to the people. It goes without saying that to sweep a street in a dry state and raise clouds of dust, should be considered a crime against the city dweller.

That the planting of trees in city streets should be encouraged from a sanitary as well as an esthetic point of view needs hardly be insisted upon. That a proper regulation of traffic and the speed of vehicles not only has a bearing on the safety and physical comfort of the city dweller and on his nervous system, but also an effect on the amount of irritating vegetable and mineral dust in the atmosphere, is self-evident. The careless or reckless automobilist, as well as the careless and reckless driver of any vehicle, is a distinct menace to any community.

But it is not only the dust and the danger at street crossings, it is also the useless, ear-piercing noises made by some of the reckless automobilists which have become a bane to many a city dweller's nervous system. To those who cannot see any harm in this practice I would wish to repeat the words which I recently read in some automobile magazine: "The less you use your 'Gabriel' siren or other ear-splitting device, the better for the comfort of those within and without the car. Use your hand horn with a gentleman's touch and reserve the atmosphere piercers for emergencies. They are valuable at times, but many people, especially sick ones, prefer other music."

Alas, the automobile is not the only cause of city noises. If the town is located near a navigable river, the citizen is sure to be treated day and night to the frequent blowing of whistles on the boats. That this kind of noise can be diminished without the perils to navigation being increased, has been sufficiently demonstrated in New York City through the efforts of the antinoise crusade inaugurated by some ladies under the leadership of Mrs. Rice. Numerable other useless noises, such as those caused by a flat or broken wheel on a street car, by street venders, carpet beating at all hours of the day, dogs barking and cats howling at night time, should be made subjects of antinoise crusaders in the city. The dog is not a useful nor a needed animal in the city, and even the utility of the average cat as a mouse or rat catcher can be questioned. A good mouse or rat trap will be more efficacious in the end, and the cat left at liberty at night should be considered a nuisance and promptly disposed of. The poor city dweller will then be spared the sleep-robbing cat concerts in his backyard. For any family to leave a housecat behind when they go away for their summer vacation is both cruelty to animals and to man. Beating carpets should be limited to certain hours in the forenoon and to certain days only* and I sincerely hope that the time may soon come when the price of pneumatic suction cleaning will be so reduced that the city authorities will be justified in making the beating of carpets prohibitory. No piano, graphophone, pianola, street organ, or street band should be allowed to be played before the hour of 8 A. M. and after 10 P. M.

The rigorous inspection of all the food and milk supply is a subject which concerns not only the city but also the dwellers in the smallest hamlet. We must, however, say a word on underground bakeries and underground kitchens, which are such frequent features of modern city life. The majority of them are absolutely insanitary, dangerous to the workers as well as to the consumers. These underground bakeries and underground kitchens should in reality not exist, but if they must exist they should be made as sanitary as possible and remain under sanitary supervision. As far back as 1899 I recommended in my textbook on Tuberculosis[2] the following precaution to prevent the handling of the bread by too many soiled hands. The moment the bread comes out of the oven, while it is still too hot to be handled, it should be placed with the aid of a shovel upon a piece of clean wrapping paper large enough to envelop the whole loaf. By twisting the two ends of the wrapper the bread is completely enclosed and protected from contact with unclean hands or garments until it reaches the consumer. City dwellers obliged to dine in restaurants are often served bread cut partially into slices. Any one desiring some bread takes the whole loaf in his hand and tears off a certain portion. It thus hap-

*In a number of European cities beating carpets is only permitted at certain hours on Fridays.

pens that the same bread is often handled by a number of individuals with more or less unclean hands. I consider this manner of serving bread neither appetizing nor hygienic; but to serve single rolls, done up in paper as just described, a practice in vogue in a number of the better restaurants of some of the larger American cities, is much cleaner, and is a method which should be insisted upon by the patrons of city restaurants.

Since the immortal discovery of Major Reed and his fellow workers has shown us that the mosquito is not only a nuisance and a pest, but that certain species are also distinct carriers of disease, such as malaria and yellow fever, it will add to the health and happiness of the city dweller to do away, as far as possible, with all the stagnant pools within or near a city. The fly, too, is now known as a common carrier of disease; municipal and individual efforts should combine in its extermination. The best exterminating agent for flies seems to be a weak solution of formaldehyde in water (two teaspoonfuls to the pint), to which should be added a little sugar. Flies are attracted to this mixture, which they drink; some die in the water, others will fall dead near the place. Houses should be constructed so that it would be impossible for them to become infected by such disease carrying and disease spreading pests as rats, mice, bedbugs, and other vermin.

In my epitome published in the program of this meeting, I have promised to venture my views on the question of alcohol in its bearing on the hygiene of the city dweller. It goes without saying that I will not attempt here to express an authoritative opinion based on experiments on the physiological effects of alcohol on man in health. I have never had an opportunity to do much original research along this line. My work in tuberculosis, however, caused me to come to the conclusion that alcohol used in excess predisposes to tuberculosis, and that the children of alcoholic parents contract tuberculosis more readily than children of temperate parents.

The belief that alcohol has a preventive or even a curative effect on the disease is, unfortunately, still prevalent among the masses. In my labors among the poor I have often sought to convince tuberculous patients of the folly of spending money for alcohol as a means to cure the disease. If they would spend the same amount of money for nutritious food (milk, meat, eggs), they themselves would probably have been cured much more readily and their families could have lived in greater comfort.

There are, of course, cases among consumptives and other sufferers where the judicious administration of alcohol is a help in nutrition in the diluted form, for example, of malt beer or wine with meals, and I would deeply regret if ever any law would be enacted to prevent the physician prescribing alcohol in the treatment of tuberculosis or any other disease. At times, particularly in the latter stages of chronic diseases, the administration of whiskey or wine as a stimulant may also be indicated.

One cannot study tuberculosis without at the same time becoming a student of sociology, and if you will permit me as a modest student of this most important science to express my opinion so far as it relates to the use of alcohol, I would wish to say that I believe the excessive use and abuse of alcohol to be responsible for more crime and disease than any other cause, and still I question the wisdom of absolute prohibition in our present state of civilization.

Could the Gothenburg system be carried out in the United States, I would certainly favor it as a means of decreasing intemperance, and consequently crime and disease. This system consists in the manufacture and sale of alcohol by the Government and giving the dispenser of alcohol a salary, so that no benefit shall accrue to him from the amount of alcohol he sells. It strictly prohibits the sale of liquor to the intoxicated, the habitual drunkard, and to minors. I am almost tempted to suggest this method to some of our prohibition States—it would probably tend more to decrease intemperance than prohibition laws do now, as they have worked in Maine, for example. However, with a heterogeneous population like ours, the same laws are, perhaps, not applicable to every State. Prohibition has decreased crime in the South among the negroes, while, if I am correctly informed, crime and arrests for intoxication are on the increase in Maine.

* * *

It is the same with individual states as it is with individual men and women. They have their idiosynerasies, peculiarities, and different constitutions. Some people cannot take a teaspoonful of liquor without feeling the intoxicating effect, others cannot drink the smallest quantity without a desire for more than is good for them being aroused. I have a dear friend of Irish extraction, one of the highest types of men, a doctor of philosophy. He is a total abstainer, for he assures me he feels certain that if he ever began to drink alcohol he would surely not be able to control himself and it would lead him to intemperance. It must be self-evident that these types of people with peculiar constitutions should religiously refrain from taking alcoholic drinks.

That a low type of saloon is injurious to any community every one will agree. It would seem that in most of our States it will be difficult to enact and enforce strict prohibition laws. To create by a higher license a higher type of saloon and diminish their numbers must surely have a good effect.

What in my humble opinion is injurious to the individual as well as to society, causing many a man to become intemperate, is, on the one hand, the American treating habit, and on the other, the habit of taking alcoholic drinks on an empty stomach and between mealtimes. For all this I have but one remedy—education. The treating habit, so far as liquor is concerned, must be abolished by teaching the young, by the practice and example of the adults, that it is wrong and should be considered un-American.

There are few men, and perhaps not one woman, in this country who would not be willing to do something toward the decrease of alcoholism and its concomitant social misery. If well-meaning men and women would unite in their efforts to suppress the treating habit by practice and example, and would pledge themselves never to partake of alcohol except in moderate quantities with their meals and in diluted form, I am convinced that a greater step toward temperance would be made than by any other means heretofore employed.

There are, of course, other causes which induce men to indulge in alcohol, or which predispose to alcoholism. I refer to bad cooking and bad house-

keeping, insanitary tenements, and bad hygienic conditions in general. A well-cooked meal, appetizingly served, in a well-kept and clean home, is perhaps one of the greatest inducements for the laboring man to shun the saloon. This fact was well brought out at the recent International Congress on Alcoholism in London (July, 1909). The growth of total abstinence in the British army was attributed by the surgeon-general to a very considerable degree to the improvements that have been made in the surroundings of the soldier, such as improved housing and food.

Healthful amusements and decent resorts where the laboring man on Sundays may take his family and partake of non-alcoholic drinks, would likewise add to the diminution of the alcohol evil.

Lastly, all statesmen, philanthropists and reformers, temperance advocates, and advocates of total abstinence should bear one thing in mind: while poverty and misery are often the result of alcoholism, poverty and misery are as often the cause. I am optimistic enough to think that with the continued betterment of the social condition of the laboring classes, with the diminution of poverty and want, intemperance and alcoholism as a social problem will also gradually disappear.

Indoor hygiene concerns all classes. In a recent paper read before the American Academy of Medicine on the Relation of the Medical Profession to the Housing Problem, I stated that all civilized men spent one-third of their lives indoors for sleep, and of all workers in the various fields of activity by far the greater number have indoor occupations. According to the United States Census of 1900, there were 29,073,233 persons over ten years of age engaged in earning their livelihood in some one of 303 specified occupations, out of which only 46 could be distinctly called outdoor occupations. The total number engaged in these latter were 12,058,671. The number engaged in the 257 indoor occupations would thus be 17,014,562. If we add to this the time all classes of people spend indoors for amusement, instruction, or worship, well may we say that the greater part of the people of the United States virtually spend their lives indoors.

This classification, of course, does not give an idea of the hours many of us spend indoors by traveling in railroad cars, street cars, etc., and street car hygiene certainly concerns the city dweller. This hygiene can be improved, on the one hand, by the railway car companies, on the other hand, by the personal effort of the citizen himself. The cars should be kept clean by the companies; they should be constructed and managed so as to make travel not a discomfort. If straps for holding on must be provided because there are not always enough seats, these straps should have a celluloid covering which should be washed daily and will thus not constitute a constant harbor of pathogenic microorganisms. Tht regulation of proper heating and ventilation of cars should be carried out by the conductors who should have definite instructions. These regulations should be for the comfort and health of the passengers.

Where there are subways as we have in New York and where natural ventilation seems difficult, these underground tubes should be supplied with some ozone-generating apparatus. In view of the fact that all the traction is by electricity, this installation could be made with relatively little expense and much of the discomfort and even illness often experienced by the city dweller obliged to use the subway could be done away with. However, I have been told that if, in addition to this, sheet-iron partitions were placed in the center of the subway to divide the tracks, much of the polluted and dangerous atmosphere would find a way of escape by being pushed out by the moving trains wherever an opening exists. Other recommendations are to force out the bad air and force in the pure air by compression, the pure air being obtained from tall shafts on the outside.

While personally, of course, I approve most highly of antispitting signs in our street cars, they seem to me insufficient in their purpose if they do not include also, in some measure, some phrase to prevent droplet infection. I have seen people in crowded street cars cough in others' faces and I have been the recipient of droplets from coughing people myself. We know that these droplets, when coming from the consumptive, often contain the tubercle bacilli. We know, also, that they may contain the pneumococcus and the grippe bacillus, and I am convinced that this droplet infection in street cars is at times of grippe epidemics one of the fruitful sources of the spread of the disease. Thus, it would seem to me that a little warning which might read like this: "Hold your hand or handkerchief before your mouth when you cough," might be profitably added to the antispitting ordinances. Those of us who are willing to observe will, however, grant me that education, or better yet, the awakening of the people to their duties to help prevent preventable diseases, is indispensable if we desire to improve the hygiene of the city dweller.

The managers and superintendents of places of worship, amusements, instruction, and recreation, such as churches, theaters, music halls, courtrooms, postoffices, railway and police stations, lodging houses, etc., should be compelled to keep these places hygienically clean and provide at least a reasonably good ventilation. The individual communion cup[3], or at least the sanitary communion cup[4], should replace the ordinary common communion cup wherever such ceremonies are performed. The kissing of articles of adoration, such as crucifixes and images, should only be permitttd after thorough cleansing of the object.

To provide good factory, workshop, department store, and office hygiene, and to install safety devices for the protection of the employees, should be the duty of every employer. The individual city dweller has little control over it. The employer can be shown that it would be to his own interest and even to his financial advantage if he would look after the health and well-being of his employees. Let me relate only one instance. I know of a telephone exchange connected with a large concern where numerous young women are employed, some of whom had contracted tuberculosis. Absences for indisposition and ill health, amounting often to several days, were frequent. Seeing the service crippled, the manager demanded from the head of the firm that more space should be given to his department, a restroom and better washrooms provided. From his personal funds the manager gave to each girl a warm sweater and advised them to dress particularly warmly, for henceforth he was determined to keep the windows open, no matter how cold it might be. The result was, no more tuberculosis, no more absences for illness or indisposition, and better and more efficient service. If employers will bear such experiments in mind and adopt them as far as practicable in their own in-

stitutions, I am convinced that they will be the financial gainers in the end and their employees will be made happier and healthier.

Home and Private Hygiene.—There is no doubt in my mind that if all city dwellers could spend a little more, and some a good deal more, time in the open air, they would be in a better physical condition. This holds good for old and young. There should be more outdoor recreation places, more parks, more gardens, more outdoor restaurants, etc. In New York, for example, there are thousands of acres of roofs, which, could they be transformed into roof-gardens, playgrounds for children, or resting places for mothers, on hot summer evenings, incalculable comfort would be bestowed upon that large class of city dwellers obliged to remain in town during the hot season. The average roof can be transformed into a roof garden with relatively little expense.

The indoor hygiene in the homes of the poor is, perhaps, the most important portion of our subject and also the most difficult one. The first thing we have to deal with is the problem of congestion, and while, of course, the indoor arrangement and hygiene of the city dweller is of vast importance to poor and rich alike, let us be frank and admit that the air which the masses get in the crowded tenement districts is not pure enough to make them strong, vigorous, and resistant to disease even if they keep their windows open. Not until we insist upon lower buildings and wider streets, particularly in our tenement house districts, whereby more sunlight can enter their habitations; not until our old tenement houses, and particularly our murderous lung-blocks, are replaced by model tenement houses; not until we have interspaced these model tenement houses by multiple parks and playgrounds; not until this fearful congestion, which is now the curse of our civilization, has been done away with; not until the suburbs of our large cities are utilized for individual homes of the masses; not until our traffic facilities will enable the laborer to travel in comfort and with rapidity to his sanitary home; not until we have given him the opportunity to live modestly but decently in a home somewhat closer to nature than the dark, dreary tenement houses of our overcrowded cities, will we be able to speak of an improvement of the hygiene of this class of city dwellers.

However, it must be borne in mind that the rental for such sanitary homes for the laborers should not be so high that he and his family must deprive or stint themselves of other necessities of life. When one considers the present unusual high prices of articles of food and clothing, the rental the average laborer is able to pay dare not exceed one-fifth of his income.

The indoor arrangement of the homes of the poor, of those of moderate means, and even of the rich, is in many instances deplorable. The best ventilated and sunniest room is usually reserved for the parlor, relatively rarely occupied, and the children are put in the darkest, smallest, least ventilated bedroom, where the sun hardly ever enters.

The methods of heating city houses is of the greatest importance. The best system for those who can afford it, is that of direct heating where a large quantity of moderately warmed air is brought into the room, say over steam, or better yet, hot water coils. Hot-air furnace installation is the cheapest, and is, therefore, the best that can be used for the poor. Ordinarily, the poor heat with stoves combine the objectionable features of systems that heat the air contained in the rooms without changing it, with the objections to systems that burn the air; moreover, presenting great danger of allowing gas to escape. Especially is carbon monoxide given off through the pores of the iron when these stoves become red hot. The usual systems adopted in homes on account of the balancing between expense, convenience, and hygienic reasons are steam heat, or better but more expensive, hot water, with radiators placed directly in the rooms. There are so many cracks in the ordinary house that considerable ventilation is assured. Moreover, most houses have fireplaces which promote some ventilation even if there is no fire burning.

Many of our American houses, however, are too tightly built, are kept at too high temperature and the air is not changed often enough. Besides all this, the air we breathe in many of our overheated houses is altogether too dry to be sanitary. Experience has proven that we can be perfectly comfortable in a temperature of 65° F. and even a little lower, provided that the relative percentage of moisture is 60. If this moisture falls to 30 or 20 per cent., then the dry throat, dry nose, and dry skin are in evidence. The explanation is simple. The dry air absorbs the moisture from the body and causes discomfort. The drying of mucous membranes in this way lays them open to the invasion of the organisms causing colds, grippe, pneumonia, and tuberculosis. Thus, the excessively dry atmosphere of many city and country homes in winter often gives rise to nasal catarrh—a condition which everybody, but especially those suffering from pulmonary diseases or prone to them, should be anxious to avoid.

Besides keeping the water-pan in the furnace constantly filled, there should be in the sitting-room and sleeping-rooms some evaporating arrangement, such as the one known as a humidifier, which I have illustrated in several of my previous writings.[5] More simple evaporating devices, however, may be arranged to render the atmosphere sufficiently moist. To determine the proper humidity, the direct reading hair hygrometer answers all practical purposes.

The best method of cleaning our rooms and furniture is, of course, by the pneumatic suction process already mentioned, but for those who cannot yet afford this luxury it might be well to remember Prudden's excellent simple rules, which read as follows:

To prevent making a great dust in sweeping, use moist sawdust on bare floors. When the room is carpeted, moisten a newspaper and tear it into small scraps and scatter these over the carpet when you begin sweeping. As you sweep, brush the papers along with the broom and they will catch most of the dust and hold it fast, just as the sawdust does on the bare floors. Do not have either the paper or the sawdust dripping wet, only moist

It goes without saying that the feather duster should be banished from all houses and replaced by the cloth with which dust should be wiped off.

The city dweller should, of course, remember to sleep always with his windows entirely, or at least partially open, and bear in mind that night air in cities is not only just as pure but often purer than day air because there is less traffic and commotion in the street at night time.

The internal equipment of the living rooms of the city dweller should be with a view to preventing accumulation of dust and concomitant danger of

spreading disease of the respiratory organs. Thus, fixed carpets, cloth curtains, and worse yet, cloth tapestry, should be abolished. The plush or velvet covered chairs are likewise to be considered dust collectors, and smooth cloth, or, better yet, leather or imitation leather covering is far superior from a hygienic point of view. In building new houses or remodeling old ones, to round off corners in our apartments will doubtlessly add to the facility of keeping our dwelling rooms relatively free from the accumulation of dust.

The least attention in the arrangement of our living rooms is usually given to the toilet room. The water-closet in a dark unventilated room is in itself a menace to health. It becomes even a greater menace when it is a bad water-closet. There are any number of water-closets where the flushing stream only cleanses a part of it. Think of the danger if such condition exists in a home where there is a typhoid fever patient. Unfortunately, this type of water-closets is also found in some of the better-class hotels, in railway stations, public comfort stations, and railroad cars. I wonder if typhoid fever epidemics may not have their source in this deficiency, particularly when we bear in mind that flies, the carriers of so many infectious diseases, are often plentiful in such places.

One general defect in water-closets I have noticed as much in elegant homes as elsewhere, is the height of the seat. For any except very tall men this causes a wrong position to be assumed and it is impossible to exert the necessary abdominal pressure for a free evacuation of the bowels. With short persons, men, women, or children, the feet often dangle in the air and constipation becomes a chronic condition owing to the incomplete emptying of the bowels.

To avoid the possible infection from venereal or skin diseases in using any of the public water-closets, I would urge the practice of protecting the seat each time the toilet is used with a new clean layer of paper with a circular opening. This practice is in vogue in some of the European public comfort stations.

The chronically ill of any large city, which are mainly composed of the tuberculous and the insane, should be housed as far as possible in the outlying districts of the city, and the tuberculous poor for whom the city must care should be divided according to the stage of the disease, and in making this provision Pryor's maxim should be followed; that is to say, treat the patient at the right time, in the right place and in the proper way when he is still curable, and not at the wrong place, at the wrong time, and in the wrong way when all hope must be abandoned.

The dark, dreary, badly ventilated tenement home is no place for the consumptive. He not only will not get well there, but if he remains there he will constitute a constant menace to his family and other city dwellers.

What has been said of the care of the tuberculous can also be said of the insane. They, too, when timely treated in proper surroundings, will often get well, while, when in the advanced stages of the disease, chance for recovery is rare.

To speak in detail of the acutely ill among city dwellers would mean a discussion far beyond the scope of this paper. A proper hospital system with proper ambulance facilities, and hospitals built according to the latest conception, must be the feature of every modern city which means to do its duty towards its inhabitants. However, for the acutely ill there is one provision missing in most of our American cities of which I desire to say a few words in detail. I refer to convalescent homes. Our surgical and medical wards are usually filled with acute sufferers, because of lack of room they must often be dismissed before the patient has completely recovered from the actual operation or from his acute disease, much less from the debilitating condition which results from the operation. The misery and suffering which results to many an honest city dweller in moderate or poor circumstances, because of being discharged from the hospital as convalescent but not as cured, and unable to resume his former occupation, is pathetic. No city hospital system is complete without a home for the convalescent from acute surgical or medical illness.

In a truly modern city there should be no paupers. Those who honestly seek work should be provided with work and be sufficiently paid. The pauper able to work and who does not wish to work should be made to work. A splendid move in the right direction has recently been inaugurated in the City of New York under the name of National Employment Exchange, 14 State street. No charge is made to those who obtain work there. It is a purely philanthropic institution, inaugurated and in charge of Messrs. Robert W. DeForest, Edward T. Devine, Paul U. Kellogg, and Jacob H. Schiff.

For the morally ill, for such I call those who are usually stigmatized as criminals, I plead for humane prisons and humane prison management. The detention prisons, through which not infrequently an innocent person has to pass, should not be so unhygienically managed as to expose anyone to the contraction of disease. For the inmates of all our penal institutions I plead for better prison hygiene, for better ventilation of workshops and cells, proper food and proper occupation. It is a sad comment on our civilization and on the management of prisons that the mortality from tuberculosis in the average prison is still three times higher within its walls than without. No matter how gravely morally ill the inmate may be, we have no right to add to his sentence of imprisonment the additional sentence of death from tuberculosis.

Each city dweller should realize his responsibility towards the others and do his part to improve existing conditions. First of all, in order that the city dweller's health may be protected not only against insidious disease, but also against bodily injury, traffic regulations should, as far as possible, be perfect; speeding with any kind of vehicle, except for ambulance calls and fire, should be prohibited by reason as well as law. There are far too many deaths and injuries resulting from the speed mania. All traffic regulations and all safety devices will, however, be of little avail if the conscience of those who own and drive automobiles and other fast-going vehicles is not awakened to the fearful responsibility they assume by careless and unscrupulously fast driving. Unavoidable accidents will happen, but many automobile accidents could be avoided, particularly in cities, if the chauffeur himself would be more considerate for the safety and life of pedestrians. For the automobilist to injure an individual, no matter whose the fault may be, and then leave the unfortunate wounded person to his fate and try to escape his responsibility by speeding away, should be considered an abominable crime with which the law should deal most severely. Lastly, to diminish the frequent accidents from

which American travelers and railway employees suffer so much, safety devices on all cars and trains should be obligatory.

When one compares the frequency of fires and the loss thereby of property and life in American cities with those of Europe, one cannot help being sadly impressed by the fact that our precautions against fire must be sadly deficient. While our American fire-fighters are certainly superior in alertness and efficiency to any of their European comrades, our municipal laws and individual precautions against the outbreak for fires are decidedly inferior. In the larger European cities the installation of every fuel-consuming device, for the factory boiler to the smallest stove in the smallest tenement home, is subject to regulations and supervisions which lessen the accidents by fire and fatalities connected therewith by more than one-third as compared with those in the United States. To the perils arising from the lack of supervision of furnaces, stoves, etc., has been added in recent years a new danger by allowing the remnants of gasoline tanks to flow into our sewers, the result of which, as is well known now, is many sewer explosions and concomitant accidents. In our age where gasoline is an almost indispensable product, its handling should be regulated by the enforcement of the strictest laws under the supervision of the fire or health department.

As far as family and personal hygiene is concerned, we must look for our salvation to public education through schools, the right kind of lectures, popular literature, and above all to the teachings of medical men and women. The city dweller should know how to dress. When one has seen in hospital work in the city of New York an individual brought in suffering from sunstroke and on being undressed he was found to have three flannel shirts under his waistcoat and coat, one realizes the need of education in this respect. The ignorant citizen should be taught and the knowing permitted to dress according to weather and season. If I am rightly informed, our higher postal authorities do not allow the letter carriers to go without a coat even in the hottest weather. Last summer, on one of the hottest days of the hot season I saw a gentleman enter a fashionable restaurant in white negligee shirt and belt looking neatly dressed, and one would have thought properly for the season. He was refused the cooling drink he asked for because he had no coat on. It was in the evening. There were ladies present with no hats, in cool decolleté summer dresses, decolleté in front and behind, with no sleeves, some with shirt waists of the thinnest material, some of material largely fenestrated—all were admitted and served, but the man had to go thirsty until he could cover—not his nakedness, but his nice, clean white shirt which covered his arms to his wrists and his neck to his ears. It is an absurd custom that men should not be allowed to dress as coolly as women. Except in cold weather, I consider the stiff linen dress shirt uncomfortable and unhygienic and the stiff tight and high collar for man and woman unhygienic all the time. The turned-down or soft collar should be made more universal for ordinary use. The negligee shirt is far superior to the others. The derby hat, such a prominent feature of city life, which, when worn a long time, constricts the circulation of the head and is doubtlessly the cause of much baldness, should be replaced by the more hygienic soft felt hat. To wear the hat indoors, which is also the habit of so many business and laboring men, is a habit which cannot too severely be condemned from a hygienic point of view.

Of dress reform in women much has been written and it has been still more talked about. In a recent conversation with a very progressive young lady physician, who, to my amazement, I thought to be laced more tightly than was good for her, I ventured to drop a word sounding somewhat like "bad example." The reply was like that of any other woman that she wasn't really tightly laced, but she also volunteered the information that it was we men who demanded what we considered graceful figure, small waists, etc. Be that as it may, it seems to me that as long as women will submit to the dictates of fashion, whether reasonable or not, we men have little to say about it. I perceived that our tastes were not consulted apropos of large hats, Empire dresses, nor of the fashion of dresses and waists being fastened in the back by multiple buttons and hooks.

Trailing skirts are now mostly out of fashion for the street, and I hope these garments, which so often do the scavenger's dirty work, will never come in fashion again. These skirts, trailed too often in tuberculous dust, carried the germs into the playrooms of children and caused many a little one, without any hereditary predisposition or other exposure to infection, mysteriously to become tuberculous. Education in dress and home hygiene should form a part of the curriculum in schools to the future city dweller—man or woman—and for the latter practical cooking lessons should form a feature.

The social ill and the collateral unfortunate condition manifesting itself in the prevalence of venereal diseases and its sequellæ (invalidism, blindness, sterility, etc.) is, indeed, a feature which must be entered into in the discussion of our subject. But I must be brief and can only refer here to what I have said before in a paper entitled "Some Thoughts on the Etiology, Prophylaxis and Treatment of the Social Ill."[6]

The improvement of the hygiene of the homes of the poor to which I have already alluded, the suppression of child-labor, the betterment of monetary compensation for the young woman who has to go to work in shop or factory, the education of boys and girls and the public at large as to the meaning of sexual relations, and the prevention of venereal diseases, healthful amusements, evening dispensaries and free treatment for those afflicted with venereal diseases and unable to pay, hospital facilities for the treatment of more serious cases, repression of the social ill, and, last but not least, a home or a house which may serve as a refuge for the poor, unfortunate sister who is tired of the life she is leading, an opportunity for her to forget and begin a new life—these are the remedies I suggest. Efforts in the direction of providing such homes and giving the women an opportunity for work and employment in other spheres is one of the most efficacious ways of helping to solve the problem of the social ill. This has been amply demonstrated by the recent report of Miss Maude E. Minor, one of the New York City Probation Officers, through whose untiring effort such a home, known as the "Waverley House," was established two years ago. Of 300 women who passed through this home either by self-commitment or on probation granted by the court, 119 had changed their mode of life, had become happy, honorable, and useful members of society and are in constant communication with Miss

Minor. Every letter from them expresses their gratitude for having been enabled to leave a life in which they were so thoroughly unhappy. A place of refuge for those unfortunate women in many instances means freeing them from the men who live on their shame and are so often responsible for their enslavement.

Before coming to the end of my paper I feel in duty bound to say a word on the hygiene of the nervous system and the brain of the city dweller. To define the physical and nervous condition of the dweller in the large city of New York, my friend, Dr. John H. Gardiner, has created the word "Newyorkitis." According to him Newyorkitis is the cause of the artificial life which so large a percentage of New Yorkers are leading or are obliged to lead and which has its effect in a peculiar condition of the mind, body, and soul of the individual.

I believe I have said all that I could possibly say in this paper concerning the bodily welfare of the city dweller, and I will only dwell for a few moments on the alarming increase of all kinds of nervous diseases and insanity. What can we physicians do to stem this tide and bring about a more rational and more sane method of life so as no longer to overcrowd our insane asylums and sanitaria for nervous diseases? What our brethren, the ministers and pastors of all the different creeds, seem to have been unable to do in most instances, we must now try to accomplish. We must become the physicians of the souls of men, we must guide our patients in the right direction, particularly those who are threatened with diseases of the mind because of constant worry, often useless anxiety, and still more often unnecessary hunt after the almighty dollar. Then there is that large class of patients which might be called pleasure hunters. They as well as the hunters after wealth should be impressed with the need of a better equilibrium in their conduct, more hours of sleep and healthful recreation, and some ideal, some noble aim to live for. The lack of a sufficient amount of rest and sleep is, perhaps, as responsible for as much nervous and mental affliction as anything else. There should also be more time at the proper time devoted to our meals. The quick lunch and the midnight heavy supper are alike injurious to our physical and mental condition. In other words, we must live a simpler life. This, however, does not mean to abandon the comforts of modern civilization, to ignore the blessings of modern science, of music, art, and literature. It only means to live less artificially, more in accordance with physiological, *i.e.* natural laws and obey the lessons modern science and preventive medicine have taught us. This applies to men and women alike, but to the latter I feel that I must give an additional word of warning. Instead of giving their adherence to all sorts of fads, some of which deny the existence of disease and proclaim the uselessness of preventive medicine, hygiene and the laws of cleanliness, which are the laws of God, the American mother should combat such dangerous doctrine by word of mouth and pen, and above all, by example. If she leads a more simple life, she will no longer be "nervous," or neurasthenic, and consequently will not have to resort to the patent medicines, headache powders, and nerve tonics advertised in the daily papers and not infrequently even in religious periodicals.

It is the physician, and particularly the family physician, who, if he rises to his opportunities, can become the greatest benefactor of our age. If he can inspire his patients to lead a simpler, a more quiet, less materialistic, and better balanced life; if he can teach them to be satisfied and contented with less of the world's goods than others possess; if he can convince them that seeking for the world's possessions is only laudable when it causes no detriment to their own physical and moral being and that of their fellowmen; and that the healthy mind in the healthy body of the contented man or woman is far more precious than the material riches of all the world; if, as my esteemed friend, the Rev. John Haynes Holmes of the Unitarian Church of the Messiah, New York City, puts it, the physician can convince the business man that business should be contributory toward the happiness of the people, that business is for man and not man for business; then, indeed, will he be the physician not only of the body, but also of the soul and will see his reward in the increased happiness of all and a healthier, more moral, and saner state of society at large.

I have promised to conclude my paper by the discussion of the hygiene of the child of to-day—the citizen of to-morrow. Let me begin by saying that to have a vigorous race we must have more breast-fed and fewer bottle-fed babies, we must not allow the women, the future mothers, to work in factory and workshop until the day before confinement, nor resume work after a week at the maternity hospital or childbed at home. Let us provide maternity sanatoria for these future mothers where they can rest long enough before and rest long enough after confinement. Let us instruct the future mothers in the care and raising of children and there will be fewer epidemics of measles, scarlet fever, infant diarrhea, and tuberculosis.

School hygiene is a subject on which one can write a book, and a pretty voluminous one at that, and I only want to venture to suggest a few points in relation to it. The average child should not be sent to school before he is 8 years of age. More play, and more outdoor play, should be the privilege of the child at all ages, but particularly under the age of 8. Every city should have an abundance of playgrounds and every school should have its outdoor playground adjoining the school or have it built on the roof if there is no other room. The curriculum should be regulated so as not to develop the brain of the child to the detriment of his nervous system and proper physical growth, nor to make physical or mental wrecks of our schoolteachers. Botanical and geographical excursions, outdoor singing and recitation (weather permitting), should be a feature of the curriculum of all classes. During recess, respiratory exercises in the open air or at the open window should be practiced for a few minutes. Ventilation in the schoolroom should at all times be the best which can possibly be obtained. Proper paper, proper length of lines in school books, proper interspaces, in short, everything appertaining to safeguarding the eyesight of the school children should be considered of paramount importance in school hygiene. May I say incidentally here that a movement for larger type in our daily papers, such as has been inaugurated by the New York *Herald*, should be emulated in all American cities. Open-air schools for the tuberculous or the predisposed child should be a feature of every modern school.

I have already mentioned child-labor as often

predestining the young girl to become a victim to the social ill. Child-labor also predisposes to tuberculosis, weakens the nervous system in its resistance to the temptation of alcohol and other vices in both sexes. However, it is not only child-labor in the factory which we must try to suppress, the child-labor at home is often quite as serious. Sometimes a cruel, sometimes a thoughtless and sometimes a poor parent has crippled the child for life by forcing it to slave at home in one type of labor or another. Such a child will make a poor citizen if it ever grows up to man or womanhood.

I know I will meet with opposition in what I have to say on the question of race suicide. In the sense of the interpretation of our distinguished Ex-President Roosevelt there exists, I believe, no race suicide in the homes of the poor. If anyone doubts this statement, I refer him to statistics, but a visit to anyone of the streets in the tenement house districts in New York or any other large American city will convince him of the truth of my statement. Nevertheless, there is race suicide in those regions, inasmuch as many of the children of the families of 5, 6, 7, 8, 9 and 10 either die young or fill the schools with anemic, undeveloped, physically, and often mentally crippled pupils who, if they live, in later years frequently become burdens to the community by reason of their invalidism.

I have for years taken careful statistics as to the number of children in the family from which a consumptive came. This has shown that in large families usually the latter born were the ones who contracted tuberculosis. It was with the constant increase of the family that the struggle for life on part of the parents increased, less care was bestowed and less food and poorer food had to be given to the latter born than to the first born. This inquiry into the family history has also very frequently revealed to me the fact that those large families never remain large families. Many of the children die before they reach adult life. This seems to me a costly race suicide. The remedy is again education and enlightenment. After all, in the make-up of a nation quality is more important than quantity.

To summarize: it is by thorough training of ourselves as physicians and sanitarians, the awakening of the statesman and philanthropist to their duties regarding issues of public health and public welfare, education of employers and employees, of the man and the woman of all classes of society, in general and personal hygiene; hygienic education of the child at school, and the practical application of the combined knowledge and experience gained in modern sociology, pedagogy, eugenics, and medicine that we may hope to make of the child of to-day the citizen of to-morrow, the ideal man and woman, strong, healthy, happy, vigorous, noble, and even beautiful to behold.

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DEATH IN EPILEPSY.

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SONYEA, N. Y.

LABORATORY OF THE CRAIG COLONY FOR EPILEPTICS.

It is the common idea that epilepsy is a disease carrying with it but small danger to life, that while it makes its victim a dependent, an outcast, he may live on fairly indefinitely. Our experience at the Colony is in direct contradiction to this idea—our experience is that the disease carries with it very grave dangers, the span of life is shortened, and there is a special liability to certain diseases and to traumas.

The material from which this paper is constructed is drawn from the records of, 2,818 admissions to the Colony, representing 2,732 individuals. Before discussing the deaths, it may be of interest to show the ages at which our cases were admitted and the age at which the disease began. (Chart 1.)

In this chart, each space to the right represents a year and each small space vertically represents a case. The solid line represents the ages at admission and the broken one, the ages at onset. It will be seen that the very early years of life have but few representatives among our patients: half our cases were received at from eleven to twenty-five years, inclusive, and the greatest numbr at any one age was at seventeen. It may be remarked that the sexes were divided in the proportion of six men to four women. The onset line shows graphically the well-known facts in the etiology of the disease, that infancy and puberty are the most dangerous periods for the appearance of this disease. The latter part of both curves is of interest in that there is a steady fall from the crests to the oldest case shown. There is no rise corresponding to the later years of life, and it seems that to this fact may be attached considerable significance, for it shows that among our patients those causes which are active in later life, arterial change, senility, syphilitic conditions, and the menopause, have but little part.

Of the 2,732 individuals above mentioned, 582 have died at the Colony. Many have been discharged, and nothing is known of their subsequent history. The proportion of males and females dying is practically the proportion admitted, though the males are very slightly in excess.

For the statistical analysis of these cases, attention is called to the remaining figures herewith presented. Chart 2 shows the ages at which death occurred, and it will be seen that this is somewhat similar in shape to the curve of the ages of admission, except that it is pushed to the right somewhat. The maximum number of deaths at any one age was at nineteen, while 50 per cent. of the deaths lie between the ages of fifteen and twenty-nine years, inclusive. The arithmetical mean is 30.08 years. This certainly indicates a lessened expectation of life.

Chart 3 shows that the onset of the disease was in these cases of the same character as in the entire number of admissions.

Chart 4 shows the duration of the disease as calculated in 555 cases. The uncertainty of the disease is here shown. Some few endure for more than fifty years, while others are destroyed during the first year. The mean age in all these cases was 17.5 years; half the entire number of cases died between eight and fifteen years of epileptic life. This curve presents a marked double crest, and the

query naturally arises whether this is related to the double-crested form of the onset curves.

A list of the immediate causes of death in these cases would be tedious if given in detail; certain facts of considerable interest may be abstracted from such a list: (a) Pulmonary conditions are the commonest cause of death. Pneumonias of all sorts were reported 142 times, pulmonary congestion, eight times, and various other lung conditions, nine times. Tuberculosis of the lungs was mentioned 102 times and tuberculosis of other localities, nine times. (b) Sudden death occurred ninety-nine times; status epilepticus, fifty-nine times; series, thirteen times, and conditions which may be grouped under the head of mental disturbances with exhaustion, thirteen times. In all, causes of death related to epilepsy were reported 174 times. (c) Valvular disease of the heart, thirty-one times, and nephritis thirty-two times are the other important causes. The remainder of the list is made up of several minor groups of little interest for our purpose.

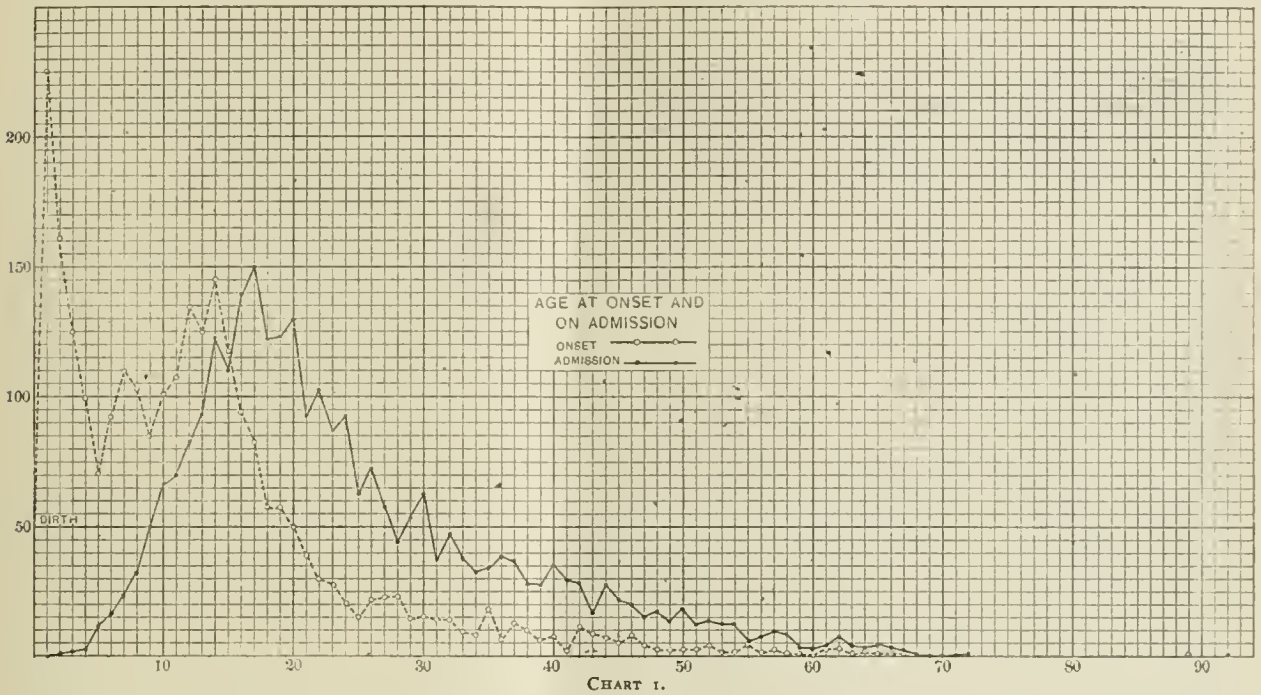

CHART 1.

It must be recalled that as two or more causes of death may be reported in the same case, the above figures do not represent individuals. It is evident, however, that the epileptic's lungs are his weak part and that pulmonary conditions are peculiarly dangerous to him. This is less apparent than had it been possible to show that back of the various lung conditions, other than pneumonia, there lay an epileptic conditions, status, series, and even single seizare in large part sequelæ of, and caused by, epileptic conditions status, series, and even single seizures, or the result of exposure while wandering in the automatic state associated with seizures. Pulmonary edema is not shown in the above figures, but it alone may be the cause of death within a few hours after its onset. The importance of this factor would be better understood were the figures for its occurrence made up, but in their lack it can only be said that it is a frequent and dangerous condition, following all forms of the epileptic attack, even single *grand mal* seizures. Its seriousness and frequency cannot be too strongly emphasized.

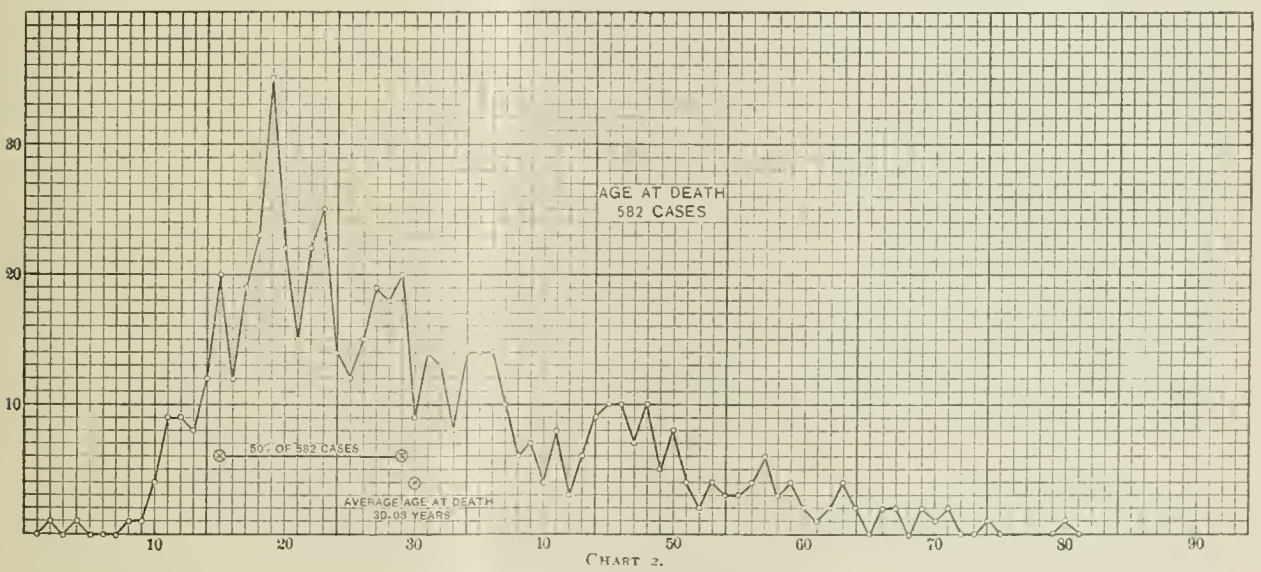

CHART 2.

As regards conditions directly related to epilepsy, it is interesting to note how much fewer are the deaths from status and series in the last few years than they were in the earlier years of the Colony. These are conditions which permit no temporizing and must be stopped as soon as possible.

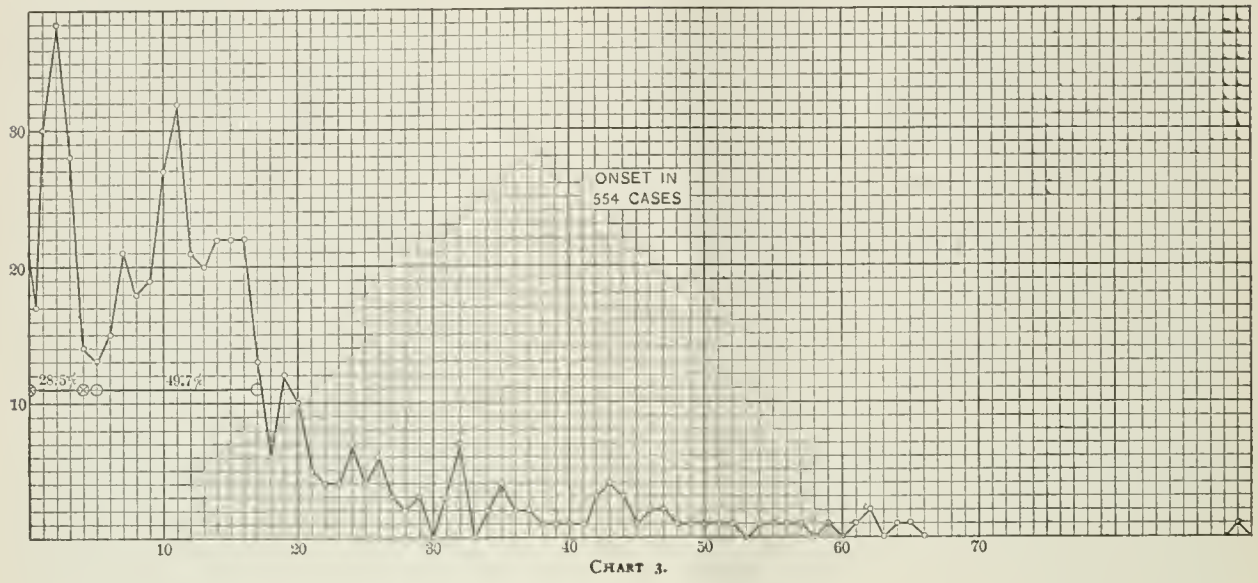

CHART 3.

Sudden death shows no diminution and evidently constitutes a quantity which cannot be controlled. There were, as above noted, about ninety-nine cases in which epilepsy was the real cause of death. At the basis of all was a seizure. The patient suffocated while helpless, met with an acident, burned himself, fell on the railroad tracks, etc. Acts done while in the automatic state sometimes bring fatal injury.

But besides these traumatic cases, there is a definite and fairly large group where neither accident of any kind nor suffocation can be assigned as the cause of death. The cause seems to be intrinsic rather than extrinsic. The questions raised by these sudden death cases are of great interest, both for the institution itself and from a medical and medicolegal point of view. The responsibility of the institution as regards the prevention of these deaths, the cause of death, and the anatomical findings, are the most important points to be considered.

CHART 4.

It is difficult to say how far preventive measures may be successfully carried out. There are cases of death in or following seizure in which the patient is seen to die. For example:

CASE I.—E. L., No. 1725, a female patient aged 48 years, had a seizure at 1:20 P. M. The nurse noted that her breathing was peculiar (in what way is not stated) and sent for the physician in charge of the service. When he arrived at 1:30 P. M. the patient was dead. The patient had previously had "fainting spells" and the autopsy showed cardiac and renal changes.

CASE II.—I. J., No. 1302, was found by the nurse at 4:15 A. M., in his bed, wet and soiled. He appeared to be recovering from a severe seizure. His respiration was rapid and he was gasping and moaning a good deal; he seemed to be in great distress, complaining of pain in his chest and spitting blood. Patient did not recover and had another seizure at 5:50 A. M. During this last seizure the patient suddenly relaxed, and the physician found him dead when he reached his bedside (not later than 5:55 A. M.).

In such cases as these preventive measures would be useless. Again, in a case of this sort, it is difficult to say what could have been done:

CASE III.—F. C., No. 2258, a male, was seen alive at midnight, and nothing unusual was noted. When the nurse made his next round at 1:30 A. M., he noted that the patient was not breathing in his usual manner, and on examination the patient was found to be dead. The physician's report states that the mouth and nose were clear, pillows wet with mucus, and urine had been voided. Face and neck were not cyanosed.

On the other hand, in a case of this character, close supervision might have prevented the death:

CASE IV.—M. van C., No. 1910, a female, was seen at 3 A. M., when she asked for extra bed covering, which was furnished. At 4:20 A. M. she was found dead, with her face down. There was some blood in the nostrils, and there was also some on the pillow. The face and the anterior portion of the chest and arm, except where pressure had

prevented, were purple. Pupils were equal and moderately dilated. There were petechial hemorrhages about the base of the neck.

A partial preventive measure is the use of hair pillows with a net covering, somewhat more pervious to the air than the ordinary pillow. This, however, is only a half way measure. Close and continuous observation seems to be the only possible means of preventing these deaths. The observation must be constant and close. It is not sufficient that the night nurse pay an occasional visit to the dormitories—for these accidents happen mostly at night, though also in the daytime. Each patient must be seen every few minutes, for, as has been noted, these deaths occur very rapidly at times. Hearing cannot be depended on—seizures not infrequently take place silently. Patients sleeping in the same room or dormitory are not to be depended on as safeguards, as they not infrequently fail to appreciate the responsibility or are not awakened by the seizure. In this connection, single rooms may be mentioned in order to condemn them. They have apparent advantages, and no doubt add greatly to the comfort of the patient, but he is much safer sleeping in a room with others.

It is an excellent rule that patients shall never walk afield without company. The writer, not many weks ago, was returning from a short trip to the village, when his attention was attracted to something on the fence at the roadside. That something was a man dead. As far as we could reconstruct the case the man had started to walk along the road, a much frequented highway, and had had a seizure. In some manner he had staggered out of the road, and coming nearly to the fence, had tripped or fallen with his throat across one of the wires. He was cut by the barbs, but the cause of death was strangulation. Swimming is a sport forbidden to our patients, but rules are made to be broken, so it seems, and the attractions of the swimming hole far exceed the appreciation of the danger, and a seizure in the water has in a few cases led to drowning. Walking on the railroad track is likewise a danger for the epileptic.

The symptoms or signs of a seizure presented in these sudden death cases rarely constitute a complete picture. Unfortunately, the written reports received for filing in the medical histories are incomplete in that negative findings are only occasionally mentioned; there is, thus, a feeling of doubt as to whether the hiatus was due to a failure to note a negative finding or whether the point was overlooked.

We have already discussed the finding of the body. The time elapsing between the hour last seen alive and the time of finding dead naturally depends on the closeness of supervision. Some were found alive; others on their faces, in a position indicating that suffocation was the cause of death; others were found on their backs, with suffocation a remote possibility. Fluid, mucus, foam, any of which may be at times stained with blood, either from a bitten tongue or from the pasage of red blood cells into the alveoli,* are commonly found.

Where mention is made of them, the pupils are dilated; the hands are sometimes clinched, with the thumbs in the palms. Voiding of urine is occasionally found, but feces and semen are comparatively rarely mentioned. Some significant feature peculiar to the case may be present. In one case, for example, the lower jaw was commonly dislocated in seizures, and when the patient was found dead, the jaw was found out of position.

A complete list of symptoms is practically never observed. Some are usually present, and careful search will reveal them. To insure more complete reports in these cases a printed form has been prepared for the purpose of guiding the preparation of reports and preventing omissions. This scheme of examination is herewith reproduced.

OUTLINE OF EXAMINATION IN CASE OF SUDDEN DEATH.

Name of patient.

Where, when and by whom last seen alive? What had been the condition of this patient during the last day of life? Where, when, and by whom was the patient found? Alive or dead? If alive, how long did he live?

Note the position and condition of the body in every respect, especially in regard to the following: Was the body on the back or on the face? Was face buried in the bedding or pressed into floor? Was there cyanosis of the face or of other parts of the body? Were there small point-like hemorrhages in the skin? (Examine especially the face, neck and shoulders.) Condition of pupils? Equal, unequal, dilated, contracted. Was the tongue bitten? Was there fluid about the mouth or nose, or spots from the same on the bedding? If so, character of fluid? Position of hands? Open, clinched with thumb out or in.

Was the body cold? Rectal temperature?

Was rigor mortis present (test stiffness)? Had urine or feces been voided? If a male, has there been an erection?

Describe any new wounds. Add any points not suggested above, which may throw light on the cause and manner of death, and its time. Did you attempt any measures of resuscitation? What and how long continued?

Autopsies were held in a considerable number (sixty-eight) of these cases of sudden death. On the whole, congestion and edema of all organs best sums up the findings. The leptomeninges are very commonly elevated by clear fluid and are also commonly congested. It should be remarked, however, that hydrops meningeus is also found in other of our cases. The lung condition is usually very striking; there is an intense edema and more or less congestion. Occasionally, small pneumonic areas are discovered. Hemorrhages in the lung tissue and beneath the epicardium are not uncommon. The heart was usually firmly contracted, though in a few cases the right side was greatly distended. Valvular changes were not common, but nephritis was more commonly found.* The lymphatic tissues were not uncommonly hyperplastic, enlarged mesenteric and celiac glands being frequent; the solitary follicles of the lower portion of the digestive tract are often very large and numerous. Persistent thymus, however, has been in these and in all our cases a rather exceptional finding.

In summarizing the points which the writer wishes to bring out, the following may be presented:

1. The duration of life after the onset of the disease may be several years, but as the onset is

*Red blood corpuscles are almost always found in the pulmonary alveoli, accompanying the edema and congestion typically present in these cases.

*In a forthcoming paper on "Postepileptic albuminuria" the question of a nephritis in some of these cases is discussed.

very common in the early years of life, the net result is the premature death of the epileptic as compared with normal people.

2. The causes of death in epileptics are quite largely associated with the disease itself, and may be divided into two main groups, pulmonary conditions and conditions of purely epileptic character.

3. Pulmonary conditions usually have at their foundation the pulmonary edema which is so often associated with seizures, etc., and hence are secondary to the epilepsy. Exposure while helpless or automatic after a seizure may also be responsible for lung conditions. It is possible that the frequent congestions and edemas occurring in these lungs make the soil fertile for the tubercle bacillus.

4. Death is imminent at the time of seizures, unless help is at hand. The cause may be traumatic, suffocation may take place, or death may occur without any apparent cause.

5. Epileptics dying in seizure will usually show some, but rarely if ever all, of the signs of seizure. The anatomical findings are edema and congestion, and often the diagnosis of seizure death has to be made largely by exclusion.

6. The moral may be pointed from these facts that the epileptic should be by himself as little as possible. His walks should be in company or else in frequented places, and his repose should be under the watchful eye of a night nurse, or at least in the same room with several other patients.

OBSERVATIONS REGARDING THE FINGER TONE.*

By GEO. O. WILLIAMS, M.D.,

GREENE, N. Y.

THIS paper is a résumé of some facts and some inferences developed while investigating the tone that is heard by the observer when the ball of the finger is lightly laid upon the diapraghm of a stethescope. The middle finger is selected for this purpose, for convenience only, as the tone is heard when any of the fingers or toes are used on any other part of the body. The instrument known as the Bolles' stethescope gives the best results. It should be held by the shank. The tone is interfered with when any portion of the observer's hand touches the rim of the bell.

The finger of the patient must be laid *very lightly* on the diaphragm. Heavy pressure complicates the tone. The hard rubber diaphragm of this instrument is sensitive enough to transmit the sound of the feet of a fly crossing it.

The tone may be described as a continuous hum without a distinguishable pulsation. It is certainly connected with the circulation. For the sake of theory it may be reasonably assumed that it arises from the transmission of the blood current through the capillaries. The varying pitch and volume of the tone seem to depend upon the volume and intensity of the current. The following may be considered as facts:

(1) The tone is audible in the living. It is inaudible in the dead. (2) It is audible on any portion of the body in varying degrees. (3) It is greatly increased if the base of the finger is wound with an elastic band. The difference in the tone is surprising. (4) A long series of observations have served to establish what may be considered a normal tone. (5) The tone is certainly modified by pathological conditions. (6) It averages louder in the male than in the female, and in early old age than in youth. (7) It is absent in collapse from any cause. (8) Exposure to cold reduces or entirely removes the tone. As for instance the exposure of the fingers to severe weather in winter.

The following, while not absolutely proven facts and perhaps insufficient to warrant conclusions, may, however, serve in determining whether the finger tone has a clinical value and assist in establishing what that value may be: (1) A diminished arterial current reduces the tone. This is true whether the cause lies in the heart or beyond the heart. Local arterial obstruction destroys the tone beyond the obstruction. In a case of extensive destruction of tissue from infection of the hand the tone was scarcely audible. Its mate's tone was normal. In a case of posterior tibial embolism the tone was audible above and absent below the plug. Gangrene subsequently occurred.

In a case of paralysis of the left arm which was seen three hours after the commencement, the tone was diminished as compared with the right fingers. In the same case, seen a year afterward, when motion and sensation were restored, the tones in right and left fingers were uniform. (2) It was absent in a newly born infant and inaudible in the mother just after delivery. (3) It was diminshed in three cases of chronic albuminuria with edema of hands and feet. (4) In two cases of femoral thrombosis the tone was intensified in the toes. The observations were made shortly after the onset. (5) In several trials on individuals under alcoholic excitation the tone was diminished. It became normal when the men became sober. (6) It was greatly diminished in cases of typhoid with high temperature, 104°-105°. In one case the tone was scarcely heard. This patient died from hemorrhage in a few days. In a case of pneumonia complicating measles, with a temperature of 104.5° the tone was enormously increased. After recovery the tone became normal. It is probably true that the average tone in high temperatures is less than normal. (7) In several cases of mitral disease the tone was exaggerated. How constant this may be requires more observation.

The following experiment was undertaken to ascertain the effect of severe exercise upon the tone. In making these observations the letter X was used to denote a normal tone. A diminished tone was indicated by one or two minus signs before the X, thus: — X, — — X, the latter being used to signify a minimum tone. An increased tone was indicated by XX and XXX.

Six young football players were selected. Their readings were as follows: No. 1, X; No. 2, XX; No. 3, X; No. 4, X; No. 5, —X; No. 6, —X. No. 2 had a history of etherization for appendicitis a year previously, and subsequent shortness of breath. He had an intermitting heart, and was a liberal smoker. No. 3 had a severe single pneumonia 20 months prior to this test. It will be noticed that No. 2 gave a finger tone of XX. His father has mitral disease with an exaggerated finger tone. It will be noticed also that No. 3 gave a normal tone.

The exercise consisted in running 30 rods and up a flight of 16 steps. After the exercise the readings were: No. 1, X; No. 2, X; No. 3, XX; No. 4.

*Read at the meeting of the Sixth District Branch of the New York State Medical Association, Binghamton, October, 1908, and at the Chenango County Medical Society, in June, 1908.

—X; No. 5, ——X; No. 6, ——X. It will be noticed that No. 2, who gave an overloud tone prior to the exercise, gave a diminished tone after it. No. 3, with a previous pneumonic history, gave an exaggerated tone after the exercise. This was the only one who gave an overloud tone after the exercise. There are several inferences that have come from careful daily use of the instrument for nearly three years.

These must not now be accepted as authoritative or absolutely conclusive. They are, however, probable: (1) An overloud tone in middle or early life should be regarded with suspicion. Pulmonary or hepatic lesions may be present. (2) In life insurance it is an important factor and should weigh against the risk. (3) An overloud tone may accompany mitral, and a greatly diminished tone, aortic disease. A general statement may be true, overloud tones denote venous obstruction and that diminished tones denote arterial obstruction.

The limitations of general practice do not afford the same opportunities for investigation that are found in large hospitals. This subject then may be left to some careful and painstaking student with a taste for research, to determine what the clinical value of the finger tone may be. There is much to be learned about it before it can be discarded as valueless.

CONTACT INFECTION IN AMEBIASIS.

By WILLIAM ALLAN, A.B., M.D.,

CHARLOTTE, N. C.

PROFESSOR OF PARASITOLOGY, NORTH CAROLINA MEDICAL COLLEGE.

Amebiasis is classed as an infectious disease, but the exact knowledge of the ways in which it is spread is not as full as we could wish. The infecting organism is cast out in the feces, as is the typhoid organism, and by analogy we should expect the disease to be spread in the same ways, viz., by the water supply, raw food, contact, and insects.

It is the third proposition, contact infection, that I wish to discuss here. Schaudinn has shown that when amebæ in the motile or vegetative state from a recent stool are fed to cats no infection follows, but when they become encysted through drying infection is possible (Manson, "Tropical Diseases," 4th edition, p. 444). Schaudinn has also shown that *Entameba histolytica* multiplies by budding and that these buds, when pinched off, at first become encysted and are capable of infecting cats (Calkins, "Protozoology," 2d edition, p. 299). The chance of infection from "encysted buds" would probably be less than that from the organisms which had become encysted during the vegetative stage, owing to hostile environment. How long it takes vegetative amebæ, on being cast out in the feces, to encyst sufficiently to pass through the gastric juice is not known. Judging from the effect of cold slides or a little acid urine mixed with the feces, it does not take very long.

Contact infection in amebiasis should be much less common than contact infection in typhoid fever, because of the size and shape of the organism and of the preparation which it must first undergo. But the idea of contact infection will not seem strange to those who have seen persons handle soiled linen, empty and clean vessels of all descriptions, used as commodes and urinals, and then prepare or eat food without first washing their hands. When it is the dysenteric herself who prepares and serves the food the chance of contaminating it is, of course, much more constant.

The occurrence and distribution of the following four cases of amebiasis are unusual in my experience, and I think significant of contact infection:

Brick Row in Charlotte is a long building, housing from fifteen to twenty families. Each family has a front room and either one or two small back rooms. Front and back galleries run the length of the building. City water supply. Sanitary closet at one end of the building. In May, 1908, I was called to see G. S., white, female, age 8 years, who had had dysentery several months. Examination for amebæ at this time was negative. I saw the case again in August, 1909, and was told that the little girl still had the same dysentery. Examination of the feces showed blood, mucus, and *Entameba histolytica*. Blood examination showed hemoglobin 75 per cent., eosinophilia 11 per cent.

In March, 1909, this little girl's small brother, aged 22 months, contracted dysentery. Examination of the feces (August, 1909, at the time of the girl's examination) showed blood, mucus, and *Entameba histolytica*. Blood examination showed hemoglobin 75 per cent., eosinophilia 20 per cent.

As the mother had a still younger baby to nurse, as well as the cooking, washing, and cleaning to do, the girl had practically entire charge of the boy. She dressed him, fed him, and cleaned him up after a bowel movement. This family moved into Brick Row about a month after the girl first contracted dysentery.

On August 15, 1909, I was called to see Mrs. B., who lived in the opposite end of Brick Row. She was a widow with four children; three, aged respectively 16, 12, and 8 years, lived with her at home, while the oldest daughter was married. The mother gave a history of chronic recurrent dysentery for the past eight years. She had been living in Brick Row one year. The present attack began August 1, 1909. She was greatly prostrated and confined to bed a part of the day by the frequent and painful bowel movements. Examination of the feces showed blood, mucus, monads, and *Entameba histolytica*. Blood examination showed hemoglobin 75 per cent., cosinophilia 2.8 per cent.

On August 8, 1909, the 16 year old daughter, a mill hand, developed an acute attack of dysentery with 8 to 15 bloody mucous stools a day. She had never had dysentery before. At this time both the mother and daughter were preparing and serving the food, while the daughter emptied the tin bucket used as a commode. Examination of the daughter's feces showed blood, mucus, monads, *Entameba histolytica*, and eggs of *Necator americanus*. Blood examination showed hemoglobin 70 per cent., eosinophilia 5.2 per cent.

At this time I interviewed all of the inhabitants of the Row. No other person in the place either had dysentery or gave a history of dysentery. The majority of them had lived there more than eighteen months.

Therefore, it would seem that: (1) The original case of dysentery in each of these two families had been contracted before they moved to this locality; (2) that during the past eighteen months the only cases that had developed in the Row had been in the families in which there was a source of infection in the person of a chronic ameba carrier; and (3) that the last two cases had become infected from the first two by contact.

A CASE OF PUERPERAL SEPTICEMIA TREATED WITH DIPHTHERIA ANTITOXIN—RECOVERY.

By EDWARD M. DEACON, M.D.,

BIRDSBORO, PA.

Mrs. P., aged 26—Primipara—physical condition not robust. After having severe false pains for three days before the regular labor pains appeared, was delivered of an eight-pound boy at 1 o'clock A.M., January 6, 1909. The labor advanced normally until the head of the child reached the pelvic floor. At this juncture the pains became weak and irregular. After waiting about an hour, chloroform was administered, and under strict antiseptic precautions, forceps were applied. Notwithstanding a slow and careful delivery, a complete laceration of the perineum resulted, about an inch and a half in length. This was repaired immediately. The placenta was removed intact.

For the first two days the patient rested well except for a slight headache. On the third day she complained of much headache and soreness in the abdomen. Temperature 100°. No chills. An ice bag was applied to the abdomen and a saline purgative given. Vaginal douches of carbolic acid, 1 to 20, were ordered. On the fourth day she complained of chilliness. Temperature 100.5°. The lochial discharge appeared normal in quantity and character. On the fifth day pain and tenderness grew worse, her temperature was 101°. On the sixth day headache was very severe. The tongue was dry and brown. The abdomen was slightly distended. The appearance of the lochial discharge had not altered. The temperature was 103°. Under chloroform anesthesia the uterus was curetted thoroughly, and irrigated with very hot creolin solution, one drachm to the quart. Unguentum Credé was applied to the abdomen and inner side of the thighs, night and morning. Calcium sulphide, one-half grain, was ordered every two hours, and strychnine, 1/40 grain, every three hours. Magnesium sulphate was given freely. High enemata of hot water containing turpentine were used by means of a rectal tube in order to overcome the abdominal distention. The ice bag was kept constantly on the abdomen.

From this time until January 18, intrauterine douches of creolin were used twice daily. Vaginal douches were used every three hours. The treatment remained the same as stated above. On January 18 the temperature was 105.5°. Pulse 160. The abdominal distention was enormous. There were repeated chills. The patient was stupid. There was severe abdominal pain. The uterine discharge was very profuse and purulent, imparting a marked septic odor to the sick room. With the patient in this extreme condition I decided to use injections of diphtheria antitoxin, although I had never heard of its having been used in cases of this kind before There were no diphtheritic symptoms present. Accordingly on January 18, 9,000 units of antitoxin (diphtheritic) were used. Five thousand in the morning and 4,000 in the evening. On January 19 the morning temperature was 104.5°. Pulse 148. The patient was not quite so stupid. Ten thousand units were given (5,000 in the morning and 5,000 in the evening). On January 20 the morning temperature was 104°. Pulse 140. The patient was much brighter, and took more nourishment. Ten thousand units (5,000 in the morning and 5,000 in the evening) were given. On January 21 morning temperature 102°. Pulse 120. Abdominal distention much less. Ten thousand units (5,000 in the morning and 5,000 in the evening). January 22 morning temperature 100.5°. Pulse 100. Very little purulent discharge. Tongue becoming moist and less coated. Four thousand units in the morning. January 23: Morning temperature 98.6°. Pulse 80. Patient very bright and in good spirits. Abdominal distention and soreness growing less. An injection of five thousand units was given in the morning.

January 24, 25, 26, 27, and 28 the temperature remained normal. Purulent discharge ceased on the 24th, and did not reappear. No antitoxin was used on these dates. January 29: Morning temperature 101°. Pulse 110. Fearing the new foci of suppuration were becoming active, I deemed it necessary to inject 3,000 units. January 30: Temperature 100°. Pulse 98. Patient feels comfortable. Very little abdominal distention. Ten thousand units (5,000 morning and evening). January 31: Morning temperature 99°. Pulse 80. Nine thousand units (4,000 in the morning and 5,000 in the evening). February 1: Morning temperature 99°. The patient is quite bright and feels comfortable; her appetite is very good. The use of antitoxin was now discontinued.

The temperature remained at 99° for ten days, when it became normal and remained so. The abdominal distention had disappeared now. For a time there was some tenderness on pressure in the left ovarian region, but this disappeared eventually. About the middle of February the patient was allowed to sit on a chair, and she said that she felt quite well.

Throughout her illness the patient was kept on a liquid diet consisting of milk, egg-nog, and beef tea. No solid food was allowed until the temperature had remained normal for a week. While the antitoxin was being used, a combination of strychnine, glonoin, and digitalin was also used very persistently.

Fortunately cases of puerperal septicemia are rare in private practice. This was my first and only case in fifteen years' practice, and I cannot account for it as strict antiseptic precautions were used at the very beginning. It is possible that the infection occurred at the time that the perineum was ruptured, thus coming from the contents of the rectum.

Many cases have been reported in which Marmorek's serum was used, with variable success. This serum was not at hand when I wanted to use it. The profound septic condition of my patient is what led me to select diphtheria antitoxin, although in using it I felt it was in the nature of an experiment, and so informed the family. The prompt action of diphtheria antitoxin in stopping the suppurative process in this case leads me to venture the opinion that it will be equally valuable in all septic conditions of a profound type, not only those occurring during abortion, and parturition at full term, but also those due to infected wounds in any part of the body. In using antitoxin in these cases, it must be used fearlessly and persistently. A total of seventy thousand units was used in the case which I have just reported, and at this writing, October 18, 1909, the patient is in the best of health, and she has never experienced any ill effect whatever from the treatment.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, January 8, 1910.

THE DISPOSAL OF SEWAGE.

In the same degree as the trend of population is in the direction of cities, so is the question of the disposal of sewage of increasing importance. The proportion of persons living in towns advances yearly in all civilized countries, and the responsibility of conserving the health of the multitude is thrown to a large extent upon the urban authorities. In most instances these have proved mindful of their responsibilities, and on the whole the physical welfare of modern citizens is carefully safeguarded. There is, however, a disposition to overlook somewhat the danger that may accrue to the community at large from carelessness in regard to sewage disposal. As a matter of fact, there is no part of the sanitary régime of a crowded center which requires more and closer attention than this matter of sewage disposal. It is extraordinary that, with the impetus which has been given to sanitary science within recent years by means of knowledge gained from practical experience, the lesson taught has not more often been taken advantage of. There are still cities of large size and of great wealth in which the methods of getting rid of their sewage are, to speak mildly, primitive. It may now be taken almost as an axiom in writing on this question, that when sewage is discharged into lakes, rivers, or harbors in proximity to a city or a town, such matter should in every case be disinfected or treated in one way or another, so that pathogenic bacteria are destroyed or destroyed as effectively as possible. Measures of this description are absolutely indicated whenever there is the slightest possibility of pollution of water supplies or of shellfish beds.

It took a very long time to educate or even partially to educate the public with regard to the danger of a contaminated water supply. Many persons are still skeptical on the point, and it is perhaps only those who have witnessed an epidemic of typhoid fever or cholera brought about by polluted water who recognize the need of carefully safeguarding the water supply. Physicians, sanitarians, and those members of the general public who have taken the trouble to investigate the subject are fully agreed that the water supply of every large city should be delivered to the consumer as free from noxious germs of every description as it can be rendered. But there is no agreement as to the most efficacious and readiest way of effectively disinfecting sewage. The British Royal Commission on Sewage Disposal which sat for many years and whose members assuredly deliberated on the question more thoroughly than it had ever been threshed out before, concluded that on the whole the old-fashioned land treatment of sewage was the best, and, of course, there are none or few who will dispute the statement. It is Nature, doing her own work in her own way. But even with the improved methods of land filtration and disinfection, there are frequently, so far as cities are concerned, insuperable obstacles to carrying out this system.

The United States Geological Survey of the Department of the Interior has recently published a paper on the Disinfection of Sewage and Sewage Filter Effluents, written by Mr. E. B. Phelps, which is in part an excellent review of most of the methods now in vogue for disinfecting sewage. Mr. Phelps is of the opinion that both improved standards in sanitation and improved methods of disinfection will operate to increase the existing minimum requirements with respect to sewage disposal, but in the meantime a thorough knowledge of disinfection methods and experimentation on the improvement and cheapening of such methods will do much to hasten their general adoption. Mr. Phelps points out that chemical disinfection offers a means whereby a reasonable bacterial purification may be accomplished without complete purification of the organic matter. After considering the merits of other forms of chemical disinfection of sewage, which it must be understood is not a substitute for sewage purification in the ordinary sense of the words, but rather a finishing process, Mr. Phelps records his judgment that calcium hypochlorite, or commercial bleaching powder, is the most efficient agent. It has greater germicidal efficiency than equivalent amounts of free gaseous chlorine, chlorates, or perchlorates, and is more certain than the potassium and sodium hypochlorites.

The result of experiments made with bleaching powder as a sewage disinfectant showed that the application of three parts per million of available chlorine in the form of bleaching powder to a trickling-filter effluent effects satisfactory disinfection. The cost of disinfection ranges from $1 to $1.50 per million gallons of sewage, depending chiefly on the size of the plant. Effluents of higher degrees of purity can be disinfected at a still lower cost. Crude sewage to be disinfected satisfactorily requires the removal of over 98 per cent. of its total bacteria. This may be accomplished by the application of from 5 to 10 parts per million of available chlorine, the amount depending on the character of the sewage. Such disinfection costs from $1.50 to $3.50 per million gallons. The disinfection of septic sewage requires the application of from 10 to 15 parts per million of available chlorine, but if no further purification is required than that given by septic action and by disinfection, it is better to reverse the processes by disinfecting the crude sewage before it enters the tank. It is considered that the action of the chlorine on the typhoid bacillus is as satisfactory as its action on the sewage bacteria as a whole.

Mr. Phelps holds that his experiments with bleaching powder as a sewage disinfectant have been so successful as to justify the belief that the results are of general applicability. The experiments were in progress for a considerable period of time, were continuous, and the conditions resembled in most respects what would take place in ordinary working practice. It would appear to have been proved that bleaching powder is an effective and cheap finishing disinfectant of sewage, and compares very favorably with other chemical processes with the same object in view. If it will act as well in practice and on a large scale as Mr. Phelps predicts, then there is every reason to advocate its employment. It is a healthful sign that in all parts of the civilized world increasing interest is being taken in the question of sewage disposal, and painstaking experiments such as have been carried out by Mr. Phelps bring nearer the time when sanitation will be ideal and when waterborne diseases will be finally abolished.

REST IN TUBERCULOSIS.

It would seem that the general management of patients with active tuberculosis has been sufficiently agreed upon during the last few years to insure against any frequent sins of omission or commission in this respect by the practising physician. Yet a paper by Francine in the *International Clinics* (Nineteenth Series, Vol. III) shows that this is not at all a general fact; he mentions numerous instances of patients seen by him in consultation with general practitioners who have sinned against the broad principles of treatment generally agreed upon. The most obvious mistake noted by the author has been the tendency to treat symptoms by the administration of drugs and the disinclination to advise complete rest in active tuberculosis. Francine very properly asks, what is the use of giving cough medicines so long as the process in the lungs, the cause of the cough, goes on actively; what is the use of prescribing atropine or other drugs against night sweats, when the hectic fever that is at the foundation of the symptom is not treated; finally, what is the use of prescribing stomachics and gastric sedatives, when high fever and the toxemia it implies go on unchecked?

Rest is the part of the treatment which Francine insists upon, whether symptoms or the general course of the disease are considered. In his own words: "Bed, let me say, is the word to which I have been leading. You can do nothing with a patient with active tuberculosis who has much fever until you put him in absolute rest. . . . So for fever, bed; for cough, bed; for night sweats, bed; for weakness and anemia, bed; emaciation, bed; irritable stomach, bed; and so on through the whole list." This advice is summed up with the statement that all patients with a temperature consistently rising above 100° should be absolutely confined to bed. Exercise should be instituted only when the pulse and temperature are practically normal, for before that time it can only do harm.

This advice contains a proper appreciation of the pathological process that goes on in tuberculosis. The disease is, of course, a specific infection, and so far we have no specific *cure* for it, though in tuberculin we have a specific *drug* of high potency and little understood use. The fundamental idea, therefore, should not be to combat that or this untoward symptom, but to put the body into such conditions as would enable it to fight the infection by its natural protective agencies. Rest is the most important single element in obtaining these conditions in the case of tuberculosis just as it is in the case of typhoid fever, so long as the process is active enough to cause an abnormal waste of tissue and energy, as evidenced by fever and its concomitants. Fresh air and abundant diet are other more obvious portions of this régime, while the numerous special agents, whether mechanical or pharmacopeial, are the least important so far as the fight against the causative agent of the symptoms is concerned. In calling attention to this fact Francine has laid proper stress on the principle of treatment which is of most promise in dealing with tuberculosis.

The Importance of Clean Hands.

Writing in the *Dietetic and Hygienic Gazette* for December, 1909, R. E. Eccles of Brooklyn lays stress on the need of keeping one's hands clean, not figuratively, but literally, clean. Dr. Eccles most assuredly is a hard and fast believer in the dictum ascribed to good John Wesley that cleanliness is next to godliness, and especially cleanliness with regard to the hands. Indeed, so convinced is he of the supreme importance of this matter, and so earnest is he that the gospel of clean hands should be spread far and wide, that he advises the editors of popular magazines to inaugurate a crusade against dirty hands, in order that the bearing of the matter with respect to public health should be brought home to the largest possible audience. However, dirty hands, according to the popular and obvious conception of the word is not what Dr. Eccles meant by his reference to the subject. It is the unseen "drit," the Saxon word from which the modern term dirt is derived signifying excrement, to which the writer alludes; in fact, his article is an appeal for the dissemination of the principles and practice of asepsis among laymen. It is pointed out, and with striking truth, that dire diseases are not infrequently spread by means of infected hands. Many of the destructive epidemics of typhoid fever have been due to the hands of a milker infected with the germs of the disease. Flexner has gone so far as to declare that "perhaps the chief single compelling phenomenon is that of the microbe carrier. . . . He has been found to disseminate typhoid fever, dysentery, plague, cholera, influenza, spinal meningitis, and in certain localities a host of protozoan diseases." Cooks, bakers, and dairy workers thus infected are those whose callings render them obvious sources of danger to the public at large, if they do not thoroughly and frequently cleanse their hands. It is without doubt also perfectly true that the ordinary individual is often unaccountably lax in performing his ablutions in such a way that, from the health point of view, he will be no menace to his fellow men. On occasions the failure to achieve this object is owing to the fact that the means for so doing are absent. Eccles recounts his experience on a large floating ocean pal-

ace in regard to cleanliness of passengers as to hand washing. Some of the tales unfolded recently in the lay journals of New York as to the arrangements made for the convenience of steerage passengers on Atlantic liners go to show that these passengers are not afforded the necessary facilities for keeping themselves clean. A writer in the *Sanitary Record* of October 28, 1909, on life in the steerage of a large modern steamship plying from Liverpool to Montreal, states that for the 120 or so men aboard at the British end of the steerage there were provided but six basins in which to wash. It stands to reason that in like circumstances it would be impossible to cleanse one's hands properly, even if one had the will. There is little doubt that disease is spread, perhaps widely, by people who neglect to wash their hands at fitting periods. A great deal of this neglect is due to ignorance of the dangers which may accrue therefrom. The first and most essential step to be taken is to educate the community at large to a sense that it is the manifest duty of every person to maintain himself in such a condition of cleanliness that he will not be a factor in the spread of disease.

The Local Use of Chloral Hydrate.

Though chloral hydrate may be ranked as one of our best known and most widely used narcotics, its local actions upon bacteria and upon tissues does not seem to be very generally appreciated. For a number of years various practitioners have been using solutions of this salt for local application to contused and inflamed tissues, and these claim that in such conditions as bruising of soft parts, burns, sunburns, and even acute arthritides it is a decidedly effective anodyne. In the *Münchener medizinische Wochenschrift* for November 23, 1909, Heller describes several ways in which the salt is of value for its local activity. He first calls attention to its powerful deodorizing effect, he having for many years used five per cent. solutions for the preservation of pathological specimens, and as a useful and effectual wash for the hands, hair, and beard of the pathologist, removing completely the clinging odors of the autopsy or dissecting room. Besides its use in the laboratory, he says it is of great value in the clinic, especially in cases of tonsillitis and pharyngitis. His procedure of treating such cases consists in taking into the mouth a small amount of a two and a half per cent. solution of chloral hydrate, and, after throwing the head back, of swishing the fluid about in the throat without gargling. In the same article Professor Quincke notes that he has used the drug for sore throats for many years with excellent results. In lues, diphtheria, and Vincent's angina, Quincke still applies bichloride, but in all other forms of sore throat, and in those cases of lues, also, in which mercury is contraindicated, he has used a two per cent. solution of chloral, by means of a powerful spray. In the nose in diphtheria and other purulent processes a one per cent. solution in normal saline is used, while in ulcerative stomatitis, especially of mercurial origin, a two per cent. spray, or a one per cent. wash is of great value. This insures mechanical cleansing, disinfection, and deodorization, and, following the initial burning, a decrease of pain. Chloral would thus appear to be an ideal agent for the treatment of angina, and may prove of value in other forms of inflammation of mucous membranes.

News of the Week.

Vital Statistics for New York City.—Statistics were issued by the Health Department of New York City, January 1, which showed that the city's birth rate is decreasing. In the last year there were 41,483 marriages, an increase of 3,984 over 1908, with 123,433 births, a decrease of 3,429 under the previous year. The figures also showed that the total number of deaths during 1909 in the city was 74,105, as against 73,073 in 1908, an increase of only 1,023. There was a decrease in the death rate to 16.23, the lowest in the history of the city. In 1908 the death rate was 16.52, the second lowest in the history of the city. The mortality statistics showed an increase in deaths from whooping cough, cancer, acute bronchitis, bronchial pneumonia, and Bright's disease. The percentage of deaths from typhoid fever and measles remained about stationary, while from scarlet fever, diphtheria, influenza, all forms of tuberculosis, organic heart disease, accidents, suicides, and homicides they decreased.

Low Death-Rate in Philadelphia.—The death-rate for the city of Philadelphia for the year 1909 was 15.85 for each 100,000 of population, being the lowest in the city's history. In 1908 the death-rate was 17.16. The total number of deaths in 1909 was 24,814. A large share of the reduction was due to precautions taken to prevent the spread of communicable diseases. The number of deaths from diphtheria increased from 473 in 1908 to 514 in 1909. The death-rate from typhoid fever was reduced from 35.5 in 1908 to 22 in 1909. There were fewer deaths also from tuberculosis, pneumonia, and scarlet fever. Infant mortality also was reduced.

The New York Milk Commission has issued a statement as to its activities in procuring certified milk for New York City. In 1900 the Commission was organized. In 1901, 3,000 quarts of certified milk was supplied daily by nine dairymen. In 1902, ten farms produced 4,300 quarts daily; in 1903, twelve farms produced 5,138 quarts, and in 1904 fifteen farms 7,062 quarts. The sale then increased and finally fell off slightly, but last fall seventeen farms were selling 8,500 quarts of certified milk daily. The object of the Commission is to aid in the production of clean milk free from pathogenic or disease-producing bacteria. At present there are more than fifty milk commissions in the United States endeavoring to improve dairy conditions and the production of milk, and yet the production under these commissions is only a fraction of 1 per cent. of the 10,000,000,000 or more quarts of milk annually consumed in this country.

Philadelphia Bureau of Health.—Mr. John A. Vogelson has been appointed Chief of the Philadelphia Bureau of Health in succession to Dr. A. C. Abbott, who resigned some months ago. He will devote himself especially to a solution of the sanitary problems affecting the public health while the medical work will be in charge of the Chief Medical Inspector, Dr. A. A. Cairns.

Brooklyn Health Department Moves.—The Brooklyn Health Department, which has been located on Clinton street near Fulton for the last eighteen years, has moved to the new Municipal building at the Flatbush avenue extension and Fleet place.

New Tuberculosis Exhibit.—The Charity Organization Society plans to display its educational

tuberculosis exhibit in every district of Manhattan. This exhibit received first prize at the International Congress in Washington, but time, money, and the skill of photographers and artists have improved it, and it bears little likeness to the Washington exhibit. Now, after being shown in the heart of the east side and in the center of the financial district, it has been placed in 714 Fifth avenue, between Fifty-fifth and Fifty-sixth streets. The exhibit is open from 10 A. M. to 6 P. M. Phonographic lectures and demonstrations of pictures and models are given at frequent intervals.

The Royal College of Surgeons of London has recently changed its long standing regulations regarding its museum on Lincoln's Inn Fields, so as to give much greater privileges to women. Whereas previously women were admitted to the museum only at certain stated hours, now any woman medical graduate is admitted at all hours at which the museum is open and women medical students may obtain the same privilege on application to the secretary, if recommended by the dean of their school.

Insurance Sanatorium Legal.—Superintendent of Insurance Hotchkiss's refusal to grant the Metropolitan Life Insurance Company permission to acquire real estate on which to erect a sanatorium for the treatment of its employees suffering from tuberculosis has been disapproved by the Appellate Division, Third Department. The matter was remanded to him for further consideration. Supt. Hotchkiss's decision was based on his construction of a section of the insurance law, which prohibits an insurance corporation from purchasing and holding real property, except such as shall be required for the transaction of its business. The company in its application stated that it might decide to treat at the proposed sanatorium selected cases from among its policy holders.

A New Clinic for Detroit.—The Board of Health of Detroit has voted to establish a mother's clinic, where mothers may receive aid and instruction in the care of their babies. Dr. Francis Duffield will have charge of the clinic and the Visiting Nurses' Association will supply a nurse. The board also decided to establish, within the next few weeks, a clinic for the examination and treatment of all public school pupils suffering from eye and ear troubles. In cases where it is found necessary for the pupils to wear glasses they will be provided free, if the parents are too poor to purchase them. The board will cooperate with the board of education in the establishment of an open-air school for tuberculous children.

Bryn Mawr Hospital.—Mrs. A. J. Cassatt, widow of a former president of the Pennsylvania Railroad, has donated to the Bryn Mawr Hospital, as a memorial to her husband, a plot of ground adjoining the hospital, together with a building that can be converted into a children's ward, as well as an endowment sufficient to maintain the ward in perpetuity.

A New Hospital in Gulfport, Miss., has just been opened. It is known as the Kings Daughters' Hospital, as it was made possible by the work of that society.

"Hippocrates" is the title of a new medical journal of Constantinople, the first one published in the Greek language in Turkey. To students of medical history this new periodical will be of interest, because part of it is to be especially devoted to ancient Greek medical literature, publishing original studies and researches in this field made by physicians of Greece, Turkey, and Egypt. Dr. A. Rose of this city is named as one of the contributors.

Dr. E. A. LaMothe was elected professor of ophthalmology at a recent meeting of the Board of Directors of the Chicago Eye, Ear, Nose, and Throat College.

Dr. Mary Wolfe has been elected clinical professor of psychiatry in the Women's Medical College of Pennsylvania. She was for seven years chief resident physician to the women's department in the Pennsylvania State Hospital for the Insane at Norristown.

The Seventh Council or District Medical Society of Texas, meeting in Austin recently, elected the following officers: *President*, Dr. W. A. Harper of Austin; *Secretary-Treasurer*, Dr. L. B. Bibb of Austin; *Board of Censors*, Drs. E. M. Thomas of Georgetown, S. E. Hudson of Austin, B. M. Worsham of El Paso, J. C. Anderson of Granger, H. B. Granberry of Austin.

The Placer County (Cal.) Medical Society has elected the following officers for the ensuing year: *President*, Dr. J. G. Mackay of Truckee; *Vice-President*, Dr. G. W. Davis of Lincoln; *Secretary-Treasurer*, Dr. G. H. Fay of Auburn.

The Dorchester County (S. C.) Medical Society, meeting at St. George in December, elected the following officers for 1910: *President*, Dr. Simmons of Summerville; *Vice-President*, Dr. W. P. Shuler of Grover; *Secretary*, Dr. J. B. Johnston of St. George; *Treasurer*, Dr. Elias Tupper of Summerville.

The Bryan County (Okla.) Medical Association has elected the following officers: *President*, Dr. J. L. Shuler of Durant; *Vice-President*, Dr. J. F. Parks of Durant; *Secretary-Treasurer*, Dr. D. Armstrong of Mead.

The Crafton County (N. H.) Medical Society, at its sixth annual meeting held at Woodville, December 14, elected the following officers: *President*, Dr. F. G. Smith of Lebanon; *Vice-President*, Dr. W. E. Lawrence of North Haverhill; *Secretary and Treasurer*, Dr. George G. Weaver of Warren.

The Custer County (Okla.) Medical Society, meeting in Custer, elected the following officers: *President*, Dr. Gordon of Weatherford; *Vice-President*, Dr. Omer of Thomas; *Secretary*, Dr. Parker of Custer; *Censors*, Drs. McBurney and Rogers of Clinton.

Medical Officers of the Militia of Canada.—At a representative meeting of the medical officers of the Canadian militia in military district No. 8, held at St. John, N. B., December 21, a branch of the association of medical officers of the militia of Canada was formed. A constitution was adopted and in the future the annual meeting will be held during the annual camp. The officers elected were as follows: *President*, Major Walker of St. John; *Vice-President*, Capt. Skinner of St. John; *Secretary-Treasurer*, Capt. E. O. Steeves of Moncton.

The Society of Directors of Physical Education in Colleges held a session recently, at Columbia University, at which Dr. Savage formerly of Columbia presented an elaborate study of the injurious effects of the Marathon run and Dr. Meylar of Columbia one on the effect of smoking on college students. The following officers were elected:

President, Prof. Amos Alonzo Stagg, physical director at the University of Chicago; *Vice-President,* Dr. Frederick E. Leonard of Oberlin; *Secretary and Treasurer,* Dr. Paul C. Phillips of Amherst.

The Homeopathic Medical Society of Western Michigan, at a meeting held at Grand Rapids, December 15, elected officers as follows: *President,* Dr. G. L. LaFevre of Muskegon; *Vice-Presidents,* Dr. S. Porter Tuttle of Grand Rapids, Dr. C. D. Mulder of Spring Lake, and Dr. George McCormack of Grand Rapids; *Secretary and Treasurer,* Dr. C. E. Beeman of Grand Rapids.

The Orleans Parish (La.) Medical Society met at New Orleans on December 11, 1909, and elected officers for 1910 as follows: *President,* Dr. B. A. Ledbetter; *Vice-Presidents,* Dr. E. H. Wallet, Dr. L. Thibout, and Dr. C. A. Chavigny; *Secretary,* Dr. Charles T. Holderith; *Treasurer,* Dr. Howard D. King; *Librarian,* Dr. Homer Dupuy; *Board of Directors,* Drs. Joseph T. de Grange, Dr. Arthur Nolte, W. F. Seemann.

The Riverside County (Cal.) Medical Society has elected the following officers for 1910: *President,* Dr. A. W. Walker; *Vice-President,* Dr. H. A. Atwood; *Secretary and Treasurer,* Dr. G. E. Tucker.

The Waldo County (Me.) Medical Association held its annual meeting in Belfast, on December 13, and the following officers were elected: *President,* Dr. A. E. Kilgore of Brooks; *Vice-President,* Dr. E. L. Stevens of Belfast; *Secretary,* Dr. C. M. Whitney of Unity, and *Treasurer,* Dr. O. S. Vickery of Belfast.

The Wells County (Ind.) Medical Society has elected officers for 1910 as follows: *President,* Dr. I. N. Hatfield; *Vice-President,* Dr. A. W. Brown; *Treasurer,* Dr. Leonidas Mason; *Censor,* Dr. J. W. McKinney.

The Williamsburg County (S. C.) Medical Society, at its meeting at Lake City, December 24, elected the following officers for 1910: *President,* Dr. Woods; *Vice-President,* Dr. T. B. Hinnant; *Secretary,* Dr. Kelley; *Treasurer,* Dr. Rollins; *Censors,* Drs. Lynch and Courtney.

The Williamson County (Tex.) Medical Society met at Georgetown, December 9, 1909, and elected officers as follows: *President,* Dr. E. Doak; *Vice-President,* Dr. D. M. Cook; *Secretary,* Dr. C. C. Black; *Censors,* Dr. F. D. Shepherd and Dr. J. H. Petty.

The Shawano County (Wis.) Medical Society has elected its 1910 officers as follows: *President,* Dr. Rothman of Wittenberg; *Vice-President,* Dr. Stubenvoll of Shawano; *Secretary and Treasurer,* Dr. J. B. Gordon.

The South Texas Medical Association has elected officers for the ensuing year as follows: *President,* Dr. William Keiller of Galveston; *Vice-President,* Dr. W. S. Weir of Beaumont; *Secretary-Treasurer,* Dr. E. F. Cooke of Houston.

The Travis County (Tex.) Medical Society, at its annual meeting at Austin, on December 10, elected the following officers for 1910: *President,* Dr. Frank Maxwell of Del Valle; *Vice-President,* Dr. J. W. Gibson of Austin; *Secretary,* Dr. E. M. Dechard; *Censor,* Z. T. Bundy.

Obituary Notes.—Dr. Sarah Read Adamson Dolley of Rochester, N. Y., died at her home, December 27, 1909, aged 81 years. Dr. Dolley was a graduate of the Central Medical College of Syracuse, in 1851, and was the second American woman graduate in medicine. She was a member of Monroe County Medical Society, the Medical Society of the State of New York, and the American Medical Association.

Dr. Henry Holcombe Malone of Brewton, Ala., died at his home, December 19, 1909, aged 73 years. He was a graduate of the New York University Medical College, in 1860, and a member of the Escambia County Medical Society, and of the Medical Association of the State of Alabama.

Dr. Edward L. Perrault of San Francisco died December 17, 1909. He was a graduate of the Cooper Medical College, in 1885, and was a member of the San Francisco County Medical Society, the Medical Society of the State of California, and the American Medical Association.

Dr. George H. Thompson of Belchertown, Mass., died suddenly on December 23, 1909, aged 77 years. He was a graduate of the New York University Medical College, in 1855, and was a member of the Hampshire County and Massachusetts Medical Societies. During the Civil War Dr. Thompson served as surgeon to the Thirty-eighth Massachusetts Regiment.

Dr. George F. Keiper of Pierce, Neb., died in San Diego, Cal., on December 3, 1909, aged 73 years. A graduate of the Rush Medical College, Dr. Kieper retired from practice in 1885 and devoted his time to literature and politics. From 1886 to 1890 he served in the lower house of the Nebraska Legislature and in 1890 was elected State Senator. In 1892 he was the Democratic nominee for Congress but was defeated. He then was appointed Superintendent of the Norfolk Hospital for the Insane.

Dr. William A. Monnish of Atlanta, Ga., died January 2, 1910, in San Francisco. He was a graduate of the Atlanta Medical College in 1890.

Dr. Alfred J. Horowitz of New York died suddenly in Newark, January 1, 1910, aged 28 years. He was a graduate of the Long Island College Hospital.

Dr. Albert Simon died at Reading, Pa., on December 31, at the age of 81 years. He was graduated from the University of Berlin in the year 1849, and he served as a surgeon in the United States Army during the Civil War.

Dr. George A. Weida of Frederick, Pa., died suddenly, on December 30, at the age of 43 years, while engaged in extricating himself, with a horse and sleigh, from a snow drift. He was graduated from New York University Medical College in the class of 1866. He had been twice elected to the State Legislature.

Correspondence.

SPASMODIC CONTRACTION OF THE ESOPHAGUS IN A CHILD, RELIEVED BY GASTROSTOMY.

To the Editor of the Medical Record:

Sir:—In your issue of December 11, 1909, there is an interesting editorial note on "Spasmodic Stricture of the Esophagus in Infants," along with Dr. La Fétra's diagnosis of this condition in a case during life.

I would add the particulars of a boy, Edw. S., aged ten, who was brought to me by his parents from Croton Falls, N. Y., March 26, 1906. They said that he had been vomiting his food after taking it from infancy. Something seemed to collect in his esophagus, and when asleep caused a noise in his throat. Solids he threw up the next day unchanged, and lately even the smallest quantities of liquid

nourishment were hardly disposed of, so that he had become very emaciated. I recommended my colleague, Dr. George E. Brewer of the Roosevelt Hospital, to perform gastrostomy on him so that he could be fed through the opening in the stomach, as he was in immenent danger of dying from starvation. Dr. Brewer was sure that he found an organic stricture at the lower end of the esophagus, from which opinion I disagreed, regarding the contraction as due to a neurosis which might subside if the parts had a complete rest for six months. This proved to be the case, for on November 3 he came, having gained in weight and strength, Dr. Brewer passing a large bougie without hindrance through the formerly contracted part, so that he could afterward be fed in the usual way.

Wm. Hanna Thomson, M.D.
70 East Fifty-fourth Street.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

NEW ENDOWMENTS OF RESEARCH—THE KING'S HOSPITAL FUND —ARMY MEDICAL REPORT—RESEARCH DEFENCE SOCIETY— "LONDON'S MODEL HOSPITAL"—POLYCLINIC'S CONVERSAZIONE —THE LATE SIR ALFRED JONES—OBITUARY.

London, December 17, 1909.

Yesterday came the announcement of a munificent new endowment of medical research which has been made by Mr. Otto Beit in memory of his late brother, Alfred. You will remember that the latter provided in his lifetime a sum of £50,000 to found an Institute of Medical Science, but the scheme fell through and eventually the money reverted to Mr. Otto Beit, as his brother's residuary legatee. To this sum Mr. Otto Beit now adds as much as will make up an amount of £215,000—yielding an income in trustee stocks of about £7,500—to be devoted to the creation of fellowships for the promotion of medical research. Mr. Beit set forth his scheme in a letter to the Senate of the London University, asking, in view of the fact that the researches will mostly be made in institutions allied to the university, its principal for the time being might be one of the trustees. The Senate met on the 15th and the vice-chancellor replied, gratefully accepting the proposal as to the principal joining the board of trustees, and expressing confidence that the scheme will not only perpetuate the memory of Mr. Alfred Beit, but will promote the development of the higher education in the medical sciences and encourage those medical schools he so desired to assist.

The scheme, you will notice, is to be carried out by a body of trustees. As the first board Mr. Otto Beit has associated with himself Lords Milner and Curzon, Drs. Miers and Fowler, and Messrs. Haldane and Bouchier Hawkesley.

The trustees are to be assisted by an advisory board, consisting at first of Sir Clifford Allbutt, Drs. Rose Bradford, Kingston Fowler, C. J. Martin, William Osler, and E. H. Starling.

The fellowships are to be open to any person of European descent, by both parents, without restriction as to nationality, who at the date of election has taken a degree in any faculty of any university in the British Empire approved by the trustees, or, if a female, has passed such an examination as would entitle a male to the degree. In exceptional cases the trustees, on the recommendation of the advisory board, may accept a registrable medical diploma in lieu of a degree. There is no restriction as to age, or religion, or medical opinions. The fellowships are of the annual value of £250, tenable for three years, and the usual number will be ten a year, three months' notice being given by advertisements. The first election will be in March next, when ten will be awarded. In future years the elections will be on or about the first of January.

The list of places of research already recognized is annexed to the scheme. It will suffice to say it includes most of the hospitals, schools, and laboratories connected with the university, and others may be added by the trustees after receiving a report from the advisory board. Fellows must carry on their researches at the place where they have been authorized and can only change it, or the subject of their research, by permission of the trustees, sanctioned by the advisory board, without whose sanction they may not hold any appointment, paid or unpaid, or work for any additional professional examination or degree except such as may be obtained by the presentation of a thesis. They will, in fact, be required to devote all their time to the prosecution of their authorized research.

The Prince of Wales presided on Monday at the meeting of the King's Hospital Fund at Marlborough House and remarked that it was always a pleasure to him to have the meeting in his house, especially when the prosperous state of the fund was a cause of congratulation.

Lord Rothschild reported the amount received for the year as £133,977 5s. 4d. Sir H. Burdett said the League of Mercy would renew its contribution of £19,000, in addition to nearly £2,000 already distributed, on which the Prince expressed the satisfaction of all present, as he knew the extreme difficulty of collecting these small sums. Sir William Church then read the report of the distribution committee, a lengthy document, detailing the awards for the year and discussing several points. These were alluded to in the Prince's speech in moving the adoption, which was duly carried. His Royal Highness said the largest donation of the year was one of £4,775, being half the available surplus of the Franco-British Exhibition. He reported the gratification of the King that the amount for distribution was maintained and added this could not be done without effort. The income from investments is not yet £70,000, and beyond that the fund has only subscriptions and donations, the League of Mercy, and legacies. There has been some diminution of subscriptions, but he hoped it would be only temporary. In three or four cases the committee recommended especially large grants to hospitals in difficulties, and His Royal Highness thought the power of so assisting in exceptional difficulties, after careful inquiries, of the greatest benefit. He then referred to the amalgamations which have been accomplished in two cases and the expectation that a third case will in due course be added. A committee had considered and reported on the question of expenses of charity entertainments. Without laying down regulations, it had been decided to circulate the report, thus hoping to assist hospital authorities and elicit their views as to further action. An inquiry into the out-patient question was postponed pending the issue of the report of the Poor Law Commission, of which much of the evidence is now available, and the Prince expressed a hope that it would be possible to appoint a committee of the fund on this subject in the coming year.

Sir Alfred Keogh is able to report that the decline in the sickness of our army which has taken place during the decade continued in a marked degree during the last year. Between 1899 and 1908 the admission and constantly sick rate figures have been reduced nearly one-half, while the number of deaths and discharges have undergone an equally remarkable change. The number of invalids sent home has also diminished, The saving in hospital accommodation would be difficult to estimate. At the home stations it means 2,000 fewer beds and a similar reduction will no doubt be observed for stations abroad. The results are attributed to changes in medical administration, improved methods of treatment of disease, improved sanitation, and greater care and uniformity in recruiting. The most frequent cause of rejection was the loss or decay of the teeth.

Sir Alfred discusses the dental question at length. He has no doubt that the issue of tooth brushes to the troops and their education in the care of their teeth has been most beneficial. It has prolonged the life of masticatory sufficiency. Our enlisting men are very receptive and it is not more difficult to teach them to clean their teeth than to keep their buttons bright, and once learned the habit is kept up, as it gives them comfort. This was markedly the case in boy recruits in the military schools whose teeth are a bright contrast to other recruits. Improved dental armament is of the greatest value to the soldier, and Sir Alfred looks to early education in the matter to attain it.

A branch of the Research Defense Society has been formed at Brighton. Lord Cromer, president, said everyone who chose to go into the subject could satisfy himself beyond any doubt as to the splendid results achieved. Ample safeguards existed against the infliction of unnecessary pain and if any other measures were needed to secure this or to give greater freedom to experimenters the commission appointed could indicate them.

Sir Conan Doyle maintained that an overpowering case for experiment existed on behalf of animals themselves, putting aside the human needs. Millions of animals were every year saved from anthrax, rabies, rinderpest, and other diseases by means directly due to experiments. Antivivisectionists decried them, but

if their notions prevailed our domestic and other animals would suffer—they are in fact now suffering—from the discouragement of research which had sprung from sensational agitation.

At the fifty-fourth annual dinner of the Poplar Hospital for Accidents, presided over by Sir Hudson Hearley, M.P., chairman of the Port of London Authority, it was stated that 50,000 cases were treated last year, as compared with 20,000 ten years ago. The income had increased from £4,000 to £14,000 and the reserve fund from £8,000 to £50,000. The great feature of this hospital is its close association with the docks, but it serves a wider area. The chairman declared it was London's model hospital; it had ever pursued the sound policy of keeping out of debt and never, like other hospitals, made doleful appeals to the public. Some people, said Sir Hudson, thought that tame policy, but it would always be their policy. It was free. Need was the only passport to its wards and a considerable section of the managers consisted of working men, which, he thought, contributed to the universal confidence felt towards it.

A well-attended conversazione was held at the Polyclinic on the 10th inst. Dr. Bashford gave a demonstration, illustrated by lantern slides, of recent research on cancer. He said the disease was ubiquitous throughout the animal kingdom, and the growth of cancer cells is by the help of the connective tissue, which forms, as it were, a scaffold for the building of the tumor. An emulsion of living skin cells of the same animal previously injected appears to inhibit the help of the connective tissue cells, so that the cancer cells die. Further investigation, it is hoped, will lead to prevention or cure. Meantime, early operation remains the hope of the patient.

Dr. Hampson during the evening showed a number of specimens of radium, radioactive substances, and their actions.

The death of Sir Alfred Jones, on Monday last, is a great loss to Liverpool. As the head of a great shipping firm, he was able to accomplish many philanthropic enterprises, the most important to the profession being the Liverpool School of Tropical Medicine, of which he was founder and first chairman. Under Major Ronald Ross a great work has been done by this school, and much of its success is due to the unsparing help of Sir Alfred Jones, who also seconded the efforts of the Liverpool University, and, indeed, of many other institutions. He visited the tropical dependencies on several occasions and sent out commissions to investigate the diseases. He was deeply interested in the Congo, and, if he could have had his way, would have added it to the British Empire; but the Government opposed this, and it became Belgian. His services to Africa and Jamaica were recognized by the knight commandership of the order of St. Michael and St. George.

Department Inspector-General Horace E. F. Cross, R.N., retired, died on the 13th inst. at the age of sixty. He saw a good deal of active service in South Africa. Previously he was at the bombardment of Alexandria in 1882. He was with the marines in the Soudan in 1884 and present at the actions of El Teb and Tamaai. Dangerously wounded, he was mentioned in dispatches and promoted for these services.

Progress of Medical Science.

Boston Medical and Surgical Journal, December 16 and 23, 1909.

Renal Suppurations in Typhoid Fever.—Seven cases are reported by C. F. Withington, who reviews the literature of the subject and speaks especially of diagnosis of the condition. At what period of the fever is suppuration in the kidneys most apt to occur? In many of the cases of miliary abscess giving no symptom during life the patient died in the third or fourth week and only the autopsy revealed the lesion. But when definite pyelitis existed the clinical symptoms were more marked early in the stage of convalescence, from three to seven days after the subsidence of the fever. In one case the onset was characterized by intense pain in the left lumbar region, with tenderness. The urine was scanty and turbid, with much albumin. The sediment contained epithelial cells, many corpuscles, but no casts. This state of things lasted about eight days, when the picture of a typhoid infection was complete, the first announcement having been made by the pyelitis. The author's personal cases all recovered. If in a given case of typhoid a parenchymatous nephritis develops a largely milk diet is indicated. Urotropin is indicated in all suppurative conditions. Surgical intervention is relatively rarely called for. A closed pyonephrosis calls for operation, a self-opening one does not. Great pain, with lumbar spasm, if occurring with an enlarged kidney, nephrectomy is probably justified.

Treatment of Bacillus Aerogenes Capsulatus Infections by Proximal Injections of Hydrogen Peroxide.—F. F. Lahey details his experimental work. The fact that a normal rabbit when killed and incubated showed *B. acrogenes capsulatus*, reaction indicates that the test for the organism is not reliable, since the same result occurs in noninoculated and inoculated animals. Experiments were also made in a human arm amputated on account of this special infection. The tissues in this arm at the amputation site were pale and edematous, but the *B. aerogenes capsulatus* was not recovered by culture from the wound, so that it would seem that there is a change in the tissue before the organism invades it during the process of extension up an extremity. Smears made from three levels of the wound in the amputated arm show that the purest infection is at the upper part in the direction of extension. The particular organism outstrips nearly all others in rapidity of development. The wound at the middle and lower levels showed a mixed infection. Two of the guinea pigs used in experiments died suddenly after the injection of large amounts of hydrogen peroxide, probably due to the fact that the excess not used up in oxidizing the tissues is taken up by the blood, decomposing it so that emboli may be formed. In all of the animals injected, some living and some dying, it seems beyond any question that the process is localized to the area below the circle of injected peroxide. As a final conclusion the author says that in spite of this the use of the peroxide for this particular variety of infection is in the human being too entirely dangerous to be permissible.

Gastric Ulcer: Subacute Perforation in a Boy of Eight Years; Operation, Recovery.—After some discussion of the statistics of this lesion, with a general description of the condition, F. B. Lund passes on to the description of his own case, which, according to the author, is the only case on record as far as he knows in so young a child. The boy had had several sick spells, with vomiting, but had never raised any blood. One year before coming under observation he had had epigastric pain, with one or two gastric hemorrhages. On admission he was evidently in his third attack of an acute gastric condition. He had sharp pain, vomiting of blood, and some fever. Under observation these symptoms passed off and it was thought he would recover under medical measures. On January 9, 1909, he was discharged from hospital, but was readmitted February 20. Three days later it was felt that in view of his general condition an abdominal incision was justified. Through a median incision just above the umbilicus a large indurated ulcer was found, just to the left of the pyloric opening on the lesser curvature, and firmly adherent to the liver. The adhesions were not disturbed. A posterior gastroenterostomy was performed with a short loop. Recovery was uneventful, save for a short and slight bronchitis. There was no after-history except complete recovery.

Two Cases of "Rusty-Nail" Tetanus with Tetanus Bacilli in the Inguinal Glands.—The cases are reported by C. A. Porter and O. Richardson. Case I. was that of a man of twenty-three years, admitted with the diagnosis of a crushed foot and gangrene of the toes, following an accident occurring a week before. Four days later the temperature had fallen, the wound was cleaning up, and the line of demarcation was evident. During the same night tetanus symptoms came on and the inguinal glands were slightly tender and much enlarged. A four-inch incision was made in the left groin and the anterior crural nerve was injected with a syringe full of antitetanic serum. The wound was drained and loosely sutured. The sciatic nerve was next exposed and filled with serum, the wound being closed without drainage. Finally the bandages were removed from the foot, the toes amputated, the wound curetted and cauterized, and packed with balsam of Peru gauze. Continuation of tetanus symptoms led later to lumbar puncture, withdrawal of two drams of cerebrospinal fluid, and injection of six drams of 25 per cent. solution of magnesium sulphate. He died on the third day, apparently from respiratory failure.

Case II. was that of a boy of thirteen years, who on the thirteenth day after a rusty nail had passed through his foot developed tetanus. He had been under medical care immediately after his accident. Glands in both groins were enlarged, but he had no fever. The left groin was opened and the glands removed. The other surgical measures were as in Case I. Intramuscular injections of serum were given (1,500 units every two hours) and in three weeks the boy left the hospital well. The two cases are reported because as far as the authors know Case II. is the first in which Koch's law has been fulfilled by obtaining a pure culture of tetanus bacilli from a gland and by recovering tetanus bacilli from a rat inoculated with the culture. Should further investigation show that these bacilli are frequently found in the glands a rediscovery of great importance has been made. Experience has shown that the local focus must be eradicated as soon as possible and experience may show that the lymph glands with their lethal bacilli should be removed also. In septic infections the lymph glands act not only as filters, but as active germicidal protectors against a generalized septicemia, and their removal is contraindicated until the region which drains into them has become uninfectious. In tetanus, on the other hand, the local focus can usually be thoroughly disinfected. External drainage is indicated rather than contraindicated. The removal with drainage of the superficial lymph glands infected with tetanus bacilli, so far as can be argued in the light of our present experience, would be of distinct benefit in ridding the organism of a source of toxin production.

New York Medical Journal, December 18 and 25, 1909.

Amebas in the Stools in Pellagrins.—This subject has been studied by W. Allan, whose field of observation has been in North Carolina. His conclusions are, first, that pellagra is often complicated by amebiasis; second, that many varieties of ameba are found in the feces of pellagrins; third, that pellagra is liable to be mistaken for amebiasis and *vice versa*; and fourth, that in diagnosticating and treating pellagra in absence of pathognomonic skin lesions or grave mental symptoms it is first necessary to exclude amebiasis.

What Can We Do to Prevent, Arrest, and Cure Generalized Fibrosis?—An elaborate study of this subject is made by F. S. Mason, who believes that we are on the eve of a better understanding of the whole subject and that we may look for some developments connected with the influence of internal secretions of the parathyroids in connection with generalized fibrosis. Some light may also be thrown on the subject as connected with the injection of certain sera, for he has been much impressed, during his frequent travels in India, by the remarks of some of the physicians there with regard to the effects following the injection of prophylactic serum against the bubonic plague. Such patients appeared to possess a diminished resistance toward other infectious diseases which invariably ended fatally and especially those with an underlying gouty diathesis. In this connection he recalls particularly the case of a personal friend who was gouty and had a long history of alcoholism. He was subject to frequently recurring attacks of true gout and after two injections of the prophylactic plague serum almost immediately developed pulmonary phthisis. Prior to the injection he had pipe stem arteries and a much hypertrophied left ventricle, while after the injections the arteries became soft and he has never had another attack of gout. Of course, this may have been due to failure of compensation and subsequent dilation of the heart, but he mentions this case because he has seen so many similar cases where the injection of this serum has led to patients being carried off by some infectious disease. Is not this change connected with a fibrolytic action of the injected sera?

A Case of Modern "Point Tying."—W. H. Luckett refers to this ancient custom, which originally signified the rendering by enchantment a husband incapable of performing the conjugal rite. Some of the alleged point tyers were anathematized by the ancient church. The author relates two cases which have come under his personal observation in which a fine hair or strand of hairs was tied around the corona glandis. The first patient was an ignorant negro whom a voodoo doctor of the same race had gotten beastly drunk and then appiled the hair, with the result that the penis became gangrenous. The second was a child around whose corona a strand of human hair was applied six times by a neighbor who had a grudge against the child's mother. Severing the hairs was all that was necessary to restore the organ in a short time to its normal condition.

Palliative Treatment for External Hemorrhoids.—G. E. Barnes says that the usual medical treatment of external hemorrhoids by various ointments is often beneficial, but is not satisfactory. Although it is the vehicle for drugs that may have some slight desirable effect and although it mechanically separates the folds and protects them from the air, the grease makes the tissues unduly soft and vulnerable, increases the retention of moisture, and is altogether nasty. The following detailed treatment keeps the tissues in as natural a condition as possible. After every defecation the patient uses only the finest tissue paper and completes the cleaning with a piece of absorbent cotton or a wad of soft cotton cloth or a bunch of crumpled tissue paper thoroughly soaked with water. Soap also should occasionally be used. The tufts and the intervening grooves should be patted and wiped with this mop gently but quite thoroughly. Then a piece of soft cloth or crumpled tissue paper in two or three thicknesses should be repeatedly placed over the anus and pressed with a finger against the whole surface until it is dried. Next a dusting powder made up of talcum and about 10 per cent. of boric acid is thickly dredged on the end of the finger covered with dry cloth or tissue paper and is then applied to the hemorrhoidal area. By this method the surfaces are cleaned and putrefaction avoided, softening of the tissue by retained moisture is prevented, itching is made impossible, and any slight abrasion is healed. After this treatment has been practised for a certain period the delicate mucous membrane becomes more and more like skin.

Cerebrospinal Meningitis: Clinical Observations and Serum Treatment.—L. Fischer refers to the epidemic of this disease in New York City in 1905-1908. The mortality in 1906 was 78.7 per cent.; in 1907, 77.5 per cent.; in the first half of 1908, 71.9 per cent. The absence of sun rays from many of the sleeping rooms of the houses in which the cases occurred was noticeable. Three classes of cases were encountered—a mild type, an abortive type, and a severe type. A positive diagnosis can be made by examining the fluid withdrawn by lumbar puncture. The *Diplococcus intracellularis* is always present. The author describes three typical cases admitted to his hospital service, one dying and two recovering. A decided reaction followed every injection of serum. Pulse rate was increased, volume heightened, and tension considerably raised. Leucocytes were invariably increased with but few exceptions, showing a marked hypoleucocytosis. The polynuclear leucocytes were also increased. As a rule the mononuclear leucocytes and the lymphocytes were reduced within six hours after the injection. Special symptoms noted during the epidemic were convulsions, extreme extension and muscular rigidity, muscular pains, *tâche cerebrale*, various eruptions, the petechial and herpetic types predominating, high fever, and vomiting. The differential diagnosis lies between mastoiditis, severe scarlet fever, particularly of the septic type, and septic pneumonia confined to the pulmonary apices. The paper closes with statistics secured in the recent epidemic. The author says that the mortality of from 60 to 90 per cent. in New York City, during the height of the epidemic in 1906, clearly shows that some better method of treatment than the one in vogue would be welcome. A large number of infants who died were treated by lumbar puncture and intraspinal injections of various drugs; cupping and antispasmodic and sedative treatment; locally, hot baths, in addition to leeches over the spine and mastoid, and icebags have been used with poor result. It remained for Simon Flexner to introduce the antimeningitis serum which has proved of excellent value, and in some instances acted like a specific healing serum in the treatment of this dreaded disease.

Some Interesting Cases of Foreign Bodies Removed from the Ears.—Eight cases are reported by H. Foster of, respectively, screw worms, bit of slate pencil, bead, small stone, grain of wheat, grain of corn, green bug, and lead end of a pencil. All were removed without damage to the organ. In the author's experience it has not been necessary to resort to any cutting operation in removing foreign bodies from the ears. It has required much time and care to effect the desired

result without injury. Much can be accomplished with a good ear syringe and warm water, and these measures should be tried long and well before resorting to cutting operations. Chloroform is the best remedy for parasites.

The Treatment of Tuberculosis by Succinimide of Mercury Injections.—H. Freeman reports four cases and refers to the large number treated in this way by L. B. Wright of the naval service. In the author's cases there was in each one an improvement in the general condition evidenced by increased weight, normalizing of temperature, diminution of cough, expectoration, and night sweats. Each individual case must be closely observed. If the patient is unable to take the full treatment, it is best not to begin. To get the full benefit of this treatment, you must have complete control of the patient and let him and his family so understand it. If the patient has a rise of tempertaure, he should be placed in bed and treated at home until the temperature becomes normal, when he may come to your office for treatment. The buttocks constitute the area for injections, alternating from the right side to the left side. The skin of the area is washed with sterilized hot water or with a piece of absorbent cotton saturated with ether or alcohol; syringe and needle are boiled prior to injections. When the tablet is placed in the barrel the needle is adjusted, ten minims of boiled water are drawn into the barrel, which is shaken to dissolve tablet, when it is ready for use. The needle should be from one inch to an inch and a half in length and should be driven deeply into the muscular tissue by a downward plunge and then the drug slowly injected. If slight hemorrhage takes place by accidentally puncturing a small vessel no harm arises. Give injections every other day, beginning with 0.1 gram and gradually increasing the dose until slight tenderness of the gums or diarrhea is produced; then reduce the dose until these symptoms subside, and continue until thirty injections have been given. After the first series follows a rest of two weeks; then resume and continue as before, or as long as improvement continues. The initial dose of the remedy is about one-fifth of a gram. Indications for reducing the dose are symptoms of approaching mercurialization, sudden rise of temperature, loss of weight, gastric disturbances, excessive cough and expectoration, coming on suddenly, especially when these symptoms have previously been under control.

Trachoma.—The paper of L. J. Goldbach is an exploitation of the so-called "trachoma bodies" as a probable etiological factor. Researches of various authorities along this line are briefly detailed and then follows a description of the author's own experimental work and observations. There is still some scepticism among ophthalmologists regarding the new cause for trachoma. The inoculation experiments of Prowazek, although these do not fulfill Koch's law in that the organism cannot be grown on artificial media, are successful to the degree that the organism is found in 90 per cent. of all cases. Of course, in some conjunctival cases there are changes in form in the epithelial cells, but the typical inclusion of the organism within the cell seems to be characteristic and demonstrable in acute cases of trachoma. In cases that have undergone treatment, this epithelial change and invasion of these bodies are not apparent on microscopical examination. They stain deep violet, and at times with a tint of pink, probably due to the eosin in the solution not being thoroughly mixed. The nucleus of the epithelial cell takes a dark purple, and its protoplasm a light blue. These bodies are usually surrounded by a distinct, clear area. In the epithelial cell they appear as very minute bodies of a regular round structure, smaller than the smallest known coccus. They appear at times conjointly, and again they may assume the form of a diplococcus. In the advanced stages of trachoma without treatment the trachoma bodies are more collected and more intracellular. These trachoma bodies above all should not be mistaken for the eosin stained granules of the leucocytes. It appears that these trachoma bodies undergo a cycle or a transformation. In the very acute cases we usually find grouped in pairs, small, well-stained granulations within the epithelial cell and surrounded by a clear zone; there next appears a cell reaction close to the nucleus; a conglomerate mass results, but still surrounded by the clear zone. This grows larger and usurps the cell protoplasm. In the later stages, when these bodies become more numerous, the clear zone disappears; then follows an invasion of the whole cell and a final rupture of the cell takes place. In this stage the cell is usually well surrounded by leucocytes. In one of the author's cases an intercurrent attack of measles cured the trachoma.

Journal of the American Medical Association, December 25, 1909.

Pus Tubes in the Male.—W. T. Belfield says that these conditions in the male are generally unrecognized, and he defends the use of the name he had given them by describing the clinical anatomy of the parts, showing the analogies with other tubal suppurations. He describes the symptoms, the vesical and rectal tenesmus, the abdominal pain simulating appendicitis, the toxemia causing the neurasthenic symptoms, and the impotence and sterility which are the results. The surgical treatment of these conditions and its advantage over the medical treatment are pointed out. He has operated for draining and medicating the vas ampulla and vesicle 149 times in 107 patients by vasotomy, usually in the office under cocaine anesthesia, and often without assistance, relieving pus tension and offering opportunities for direct medication, also protecting the epididymis from infection, or if infected from pressure infection, as free drainage is afforded through the vas incision. In the technique of vasotomy three features are important: (1) Fixation of the vas, which otherwise may drop into the scrotum; (2) raising the vas through the skin cut for accurate manipulation; (3) exploration of vas for obstruction by sounding with a silkworm thread. When resection is performed a silkworm or catgut thread is passed into the lumen and out through the wall of each cut end and the ends tied above the skin, the thread serving as an axis splint securing exact apposition of the cut end. This method of anastomosis, devised by Mayo, should, he thinks, supersedes all others. His experience has taught him the value of accurate vaccine therapy, especially with autogenous vaccine, as a constitutional aid to the local treatment. He summarizes his paper in the following conclusions: "1. Pus infection of the seminal tract plus occlusion of the ejaculatory duct soon converts vesicle, vas, and finally epididymis into a closed abscess. 2. Vasotomy is the simplest and least objectionable means of evacuating pus, relieving tension, and medicating vas and vesicle. 3. Among the effects of these infections on the urinary organs are bladder irritation and obstruction of the ureter with consequent kidney lesions. 4. Impotence, sterility, and sexual neuroses in the male are frequent results of pus infections of the seminal tract and amenable to appropriate treatment thereof. 5. Vaccine therapy, accurately applied, is the most valuable internal measure against the infections which produce pus tubes in the male."

Facial Tic Douloureux.—L. Pierce Clark and A. S. Taylor report a case of true tic douloureux of the sensory filaments of the facial nerve, cured by extirpation of the geniculate ganglion. The clinical report is by Dr. Clark, who points out that it has recently been proven that the facial nerve, like the trifacial, is a mixed nerve, with its sensory root in the nerve of Wrisberg. He thinks that many of the otalgias will be proved by accurate studies to be due to disorder of this nerve. The operation is described in detail by Dr. Taylor.

Hydrocele.—W. Bartlett suggests as an improvement on the ordinary method of extirpation of hydrocele, the complete extirpation of the sac without opening, to avoid recurrence. A number of text books which he enumerates have been searched for a mention of this method by the author, but without success; nor have any been discovered in the literature by his colleagues who have investigated it for him. The technique is as follows: After turning out the sac in the ordinary way, it is easy to begin its removal at the spermatic cord where the areolar tissue can be readily separated by blunt dissection. The same procedure can be performed over the whole connection between the testicle and the tumor, except at its later reflections from the testis, where some cutting must be done. A number of small blood vessels will have to be ligated. After the testicle has been replaced, metal clips are placed on the wound in the scrotum, close together, covered with powder and no dressing applied. The patient is up and about in four days and no serious postoperative effects have been observed.

Algid Malarial Fever.—T. D. Coleman describes algid malaria, which is one of the three types into which he

divides the pernicious form of malarial disease. He defines this special form as a pernicious type of malaria caused by the estivoautumnal form of the malarial parasite, characterized by profound prostration, cold and clammy skin, and an unclouded intellect; this latter in strong contrast with the comatose variety of the disease. It occurs in all tropical and subtropical countries where malaria is endemic, and does not differ from other forms as to predisposition, age, sex, and race. In subtropical countries it occurs chiefly in late summer or early autumn, as a sequel of more or less chronic malaria. The symptoms are described in detail. The diagnosis is made from the history and the presence or absence of cholera morbus and ptomain poisoning. Of course, the blood examination will be the surest evidence, but it may not exclude coexisting disease. Cases of reasonable doubt, however, are exceptions. The prognosis is generally grave and quinine seems singularly ineffective. He still uses it, however, hypodermically. The rest of the treatment is symptomatic and supportive. Five cases are reported, three of them personal observations, all of which were fatal, as was also one quoted from the literature.

The Deaf Child and the Physician.—J. D. Wright says that we have to deal with three classes of deaf children: (1) Those totally deaf from birth or early infancy, (2) those rendered deaf by accident or disease after speech and some language had been acquired, (3) those partially deaf but with enough hearing to acquire some speech and language through shouting near the ear. The first class must be taught without the aid of the ear. The other two classes must have their speech preserved and improved by careful instruction, and all three must be educated to understand the speech of others by the eye alone or by the eye and ear. A child possessing normal speech even up to eight years of age will lose that speech and become a deaf-mute if hearing is lost and careful attention is not at once given to preserve it. The physician should therefore urge the parents to give the matter their immediate attention, as many doctors have observed that lost hearing may be unrecognized even by the parents. The child should be placed under special trained instruction at not later than six years of age, if well developed and strong it is better to begin at four and a half or five. The deaf child which has not acquired language at the age of twelve has a bitter and discouraging struggle ahead of it. There is still a difference of opinion as to the advisability of the oral or manual methods, but Wright believes that as good instruction can be given by purely oral means as by the other, and it is now used in the majority of cases. He calls attention to several points: "1. The education of the deaf is not a charity any more than the education of your own sons and daughters. 2. All education, and especially the education of the deaf, should be wholly and forever divorced from politics. In too many instances the guidance of institutions for the deaf is entrusted to men of political rather than educational efficiency, and changes in control are made not for the purpose of bettering the school, but for purely political reasons. This is outrageous cruelty to the helpless and dependent child, who innocently suffers for the pride or purse of the politician. 3. The great body of deaf children are bright and normal mentally, and it is unjust to compel the State institutions to include the few abnormal and feeble-minded among the bright ones simply because they are deaf. The feeble-minded deaf should be segregated and taught in schools by themselves as are the hearing feeble-minded. 4. The physician should lend his intelligent aid in placing the deaf child in the school best adapted to his needs."

The Lancet, December 11 and 18, 1909.

The Use of Radium for Local Application Within the Body.—A. C. Jordan says that the three types of radiation are by common acceptance classified as to effect, on the following plan: The gamma rays have a selective action, destroying diseased cells while leaving normal cells intact, while the alpha and soft beta rays are said to have a destroying action, not only on diseased but also on normal cells. To prevent the latter two rays from reaching the body a filter of lead 1 mm. thick is suitable. The gamma radiation appears to consist of ether rays of the same kind as very penetrating rays and in effect the two are comparable. The author has devised the following method for use of radium in the cavities of the mouth, throat, esophagus, rectum, uterus, etc. The radium is in the form of a solution of radium bromide, which is kept in a flask, to which is attached an air pump. The air in the flask is kept partially exhausted and whenever any radium is required the pump is worked till, under the diminished pressure, the solution commences to boil. Radial emanation is carried out with the watery vapor and residual traces of air into the tube leading out of the flask This may be collected in a small length of glass tubing inverted over a cup of mercury and the tubing sealed up in the flame. The original stock solution is never touched. The emanation tube gradually loses its strength. It is possible to draw off daily a radium equivalent to about 40 mgm. of emanation without destroying the value of the stock solution. The latter, however, regains its formal value if this has become diminished, by giving it a few days' rest. Every emanation tube is inclosed in a lead "compo" tube, the ends of the metal being closed down over the glass, rounded off, and sealed up. This tube is put in a tube of rubber, with a long, stout silk ligature attached to one end, and is placed in the various bodily cavities in which it may remain for from twelve to twenty-four hours. Various modifications of the rubber tubes may be made to fit the necessities of each individual case. The advantages of this method over the use of actual crystals of radium are: First, that there is not the risk of losing a valuable crystal tube, and, second, that the crystals may fall down to one end of the tube, whereas the whole length of an emanation tube becomes available. The alpha rays are supposed to be about one hundred times as powerful as the beta and gamma rays together, and if possible should be utilized in therapy. Makower has shown that we have only to expose a negatively charged conductor, for example a wire, to the emanation in order to concentrate the maximum possible quantity of active deposit on its surface. It is thus possible without any difficulty to obtain surfaces whose activity per unit area is enormously greater than can be obtained by any other means. Needles rendered thus active could be inserted into any malignant growths where they would be able to exert all of their energy.

The Rôle of Fats in the Treatment of Disorders of the Stomach.—F. C. Moore and R. L. Ferguson say that the theory of giving fats for their therapeutic action on the stomach is based on the recognition of the frequency with which excessive secretory activity of the gastric glands obtains as a pathological condition and on the demonstration of the depressant action of fats on the activity of normal gastric digestion. The patients on whom the giving of fats was instituted were 26 with gastric ulcer, 3 duodenal ulcer, 3 gastric carcinoma, 4 nervous dyspepsia, 7 atonic dilatation of the stomach, 9 alcoholism, 2 constipation, 8 miscellaneous, 62 in all. Their results are given in tabulated form, in which the HCl content and total acidity are estimated after plain and oil test breakfasts respectively. Whatever the explanation may be, it remains that the neutral liquid fats administered before food lead to a diminution of the subsequent acidity of the stomach contents, the more so the greater the tendency of the secretory activity of the stomach to exceed the normal. Clinically, the authors' experience of the administration of fats, such as cream, butter, almond oil, in conditions in which hyperacidity of the stomach contents has been found to exist, has shown this action of fats to be associated with a very definite amelioration of the subjective manifestations of the condition. In simple forms of hyperacidity depending on slight degrees of digestive hypersecretion (the so-called hyperchlorhydria of Riegel) the addition of cream and butter in abundance to the diet, with a diminution of the starches, will often suffice to remove the subjective manifestations. It is only in the more sever types, and particularly the severe degrees of digestive or continuous hypersecretion so commonly associated with chronic ulcer about the pylorus or duodenum, in which heartburn, acid pyrosis, the sudden gnawing pain in the epigastrium ascribed to pyloric spasm, and the vomiting of acid fluid, that the administration of almond oil is undertaken, and then in doses of one ounce first thing in the morning and repeated before subsequent meals if necessary. This method has proved of value not only in alleviating the symptoms which follow the digestion of food in the stomach, but also in contributing very considerably to the nutrition of the patient, and is certainly preferable to the sole use of alkalies for the purpose of neutralizing the hyperacid stomach

contents and so obtaining relief from the symptom In no case have they found that oil so administered has been badly tolerated or in any way proved objectionable.

Renewed Research on the Subject of Acute Overstraining of the Heart.—Professor Schott of Nauheim describes his own observations, and refers to the work of others, among which he finds great diversity of results regarding the dimensions of the heart in cases of overstraining. First of all, we have to consider that the determination of the cardiac dimensions may have been made under very different conditions. One investigator may have examined during the period of pulmonary inflation; another, after the heart's dilatation had already diminished, while a third may have determined the maximum cardiac extension when the heart muscle was in the condition of greatest relaxation. According to physiological researches of recent years, the heart is constructed in such a manner as to represent the most perfect motor with which we are acquainted, so that it is capable of responding to the smallest stimulus with a maximum development of power. Moreover, it possesses the faculty of adapting itself to changed demands. The dog's heart is capable of taking in six times its normal amount of blood; yet the left ventricle takes in this amount and contracts again completely. Certainly the heart's work increases enormously in overcoming such obstacles, and the increased intracardiac pressure must also be taken into account. But it is a well-known fact that the dog, as far as his heart is concerned, can be subjected, without detriment, to considerably greater and longer hardships than the human organism, although, fortunately, the latter also possesses in its cardiac muscular apparatus and in its vascular system all kinds of temporary compensatory arrangements. To these compensatory powers it is due that the limits of over-expansion of the healthy may lie far apart in the muscularly strong individual. At the same time, we see, nevertheless, that the qualities of the heart manifest themselves, and to these belong laxity and expansion as a consequence of excessive strains.

Pneumonia Migrans.—A case of this nature is reported by H. B. Roderick, the striking features of which were: (1) the cerebral symptoms which persisted through the illness, varying from a semi-comatose state to a violent delirium, (2) the migratory nature of the pneumonia and the small area of lung involved in each attack, (3) the slight disturbance of respiration, which only once reached 40 per minute, being usually about 28, and (4) the rapid recovery after the small dose of antipneumococcic vaccine, which it is reasonable to suppose was instrumental in bringing about the favorable result. The patient was a young woman of 27 years. The duration of active symptoms was 23 days. Recovery was uninterrupted.

Case of X-Ray Ulcers Cured by Hilton's Method.—A. F. Savill reports the case of a woman of 30 years who complained of intense pain in two ulcers situated on the left shoulder and upper arm. They had appeared after prolonged *x*-ray treatment for scleroderma, and the pain was so severe that she had not slept more than one hour at a time for nearly two years. It was decided to follow the Hilton method of dividing the nerves just before they entered the ulcerated area. A semicircular incision was made one inch deep just above the ulcers. Another incision of the same shape, slightly shorter, was made across the middle of each ulcer. Free bleeding was encouraged, the gaping wounds stuffed with antiseptic gauze and fomentation applied. The gauze was left in place for several days, until the subjacent granulations gradually pushed it out of place. The natural healthy discharge was not washed off, but a non-irritant boric acid ointment was laid on. The operation had an immediate beneficial effect, and at the end of a week the patient was able to have a comfortable sleep without any hypnotic. Injections of fibrolysin had been made during her stay in hospital to bring about absorption of the extremely hard sclerodermatous condition of the arm. At the end of three weeks she was completely free from pain, and the ulcers had nearly healed. Complete closure was not effected for several months, and in one of the ulcers a small nodule was particularly obstinate. The method of nerve section was recommended by the late John Hilton in 1863, in his book on "Rest and Pain." He suggested that the pain in obstinate ulcers of various nature was due to exposed nerve endings.

Latent Chorea.—The paper of R. Miller is a contribution to the study of Sydenham's chorea. He considers the condition under the following headings: first, latent chorea associated with acute rheumatism; second, latent chorea in convalescence from acute rheumatism and chorea, and, third, latent chorea without obvious symptoms of rheumatism. He describes the clinical aspect of these varieties and concludes as follows: Rheumatic chorea declares itself first by symptoms significant of general nervous instability. In dealing with children suffering from nervous disorders of many kinds special care should be taken to exclude the possibility of their having originated from slight rheumatic infection. The well-known association between rheumatism and nervous instability is not to be explained by considering that the infection is specially prone to attack neurotic children, but by regarding the nervousness as in most cases the outcome of an infection already present (latent chorea). The mental depression and headache in rheumatic children are usually to be attributed to the disease, and not to its treatment by salicylates. The recognition of latent chorea in children suffering from obvious acute rheumatism affords strong evidence that all chorea is a rheumatic condition.

British Medical Journal, December 11 and 18, 1909.

Calcium Permanganate in Gastritis and Enteritis.—The value of this remedy is extolled by G. A. Stephens, who summarizes five clinical histories of cases in which it was given. The general indications for its use are the same as for bismuth, but the author says that in many cases this drug seems to fail, especially if the enteritis is marked. He prefers to use the calcium permanganate in doses of a quarter of a grain, with plenty of water. The cases reported by the author were of a subacute or chronic type, in which results are better than in the acute type, and he has often noticed that the calcium salts do not act very well when the temperature is raised.

Tetanus Treated with Carbolic Acid Injections: Recovery.—E. M. Phillips reports a case of tetanus occurring in a region in China in which it was not possible to procure antitetanic serum. The patient was a lad of fifteen years. The seat of infection was a small cut on the left middle finger, on the dorsal surface of the proximal interphalangeal joint. The case was seen on the fifteenth day from its onset. Injections were made of 1 cm. of a 4 per cent. solution twice daily. The boy at first improved, but later relapsed. The injections were increased to a 5 per cent. strength and to four times daily. It was deemed unwise, owing to the patient's filthy home surroundings, to give injections of magnesium sulphate into the spine. The boy finally made a complete recovery.

The Treatment of Chlorosis.—C. H. Melland says that anemia in the chlorotic state is due not to a loss of hemoglobin, but to an excess of plasma. Theoretically, therefore, it should be possible to cure chlorosis without the use of iron if only one can diminish the fluid portion of the blood. Consequently, we may use the saline cathartics in connection with caffeine citrate diuretics, theocin sodium acetate with tincture of digitalis, for unless the blood pressure in the glomeruli is maintained, they may be ineffective. The skin may be stimulated by hot packs and hot baths, vapor baths, and by jaborandi. Emesis by zinc sulphate may encourage the loss of water. While these eliminative measures are being carried out, the intake of water must at the same time be limited. As little salt should be taken with the food as possible, so as not to excite thirst. There are many persons who have a sudden edema, but no albumin or casts, so that the condition appears wholly due to a functional inability of the kidney to excrete the normal percentage of sodium chloride, with consequent retention in the tissues and accompanying edema. The patients on this treatment are weighed from time to time, and as excess of fluid is eliminated the weight falls. The improvement under this treatment, however, has in the author's hands been very slow but increased rapidly on the addition of iron to the therapy.

A Personal Investigation into the Dietetic Theories of America.—A. Bruce says that dietetic apostles in America are divided into flesh abstainers, purin-free feeders, and low protein feeders. The theories underlying these three schools apparently meet with little reconciliation. The low-protein feeders admit flesh into their dietary, have not the slightest objections to purins in soup or to xanthins in coffee and tea, and lay no special stress on the observance of other sanitary laws, such as the necessity for exercise, abstention from tobacco, etc. The purin-free school excludes all purins and xanthins from the diet, insist upon at least 50 per cent. more protein, and claim that these are the only practices essential to perfect health. The flesh abstainers agree with the low-protein advocates in the smallness of their protein content, and with the purin-free feed-

ers in their objections to purins and xanthins, but in addition to this expunge every possible toxin from their diet and place the greatest emphasis on the performance of every known law of health. Their chief apostle preaches the necessity of three evacuations of the bowels daily, and for this purpose consumes at each meal liberal quantities of agar—agar in the form of compressed tablets. All three parties agree that most men eat more than is good for them.

Severe Persistent Hemoptysis Checked by Normal Serum Injections into the Veins.—T. W. Dewar was successful by this method after twelve other distinct methods had failed. Twenty c.cm. of normal serum were injected daily for six days, and, apart from their styptic effect, seemed to benefit the patient in every way. On the sixth day a slight rash appeared on the cheek and soon invaded the whole body, appearing, disappearing, and reappearing in a most tantalizing way. It was a mixture of erythema and urticaria. There was also a rash on the buccal mucosa and fauces, great swelling in the pharynx, and evidently some edema of the glottis. His methods to clear his throat resembled a quinsy at its height. His jaws became locked so that nothing could be done locally to relieve his distress. Itching was intolerable, and morphine, atropine, hyoscine, veronal, sulphonal, etc., were all used, but without avail. After these a cup of hot tea at night seemed to afford relief, and he passed better nights. Locally, camphor in hard paraffin succeeded better than lead and opium wash or soda fomentations. The throat gradually improved and there was no desquamation. The day following the disappearance of the rash he had an acute arthritis of the temporomaxillary and wrist joints, and to a slight extent the ankles, with pains in various muscles. This condition was greatly relieved by salicine. Later the rash reappeared for a short time. Serum given by the mouth may fail, but succeed when injected into the veins.

Leukoplakic Vulvitis and Its Relation to Kraurosis Vulva and Carcinoma Vulva.—The paper of Comyns Berkeley and V. Bonney is a description of the first named disease, and the comparison with the latter lesions is accompanied by some excellent illustrations. Leucoplakic vulvitis is defined as a chronic inflammation of unknown origin, characterized in its early stages by marked hyperemia and cellular activity, and in its later phases by marked epithelial hypertrophy and a thickened, sclerosed, and retracted condition of the subepithelial tissue. The main symptom is pruritus, which, in the third stage of the disease, is more or less masked by the pain and acute sensitiveness arising from exposure of the nerve endings. In the latest stage the patient ceases to complain. If, at the third stage, carcinoma supervenes, the ulcers become very painful and tender, bleed easily on being touched, and become hard and indurated in spite of local treatment, and enlarge very rapidly. Kraurosis vulvæ consists of an atrophic condition of the vulva associated clinically with stenosis of the vaginal orifice, and pathologically with certain changes in the dermis. The early appearance of the three conditions named in the title calls for differential diagnosis, and in some instances only the microscopical examination of an excised fragment will render a diagnosis positive. The authors say that with reference to the relief of the pruritus in leucoplakic vulvitis they have had the best results with resinol ointment, zymocide lotion, and the *x*-ray. In view of their pathological findings they advise that in case the remedies named fail, the affected area should in all cases be excised. The excision should be a wide one, lest the disease recur. The treatment for kraurosis vulvæ is to dissect out the painful parts and to enlarge the vulva orifice. In carcinoma the inguinal glands on both sides should be removed whether enlarged or not.

Treatment of Postoperative Shock by Pituitary Extract.—Three cases are reported by G. G. Wray. The preparation used was in a vial, containing 1 c.cm. of a 20 per cent. solution. The contents of one vial were injected into the patient's arm muscles before they had recovered from the anesthetic. The effect was almost immediate, and the barely perceptible pulse soon became large and bounding. This effect lasted from twelve to sixteen hours and then gradually passed off. Not only did the pulse become larger in expansion, but it became also slower, and, whereas it had been irregular, it now became regular. The effect of the remedy seems due not only to its action on the blood vessels, but also to its effect on the heart. The injections were given in connection with normal saline per rectum.

A Simple Method of Counting Leucocytes.—The method is described by V. T. Carruthers, and must be read by those interested. It consists essentially in a thorough mixing of the blood, diluted with water, and so handled that the drops to be counted are of a uniform size. He believes the drops are more uniform than with the Thoma-Zeiss instrument. The materials needed are inexpensive, and the whole method requires only a minimum degree of technical skill.

Is Radium a Cure for Cancer?—Using the word cancer to signify malignant growths in general, L. Wickham says that the malignant evolution of these growths may not only be arrested for months, but occasionally such tumors have entirely disappeared, giving the impression of real cure, the rays having on cancer a somewhat selective action. In cases of large growths there is the necessity of acting rapidly, and the fear from thus acting of causing toxemia. There is no recourse against metastatic growths at a distance. If the cancer is local and accessible, but inoperable, radium can only stop or diminish the secretions and hemorrhages, and occasionaly render the neoplasm operable, but the patient eventually dies of his cancer. The influence of radium lessens as the tumor becomes less and less accessible. Certain tissues are infinitely less affected than others by radium. The mucous membrane of the buccal cavity is especially refractory, and it is difficult to reach the region conveniently and to apply the heavy screen filters and to leave them in position sufficiently long. Lastly, if the cancer is very extensive, a radium therapeutist has great difficulty in obtaining the stock of radium necessary to act sufficiently in every direction, for the number of doses needed in certain cases is very high. Hence, when we speak of curing cancer by radium we are using language not scientific, for we must know and estimate the varying conditions of each individual case. The author is disposed to take a favorable view of the general situation, and he looks for still greater benefits in the future. He believes that the discovery of the remedy has already borne definite fruit in medical practice.

Berliner klinische Wochenschrift, December 6, 1909.

The Gastric Juice in Smokers.—Max Skaller says that the injuries to the human organism from excessive smoking may be direct or indirect, local or by way of the nervous system. Various authors have shown that among chronic smokers there are frequently anomalies of gastric secretions, especially in the form of hypersecretions and hyperacidities. The author, in experiments on dogs, has studied the effect of tobacco upon gastric secretion in order to determine the exact action. The action may be either from the absorption of nicotine from the lungs, or the swallowing of saliva which has taken up the smoke. To simulate the latter the author experimented with water through which the smoke of a cigar or cigarette had been sucked. This water was injected subcutaneously. The first results were those of tobacco poisoning, restlessness, salivation, vomiting, defecation, etc. The gastric secretion in the Pawlow stomach began in from fifteen to forty-five minutes. The latter occurred even when the constitutional symptoms were absent. There was no difference whether the solution was made from the smoke of cigars or cigarettes. In these experiments 20 c.c. of the solution was injected at one time. When this was divided into four doses at fifteen minutes' intervals, no symptoms occurred. In the acid gastritis of smokers the hyperacidity occurs not as a result of but in spite of the gastritis. Cigars from which the nicotine had been extracted gave no hypersecretion. An injection of 0.02 gram of nicotine gave a hypersecretion indistinguishable from that produced by the smoke. These experiments prove that the hypersecretion is an actual symptom of the nicotine poisoning from the smoke. To decide whether the hypersecretion was the result of a direct parenchymatous stimulation of the peptic glands or of the nerves, other experiments were carried out. Atropine was injected prior to the nicotine or tobacco water, in order to paralyze the nerves. The hypersecretion did not occur. This proved that the action was of nervous origin. In the next experiment all the nervous connections of the "small stomach" were severed and the nicotine injected. Here hypersecretion occurred, proving that the nervous stimulation was peripheral, and that the hypersecretion was the result of stimulation of the ganglia in the stomach wall. This supersecretio nicotinica may give no symptoms, or it may give the usual ones of gastric hyperacidity. The therapy of the condition is first prophylactic. This requires complete stopping of the use of tobacco, as in one susceptible to it even a few puffs of a cigarette will produce symptoms. The medicinal treatment consists in giving atropine, 4 drops daily of a solution of 1 to 1,000. The author says that he has never found alkaline medication to be of any service in the severer forms of this condition.

Book Reviews.

MEDICAL JURISPRUDENCE, FORENSIC MEDICINE, AND TOXICOLOGY. By R. A. WITTHAUS, A.M., M.D., Professor of Chemistry, Physics, and Toxicology in Cornell University, and TRACY C. BECKER, A.B., LL.B., Counsellor at Law, Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo; with the collaboration of AUGUST BECKER, ESQ.; A. L. BECKER, ESQ., CHAS. A. BOSTON, ESQ.; Hon. GOODWIN BROWN; W. N. BULLARD, M.D.; G. C. CAMERON, M. D.; J. CLIFTON EDGAR, M. D.; JAS. EWING, M. D.; E. D. FISHER, M. D.; A. S. GEYSER, M.D.; J. C. JOHNSON, M.D.; D. S. LAMB, M.D.; H. P. LOOMIS, M.D.; W. B. OUTTEN, M.D.; ROSWELL PARK, M.D.; J. PARMENTER, M.D.; IRVING C. ROSSE, M.D.; E. V. STODDARD, M.D.; GEORGE WOOLSEY, M.D.; J. H. WOODWARD, M.D. Second Edition, Vol. 3. New York: William Wood & Company, 1909.

THIS new edition of the third volume of Witthaus and Becker's great work contains nearly 250 pages more than the same volume of the first edition. Woodward's article on the "Medicolegal Relations of Vision and Audition" and of "Injuries to the Eye and Ear" remains practically unchanged. A. L. Becker's article on the "Medicolegal Relations of Insurance" is a new one, replacing the old one by Murray and Edwards. Becker's article is shorter, but of more practical value to the physician. Fisher's chapter on the "Medical Aspects of Insanity" remains almost unchanged. T. C. Becker's chapter on "Mental Unsoundness in Its Legal Relations" has been much enlarged, and in some parts entirely rewritten, and it now stands as the work of Becker and Boston. Brown's chapter on the "Care and Custody of Incompetent Persons and Their Estates" has been revised by A. L. Becker. These last three articles, occupying over 600 pages, make a very complete and valuable treatise on the subject in question. A. L. Becker contributes a new chapter on the "Medicolegal Aspect of Marriage and Divorce." This is followed by another new chapter, that on the "Medicolegal Relations of *X*-rays and Skiagraphs," by A. G. Geyser. Ewing's contribution on the "Medicolegal Examination of the Blood and Other Stains and of the Hair" replaces the articles on the same subjects by E. S. Wood; these were in volume two in the former edition. There is a table of cases cited in the volume; this takes up fifty pages of double columns, and constitutes one of the valuable features of the work; to the legal reader it is simply indispensable. The volume concludes with a complete index to the three volumes which comprise that part of the work which deals with medical jurisprudence and forensic medicine.

This work is by far the most complete treatise on medicolegal science in the English language, and every article in it is written either by an expert or by one who has made a special study of the subject on which he writes. The result is that we have here a work which is both authoritative and complete.

UEBER ASTHMA UND SEINE BEHANDLUNG. Von Dr. M. SAENGER, in Magdeburg. Berlin: Verlag von S. Karger, 1909.

THIS is a booklet of seventy pages, in which the author attempts to prove that asthma is a peculiar form of "traumatic neurosis," occurring in individuals predisposed to the affection by peculiarities of their lungs and bronchi. In consequence, the treatment proposed by him depends more upon suggestion and psychic influence than upon the use of drugs. In addition, he has found that a permanent cure may be obtained by training the patients to breathe properly by counting aloud while the lungs are in the expiratory phase. Full details and a number of clinical histories are given by the author.

THE PRINCIPLES OF BACTERIOLOGY. A Practical Manual for Students and Physicians. By A. C. ABBOTT, M.D., Professor of Hygiene and Bacteriology and Director of the Laboratory of Hygiene, University of Pennsylvania. Eighth edition, thoroughly revised. With 100 illustrations, 26 of which are colored. Philadelphia and New York: Lea & Febiger, 1909.

For beginners in bacteriology, Abbott's book has long been recognized as a safe guide. In this new edition the article on infection and immunity has been practically rewritten, and the recent work in protective vaccination and the preparation of antisera has been noticed. Some of the contents of former editions has been eliminated in recognition of recent developments of the science; so that, in spite of valuable additions, the book still retains its former modest size. In another edition the author should insert the explanatory diagrams usually given in connection with Ehrlich's hypothesis, as their omission makes more difficult the understanding of a complex subject.

THEORIE UND PRAXIS DER EISENTHERAPIE, nach dem gegenwärtigen Stande der Wissenschaft. Von Dr. HANS SCHIROKAUER, Assistent am Klg. medizinisch-poliklinischen Institut der Universität Berlin. Halle: Carl Marhold Verlagsbuchhandlung, 1909.

THE use of iron in anemia dates back to the earliest period of medicine, and yet opinions are still discordant as to the best preparations for medicinal use. Much experimental work has been done on the absorption of iron, and it is now practically established that internal administration of this substance causes no increase in the excretion of iron in the urine, but that it is excreted after absorption from the large intestine and is passed in the feces. The daily quantity to be administered in order to obtain satisfactory results is, according to the writer, at least one and a half grains per day. Tables are given to show that many of the recent synthetic iron compounds contain actually very little iron, so that very much larger quantities must be administered than are permissible from the point of view of digestion or of expense. The tendency is to return to the old mixtures, such as Blaud's pills and the tincture of the chloride of iron. It is important that the treatment be continued with great regularity for a considerable period in order to obtain the best results.

DESZENDENZ UND PATHOLOGIE. Vergleichend-Biologische Studien und Gedanken. Von D. von HANSEMANN. Berlin: Hirschwald, 1909.

THE centenary of the birth of Charles Darwin has awakened a new interest in the problem of heredity and a revival of criticism of the ideas which he did so much to make a part of our intellectual attitude toward all biological problems. Von Hansemann, already widely known as a pathologist, has written this volume on the relation between descent and pathology as a contribution to a special phase of the Darwinian theory which has been but slightly touched upon by other writers. He holds that cellular pathology, and especially the study of the hereditary relations of tumors and disease may be of importance in extending the Darwinian concepts. The acquired, though somewhat relative, immunity of man to certain hereditary diseases, such as syphilis, may also be of importance in the modification of type which must be going on in the human race. The variability of the upper thoracic bony skeleton and that of the appendix are cited as examples of such mutations. The theory of altruism, which the author has transferred to the relations between cell types and organs, is also, he considers an important factor for variation. Any alteration in the altruistic cell equilibrium leads to important changes in the organism. Regeneration of tissue may also be considered as an altruistic phenomenon which tends to restore the vital equilibrium and thus preserve the type. If such cellular equilibrium be interfered with, the body substitutes another variety of cell, and selection then may lead to a definite suppression of the original tissues. The physiological death of certain tissues, such as the specific cells of the sexual organs, when the functional activity is no longer required for the existence of the body, may also be a factor in the production of variations. In the Lamarckian doctrine of the inheritance of acquired characters our author has but little faith. The book forms an interesting and suggestive contribution to the evolutionary doctrine.

HOUSEHOLD PESTS AND HOUSEHOLD REMEDIES. By W. R. BOELTER, Author of "The Rat Problem"; "A World's War Against the Rat"; "A Lesson in Economic Zoology," etc. With 86 illustrations. London: John Bale, Sons & Danielsson, Ltd., 1909.

ALTHOUGH the problem in this country in regard to household pests may not be as great as in some others, yet we are not immune. The rôle that vermin play in the spread of disease is becoming more thoroughly understood every year. But the economic loss caused by them is a great deal larger than any of us appreciates. The author estimates that the economic losses in Great Britain alone aggregate annually £100,000,000. "At least 75 per cent. of that huge loss is preventable." The book is divided into fourteen chapters. Each chapter deals with a different variety of vermin, and the remedies to be used for their destruction. The important chapters are those on ants, bugs, cockroaches, flies, mosquitos, mice, and rats. The aim of the author is to influence the people and the English Government to take concerted action and make a systematic war on all vermin.

Society Reports.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, November 15, 1909.

THE VICE-PRESIDENT, DR. RANSFORD E. VAN GIESON, IN THE CHAIR.

Private Nurses and Nursing, with Recommendations for Their Betterment.—Dr. THOMAS E. SATTERTHWAITE, in this paper, said that those who had been in practice, as he had, for upward of forty years, and had brought in contact with nurses, in and out of hospitals, of almost every kind, during that time, would realize that the modern nurse was the result of a gradual evolution. After paying a high tribute to the nurses who entered the field for the love of the work itself, and who served as exemplars of a heroism and self-sacrifice that had lifted them up high above ordinary mortals, the speaker referred to the fact that we had reached a period when we could see imperfections in our system, and that all nurses did not measure up the standards we required as physicians and surgeons. He would go further and say that a decided reaction against present methods, originating some years back, had developed, and that it was spreading over the country. The changes he had to suggest in the present system would not only benefit patients and physicians, but would put the art of nursing on a higher level. The first move in the direction of the right sort of reform was seen in England in 1887, when an effort was made to have a Public Bureau for the registration of nurses. Conflicting interests had hindered the movement, but now a Registration Bill had passed the House of Lords and was before the Commons, while at least twenty-three of our States already had registration laws. The United States Government, in 1906, by establishing the Army Nurse Corps, not only provided for the registration of nurses that had passed the required examinations, but also for supervising them. The present New York State law, by not expressing in it the relations of the nurse to the physician, and by permitting registration and examination by a board composed of female nurses, had gone far toward erecting nursing into a profession like that of medicine, and controlled by women nurses. There was no classification according to qualifications and no scheme for supervision. More than this, on the Nurse Training School Council there was but one physician. What we needed was something more than simply State registration after examination. Nurses should be examined by the Board of Regents, classified, supervised, and controlled. If such a plan as this was carried out, it would mean that the physician and surgeon would have better results in their private practice, while the registered nurse would have a higher standing in the community. Every training school for nurses, general or special, should have a certain number of its best nurses free for persons of moderate means and even for charity cases. While the price for trained nurses was not too high for well-to-do people, it was much too high for others. Each up-to-date training school should have an endowment fund with which to furnish those of limited means with the same grade of nurses as of doctors, and all registered nurses should be compelled to take such cases in the order in which they might be called. We also need a better classification of nurses as to their special qualifications, which should be matters of public record.

The Present Status of the United States Army Nurse Corps.—By Major CHARLES LYNCH, M.D., of Washington, D. C., representing the Surgeon-General of the U. S. Army. The speaker said that the Army Nurse Corps did not exist prior to the Spanish-American war in 1898. Early in that war, however, it was found that women nurses were essential for the army, and this led to their employment under contract. This method of employing nurses was regarded merely as a temporary expedient to meet a crying need, and the law organizing the Army Nurse Corps was not finally passed and approved until February 2, 1901. Subsequently, the number of nurses in active service, including chief nurses, but not the superintendent of the Corps, was fixed at 100 by the Secretary of War. Since that time this number has never been exceeded and the present strength of the Army Nurse Corps was 93. Since the American Red Cross had taken up the subject of reserve nurses for the army, who could be called upon in time of war, it had not been thought necessary to build up a reserve in the army itself. Under the present law, the pay of nurses and of reserve nurses when on active service was $40 per month when on duty in the United States, and $50 per month when without the limits of the United States, with an allowance for rations. It had been realized for some time, Major Lynch said, that the attractions offered to induce nurses to enter the active list of the Army Nurse Corps were insufficient to obtain the best class of women from the best schools, and a tentative bill had been drawn up under which the pay of the nurses in the United States would be increased from $40 to $50 per month during the first five years of active service; it would be further increased to $55 during the second five years, to $60 per month during the third five years, and to $65 per month after fifteen years of service. The nurses under this proposed law would receive $10 additional per month when without the limits of the United States, which was the increase at present given for foreign service. Chief nurses would receive up to a maximum of $35 additional to the pay mentioned for nurses. As allowances, fuel and light had been added, although, as a matter of fact, they were not furnished. A provision had also been made for the laundry of nurses' uniforms, and the allowance for ration was to be increased from 30 to 75 cents per day.

A Successful Experiment in Educating Efficient Nurses for Persons of Moderate Income.—Dr. WILLIAM O. STILLMAN of Albany, N. Y., said that if one considered all the practical aspects of the nursing question, few physicians would deny the proposition that there was an urgent need for two classes of nurses. One must necessarily be the hospital graduate nurse, whose services were especially essential in the higher grades of surgical work, and in steady demand in medical cases for such families as could afford the expense. We could not question the great value of her skilled assistance, but we needed another class of nurses who could meet the requirements and the purses of the masses of the people of moderate means. Various attempts had been made to meet this need. The speaker said that he had been deeply interested in this question for the last fifteen years, and for about four years and a half he had been conducting what might be called an "experiment station" for solving the problem of nurses for general domestic service. His work had been in the direction of producing less thoroughly trained nurses, who could afford to work at relatively much lower prices than the registered nurse. Assisted by about a score of physicians and surgeons in the city of Albany, he undertook to start a school for educating and training domestic nurses. The outgrowth of this effort had been the development of a course of instruction extending over six months. Four months of this time were devoted to class work, including lectures by physicians and by the superintendent, who was a registered nurse. Practical demonstrations of nursing technique were given by the superintendent and her assistants; instruction was also given by means of the human skeleton and animal dissections, as well as by the use of charts, etc. It also embraced a fairly thorough course of diet kitchen instruction in preparing food for the

sick. After the academic course the pupil was required to demonstrate her application of the principles taught by two months of bedside work under the observation of the head nurses. The requirements for admission to the school did not include a high-school certificate, but only a grammar school education, and women were not allowed to receive a certificate until they were 21 years of age. Thus far, over 150 pupils had been graduated, and the great majority of these were doing exceedingly well. The graduates were encouraged to restrict their charges to from $12 to $15 per week, and, as a rule, they were in steady demand.

An International Educational Standard for Nurses.—By Mrs. Hunter Robb, late Superintendent of Nurses and Principal of the Training School for Nurses at Johns Hopkins University Hospital. In Mrs. Robb's absence, this paper was read by Dr. Gallant. The writer said it was deplorable to find that as modern nursing was being adopted by first one country and then another, it had to be started in a more or less haphazard way, instead of being able to adopt from the very beginning a common standard and common ideas. It had become an accepted maxim that in the proper education and practical training of the nurse lay in the main the patient's best welfare. She wished to lay special emphasis upon the words practical training, for in them lay the true definition of an educational standard. The word education had little significance unless combined with the three all-important words *proper practical training*. There could be no question but that nursing in itself was an art that should admit of only one way of caring for sick people—the right way—not a half a dozen right ways, not one peculiar to Great Britain, Germany, America, or any other country, but the right way for all, and to actually find this right way and put it into daily and hourly practice the world over should be at the very basis of all our nursing organizations, and should be the fundamental reason for their existence. Nursing was an art that should be practically the same all the world over; in its practice it was without creed or country, governed by the same law for rich and poor, and for all alike its motto was the Golden Rule. Nursing work should be and was second to none done by women, and no stone should be left unturned to place a true and proper value upon it and help it reach its highest level. In a broad general way, the meetings of the International Council for Nurses have been of the greatest value. It was an inspiration and source of encouragement to know that other countries were facing this same problem, working toward the same common standard, which the writer said she felt convinced would be realized much more rapidly did we concentrate our attention a little more upon the methods employed in the actual making of the nurses, and did we unanimously insist upon rendering universal a thorough practical training, which would supply a standard that should be the ultimate outcome of the combined wisdom, experience, and deliberations of the nurses of all countries where modern nursing existed.

Mr. George P. Ludlam, Superintendent-Emeritus of the New York Hospital, said he had rarely listened to a series of papers on this subject that had been more comprehensive and covered the ground more completely and conclusively than those that had been presented. The only suggestion he had to offer in connection with the proposed law outlined in Major Lynch's paper was that it contained no provision for a pension for nurses who had worn themselves out in the service. The paper of Dr. Stillman was full of interest and instruction, and his successful experiment in educating efficient nurses for persons of moderate income was worthy of imitation of other communities. He could not comprehend, however, how the nurses covered the work that was laid out for them in a six months' course of study, and he did not believe that some of the things that were included in the curriculum were wholly necessary; in fact, he thought they might be rendered more efficient practical nurses by curtailing it. Dr. Satterthwaite's paper had impressed him with the fact of the different point of view that prevailed on this subject among physicians from that of layman—or rather, the more comprehensive view held by the former, embracing, as it did, the nurse's professional relations and also her conduct in the social and domestic environment in which she was placed. In his long experience in hospital work, Mr. Ludlam said he had listened to a great many complaints of employers about the conduct of nurses, and *vice versa*, and, as a rule his sympathies had been with the nurses. It was undoubtedly true that many members of the community regarded the advent of a private nurse in the family very much as they would the occurrence of an earthquake or a cyclone, although there were not many nurses who conducted themselves so as to justify that comparison. Still, it could be safely said that the sentiment in the community at large was one of regret whenever, in any family, the necessity arose for employing the services of a trained nurse. He would look for the cause of this feeling of unrest against the trained-nursing system in the kind of education which the pupils received in the average training school. He did not mean so much over-education or an overcrowded curriculum, but rather what was perhaps the outgrowth of instilling false notions into the minds of the pupils. Under the present system, the nurse received the idea that she was a member of a profession and she expected to make it a profession by calling it so, and thus she was sent out into the world with distorted and exaggerated notions of her own importance, a tendency which the speaker said he honestly believed tended to eliminate or subordinate those eminent traits of character, of tenderness and sympathy and prompt attention to the wants of the sick which should form the very substratum of her work, and which had been so admirably presented in the paper of Mrs. Robb. Under the present system, the trained nurse was led to regard the sick person too much as a "case" instead of as a human being in need of the care and sympathy which she could give. In closing his remarks, Mr. Ludlam said he did not wish to be understood as posing as an enemy of the trained nurse or the trained nursing system, but he found in both some things that seemed to invite criticism.

Dr. Arpad G. Gerster said that while he had been much interested in the papers that had been presented, he thought that Mr. Ludlam, in discussing them, had touched the main spring of the whole question closer and nearer and with much more precision than did the papers themselves. The work of the training schools in this country and the work of the nurses themselves had been put on a false basis by an influence which might be called partisan and feministic. We should not look upon nursing as the exclusive work of women, and only that system of nursing could be regarded as entirely satisfactory that could be equally applied to the education of both male and female nurses. The principles should be absolutely the same for both sexes. On the other hand, we must admit that the whole question was still a recent one; it was still *in statu nascenti*, as the chemists say. It was natural that certain differences of opinion should develop among those who in their work of training the nurses were influenced by temperament or by the particular views of this or that educator. One teacher laid great stress on the practical side of the teaching, whereas another laid enormous stress upon the theoretical side. Personally, Dr. Gerster said, he believed that the tendency to crowd the brains of nurses with a great deal of theoretical knowledge, digested or undigested, had taken such a strong hold upon those who controlled the training schools in this State that it was open to criticism. He had looked over the papers that had been issued in Albany for the examination of nurses for State registration, and had found therein many questions that could not, in his comprehension, be either useful or neces-

sary to the proper training of nurses. For example, one of these questions was, "What is meant by immunity?" Others, just as useless, could be selected from the list at random. While a certain amount of theoretical knowledge was doubtless useful and even necessary in the curriculum of the training school, it should not be carried to a degree that was burdensome to the already overworked students, and it was upon this very point that there was still much difference of opinion. Personally, he believed that this amount of theoretical teaching should be reduced to a minimum; he regained it as a shibboleth and false god which should be thrown from its pedestal, and which created in the minds of the nurses themselves false standards and a feeling of superiority which had no basis in fact.

Dr. W. Gilman Thompson said that if the medical profession did not get the kind of nursing they wanted, it was absolutely their own fault. They had allowed to grow up in this country a large nursing "trust" which controlled prices and restrained trained attendants from acquiring hospital experience. In 1883, the speaker said, he wrote a small book on Training Schools for Nurses, and give a brief account of the twenty-two schools then in existence. In 1908 there were 935 such schools, and their graduates were increasing at the rate of 500 per year. During the past decade there has been an average of forty-two new schools established yearly or almost one new school per week. The amount of capital more or less directly interested in these enterprises he had conservatively estimated at ten millions of dollars. In New York City there was one municipal training school building that cost $700,000 and a second one that cost $350,000. These figures gave an idea of the magnitude to which this industry had grown. There was only one grade of diploma among the graduates of training schools and a standard price for their services, whether good or poor. This applied to no other vocation to the same degree. It would be a simple matter, Dr. Thompson said, for the schools to issue two kinds of diplomas, one, say, for two years' service and another *cum laude* for advanced work for those who wished to perfect themselves in certain specialties. Nurses had recently paid much attention to legislation, and there were at least six different kinds of laws governing the registration of trained nurses in different States—almost as many as there were divorce laws. If we classified the nurses, the question of their remuneration would then take care of itself. As it was, it was impossible for a trained attendant to get any hospital experience. If this permission could be obtained, to meet the public demand, a large number of women could be admitted to hospitals as trained attendants, and receive a diploma or certificate at the end of six or eight months or a year, just as short term certificates were issued to hospital internes. There were two fundamental things that it was important for nurses to learn, one, the principles of antisepsis in surgical cases, and the other, how to make patients comfortable in bed.

Dr. C. Irving Fisher, Superintendent of the Presbyterian Hospital, said that his experience with nurses had been practically confined to their work in the hospital. The entire subject was still in its developing stage, and many problems pertaining to it were still being worked out. He did not believe that the establishment of a central bureau for discovering and eliminating bad nurses, as suggested by Dr. Satterthwaite, would prove an absolute cure for the shortcomings of the present system. Their correction, rather, lay in the hands of the training schools themselves. Among the graduates of every training school, as of every medical school, there were a certain proportion who had utterly failed to imbibe the spirit of their teaching and who were sent out into the world unfit for their work. Still, in the course of time, such matters adjusted themselves. Good nurses, like good physicians, would make a success of their calling, while those who were unfit or who lacked the proper spirit would fail and drop out.

Dr. Otto Kiliani said that for the past ten years he had been one of the teachers in the training school for nurses at the German Hospital, and Chairman of the Nurses' Committee, so that he was naturally deeply interested in this subject. He agreed with Dr. Stillman that we were in need of a class of nurses whose services could be engaged by persons of average means. As it was at present, only the extremely rich and the extremely poor were well taken care of. Under the present system, the nurse who had taken a three-years course of study could not be expected to work for less than she now asked, which did not average more than $750 per year. In the training school connected with the German Hospital they were now considering a plan by which persons in the city of New York, at least in moderate circumstances, could be furnished with nurses at a price that would be within their means. During the last six months of the three-years course of study it was intended to send the nurses out to do practical nursing in the families of patients who could pay, according to their means, $5, $10 or $15 per week. This money would not go to the nurse, but to the hospital to help meet the expenses of this special branch. The nurse would be expected to go wherever she was sent, and this would be regarded as a part of her regular course, and at the same time she would be benefited by coming in contact with private patients. In closing his remarks, Dr. Kiliani said he regarded the present three-years course for nurses as too long, and he deprecated the efforts that were now being made to raise the preliminary standard of education for those who wished to enter the training schools. This standard seemed to be high enough now and it was questionable if any of the larger hospitals and their training schools desired any raising of this standard.

Dr. J. Blake White said that while no one, more than he, appreciated to a greater degree the character and efficiency of the conscientious nurse, he would not be true to his own observations nor true to the nurses constituting the type nearest to the ideal nurse if he did not acknowledge that there were some who were not as they should be or what was expected of them. There was no doubt we could not very well get along without nurses—even the less efficient or less faithful nurse did some good—but to be most useful in her profession she must not only serve her patient faithfully and well, but she must never lose sight of her obligation of loyalty to the physician who under under all circumstances bore the burden of responsibility of the case in hand. The simple matter of educating a nurse did not, in the speaker's opinion, fully fit her for her work, which was a multiple requirement. She might be trained as to her head and her hands, but the best of her efficiency came from her heart, whence emanated those personal qualities impossible to define, but which no training or education could supply.

Dr. A. Ernest Gallant thought that the question of nursing among the poor should be taken up by the churches, and he referred to the excellent work now being done along those lines by the visiting deaconesses among the Baptists and Methodists, and by the Sisters of Charity of the Catholic church.

The discussion was then closed by Drs. Satterthwaite and Stillman, and Major Lynch.

Olive Oil in Hyperchlorhydria.—The part played by the gastric mucous is that of protecting the walls of the stomach against attack by the gastric juice. Schalij, when the secretion of mucus is arrested, gives olive oil and almond oil. The oil is taken neat before meals, beginning with a dose of 1 c.c. (mxvij) and increasing by degrees to 15 c.c. (ʒss.). The treatment has the additional advantage of decreasing the acidity of the contents of the stomach.—*Archives des maladies de l'appareil digestif.*

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held December 9, 1909.

DR. ELI LONG IN THE CHAIR.

Amaurotic Family Idiocy.—Dr. ISIDORE GOLDSTEIN presented three cases of amaurotic family idiocy.

CASE I.—This patient was a female, born of semitic parents, and one year of age. The family history was negative. When six months old the child could sit and raise herself from the supine to the sitting position. Shortly after this the mother noticed that the child could not hold her head up, sit, or hold firmly any object given her. She was constipated. She laughed aloud without apparent cause, and was easily frightened. The tongue protruded. The hands were closed most of the time. The anterior fontanelle was almost closed. The child had a vacant and silly look. There were irregular twitchings of the facial muscles. There was a tendency to turn the eyes upwards. The pupils were normal. The fundi showed the characteristic grayish-white patch in the macular region; in its center was a brownish-red, sharply defined oval spot. There was optic atrophy. There were chewing movements of the mouth, smacking of the lips, and saliva escaped from between the lips. The arms were held outstretched and stiff. The tips of the thumbs and index fingers were in contact. The reflexes were exaggerated. There was no Kernig, Babinski, or Oppenheim sign. The Wassermann reaction in both mother and child was negative.

CASE II.—This patient was a female, sixteen months old, of Jewish parentage. She was the tenth child and three of them were amaurotic, one being a twin. The family history was negative. The child was never able to sit or stand without support; she was easily frightened, did not recognize her parents, and had difficulty in swallowing. She once was very fat, but now was growing thin and weak. The anterior fontanelle was closed. The fundi showed the characteristic spots. The child was stupid, with a vacant, listless expression. There were chewing movements. The upper and lower extremities were spastic. The reflexes were exaggerated. There was no Kernig or Babinski sign. The Wassermann reaction was negative in both mother and child.

CASE III.—This patient was fourteen months old, the second child of Jewish parents. The family history was negative except for a history of consanguinity in mother and father. The duration of illness was ten months. The child could not sit, was hardly able to support the head, and did not stand or walk. The child cried a great deal, and laughed without apparent cause. The anterior fontanelle was open and pulsating. The fundi showed the characteristic spots, and optic atrophy was present. The saliva dribbled from between the lips, and there were chewing movements. The forearms were markedly flexed, and the tips of the thumb and index fingers were in contact. The reflexes were exaggerated.

Congenital Muscular Dystrophy.—Dr. KAUFMAN SCHLIVEK presented this case. The patient was a female, two years and three months old. The family history was negative. The child had never been able to flex the elbows or the knees, and the feet were always turned in. The child did not move the arms until she was six months old; then she began to raise them slightly. The legs were moved from birth. She could stand with support. She was bright and well nourished. There were no signs of rickets. The upper extremities were held in the position seen in Erb's paralysis, complete extension at the elbows, and rotated inwards. The anterior part of the arm was flat, soft, and flabby. The anterior surface of the humerus was readily felt. The shoulders were fairly well developed, as were the forearms. The child could raise the right arm to almost 90° and the left a little higher. Active and passive motion of the right elbow was limited to 30°, the left elbow to 60°. Pronation and supination of the forearms were good. The motion of the fingers, hands, and wrists were normal. The muscles of the thigh and legs were soft and flabby. Flexion at the knees was limited to 45°. There was marked lateral motion in the knees, but no creaking. The feet were in the position of talipes equinus varus. The back muscles were well developed. The entire skeleton had been subjected to the *x*-rays and the only condition worthy of note was that the articular surfaces of the elbows and knees were in closer proximity than normal. The bones of the ankle were undeveloped. The mental condition of the child was excellent. There were no trophic disturbances, the sensations were normal, and there was no reaction of degeneration.

Dr. HENRY W. FRAUENTHAL believed that the range of motion could be increased if massage and manipulation were properly employed.

Dr. ALFRED F. HESS did not think that the diagnosis was at all clear. The muscles appeared to be in good condition. The *x*-ray showed the articular surfaces of the bones close together. The pathological condition was a partial or complete absence of interarticular cartilage; sometimes there was an exostosis of the bones. This was in fact a well-defined condition and was not always hereditary. It was a separate disease and should not be classed with the dystrophies.

Dr. Schlivek said that the only way to make an absolutely positive diagnosis of the case he presented was to take a section of the muscle, which, of course, was prohibitive. There was no limitation of passive motion at the shoulder; this joint was normal, and still the child could not raise the arm above 90°. From this demonstration they must infer that there was muscular weakness. Last spring the patient was shown at Dr. A. Jacobi's home and a tentative diagnosis was made of congenital muscular dystrophy. Dr George W. Jacoby confirmed this diagnosis.

A Case of Cerebral Hemorrhage.—Dr. HENRY W FRAUENTHAL presented a young boy who had had a cerebral hemorrhage, leaving the face, arm, and leg partially paralyzed.

Protective Action of the Colloids in Milk, with Some Ultramicroscopic Observations.—JEROME ALEXANDER, M.Sc., and Dr. JESSE G. M. BULLOWA presented this paper. If one examined the suspension of any fine powder with the microscope, the individual particles exhibited a slight trembling motion known as the Brownian movement. Although this movement was more marked in the case of the smaller particles, it was insufficient to keep them afloat and they gradually sank out of solution. With the ultramicroscope it had been demonstrated that with increasing fineness of subdivision the motion of the subdivided particles continued to increase in speed and amplitude until it became so vigorous and extensive that the particles no longer settled, but remained permanently afloat; that was, they had a colloidal solution. If the subdivision proceeded still further, they gradually passed into the sphere of true or crystalloidal solutions, wherein the particles of the dissolved substances were reduced to molecular dimensions or even split into ions. The colloidal condition, therefore, was consequent upon an extremely fine state of subdivision

and practically any substance could be converted into or produced in this condition. Some colloids, such as gelatine and gum arabic, were quite sensitive to electrolytes, and readily redissolved after dessication; others, such as pure colloidal metals, were readily coagulated by electrolytes and did not redissolve upon dessication. Zsigmondy had expressed this difference by calling the former reversible and the latter irreversible colloids. The presentation of a diagram taken from Zsigmondy's book served to elucidate this statement. A most interesting property of reversible colloids was that they could protect irreversible colloids from coagulation and permitted them to redissolve after dessication. As little as 1/10,000 of 1 per cent. of gelatine produced this effect in a solution of colloidal gold. Such action was known as "protection" and a reversible colloid exhibiting it was known as a "protective colloid." This power of protection was specific and a reversible colloid might protect one substance and not another. Milk was then considered in the light of the principles of colloid chemistry. Many analyses of milk had included the casein and albumen under the omnibus title of "proteins," thereby obscuring a most important and vital fact—the relation of casein to albumen. The importance of this fact at once became evident when it was stated that casein was an irreversible coagulating colloid, whereas albumen was a reversible or protective colloid. Mother's milk was scarcely coagulated by acid or rennin and by increasing the amount of protection in cows' milk it might be made to act in like manner, which was easily proven by adding a small quantity of gelatine, gum arabic, or other protective colloid. Cows' milk thus treated was not as well or readily curded by acid or rennin. Besides studying the macroscopical effects of protection on the casein, they made certain observations with the ultramicroscope. These observations seemed to show the importance of the subdivided condition of the casein of milk. The influence of "protection," was not, however, confined to the casein, but probably was important in maintaining the emulsion of the fat. The following conclusions were presented: (1) The casein of milk was an irreversible, or coagulating, or unstable colloid, which was protected by lactalbumen, a reversible, or stable colloid. (2) In the modification of cows' milk for infant feeding it was necessary not only to consider the per cent. of "total proteins," fat, etc., present, but to see that the casein was adequately protected. In order that they might not be misunderstood to be only restating the principle expressed in the doctrine of "split proteins," they emphasized the fact that the casein existed in cows' milk in an already formed higher degree of colloidal aggregation. (3) Bald chemical analysis, without taking into consideration the principle of colloidal protectives, was an insufficient criterion for the actual digestibility or availability of food.

The Treatment of Intestinal Indigestion in Children on the Basis of the Examination of the Stools and Caloric Values.—Dr. John Lovett Morse and Dr. Fritz B. Talbot of Boston presented this communication. It seemed to them that, if the stools of children suffering from disturbances of digestion, especially of the intestinal type, were examined in order to determine what constituents of the food were not being utilized and the diet regulated on the basis of these findings, due regard being paid to the caloric needs, much better results could be obtained than by the usual empirical methods. Their experience led them to believe that comparatively simple tests were sufficient to give results accurate enough to form the basis for satisfactory treatment. They had also found that it was a very simple matter to calculate the caloric value of the food and to regulate the proportion of fat, carbohydrates, and proteins. They also found that it was easier to control the diet of the child than that of an adult and that it was at least as easy to get the cooperation of the child in carrying out the diet as it was to get that of an adult. It was probably not far from the truth to state that the average child of four years required about 1,200 calories, or 70 calories per kilo in twenty-four hours; the average child of eight years, 1,400 calories, or 60 calories per kilo in twenty-four hours, and the average child of twelve years 1,600 calories, or 50 calories per kilo in twenty-four hours. There was no objection to giving large amounts of proteins in order to meet the caloric needs when there were disturbances in the digestion of fats or carbohydrates. On general principles, however, it was wiser to keep the proteins down somewhere near the average need, because the metabolism of the proteins required more energy and the products of protein metabolism were more difficult of elimination than were those of the fats and carbohydrates. An excess of proteins, therefore, required an unnecessary expenditure of energy and was consequently not economical. In disturbances of digestion fat might be substituted for carbohydrates and carbohydrates for fat with great advantage, provided the total caloric value of the food was kept up. The fats might be entirely replaced by carbohydrates over considerable periods of time without doing any harm. There was a certain amount of risk in replacing the carbohydrates entirely by fats because of the dangers of developing acid intoxication. A child's stool was normally homogeneous; lumpy and mushy stools were pathological. The reaction was slightly alkaline, weakly, amphoteric, or neutral. A strong acid reaction suggested disturbances in the digestion of fat. A microscopical examination showed a few remains of a vegetable nature, single yellow masses, and a few muscle fibers, a few crystals, rarely starch granules, and microbes. When acetic acid was added a few drops of fatty acid were seen in each field after heating. The stools that deserved special mention were the fatty, the stools of carbohydrate indigestion, and the catarrhal stools. The fatty stools were gray or white in color, dry or of clay-like or creamy consistency, acid in reaction, and of a rancid odor. The carbohydrate stools were brown or golden yellow in color, salve-like in consistency, acid in reaction, acid or sour in odor. The catarrhal stools showed an excess of mucus. This was often associated with protein putrefaction and a foul odor. The character and the quantity of the food taken in the twenty-four hours was known in every instance, so that for all practical purposes the children had had a test diet. The methods of examination employed were essentially those described by Schmidt in his work. The form, coherency, consistency, color, and odor, and the presence or absence of extraneous matters were noted in the macroscopical examination. The microscopical examination was made with a low power objective and later with a No. 7 objective. Three slides were examined; the first contained very thin, crushed-out feces, which was examined in the fresh condition. Another was stained with Lugol's solution and examined under the cover for starch. The third was stained with a saturated alcoholic solution of Sudan III. In the first specimen an excess of undigested muscle fiber, connective tissue, or vegetable fiber could be studied and pathological elements differentiated. A preliminary estimation of the amount of neutral fat, fatty acids, soaps, and starches could also be made. Under the

cover glass the starch granules would stain blue or violet and certain microbes would stain blue. There were practically no unchanged starch granules in the normal stool. An excess was always pathological. Under the third cover glass neutral fat drops and fatty acid crystals stained red. Any increase of fat after the addition of acetic acid indicated the presence of a corresponding amount of the soaps.

Dr. Charles Gilmore Kerley said he had observed that a great many children of different ages, suffering from intestinal indigestion, if given a fair show, would have a particularly good digestive capacity and digest a reasonable diet fairly well. He had not found many children who had a poor starch, protein, or milk capacity, but he had found many whose starch, protein, and milk capacity had been overtaxed. Digestive errors occurring in older children were not due to any peculiarities of the child, but were due, as a rule, to the irrational and peculiar methods of feeding, or the peculiar habits of the child because of his distaste or dislike for this, that, or the other thing. A child should not become imbued with the idea that milk was the only food that was fit. In the runabout age these children required mixed feeding; then there would be less digestive disturbances.

Dr. Thomas S. Southworth said that it seemed to him that an interpretation of stools had been produced which could be taught and placed in text books; hitherto students had to be taught to make their interpretation of stools by actual exhibition of the different forms of abnormality. By means of improved microscopical tests one might be able to anticipate difficulties, since the microscope might show that there was nonassimilation of food even before the symptoms came strongly to the front. Dr. Morse's reports of cases convinced one that after all the successful feeding of the child or infant meant a rationally mixed food of proper proportions. If a microscopic examination of the stools were made, one might more often make such changes in the diet of the infant or child as would be beneficial to the infant. The confirmatory knowledge that one got from such an examination of stools should result in greater success in the future feeding of children.

Dr. John Howland said that Dr. Morse had done a real service in insisting upon an estimation of the caloric values of foods. There seemed to be an impression among some that caloric methods told what kind of food a child should have, while they simply told what amount of food was suitable in order to satisfy the caloric requirements of a certain child. It frequently happened that a child could not digest food in sufficient quantities to satisfy his caloric needs. It was more frequently found that the caloric requirements of the child were exceeded and that a diminution of the quantity of food was followed by prompt relief of symptoms and gain in weight. Data in regard to the metabolism of children after the first year were very few and incomplete; this was due to the fact that twenty-four hour specimens of feces and urine could be collected with more ease in young infants than in older children.

Dr. Godfrey R. Pisek believed that what Dr. Morse and Dr. Talbot had presented would be of particular value to the general practitioner. Such an examination of the stools could be made without a great deal of scientific knowledge, and could be carried out in the home. The microscope would often throw light upon causes of digestive disturbances.

Dr. Herman Schwarz said that in trying to work up some diets for older children in a series of metabolism experiments he had found how meager were the data as to normal figures. In considering the calories and food elements necessary to keep children beyond the age of infancy in nitrogen equilibrium Erich Muller, in a series of thirty-two cases of presumably healthy children, determined their *stoff-* and *kraftwechsel*. He found that with 104 calories per kilo and an intake of 0.55 grams of nitrogen these children gained but so much and were hardly considered normal. Erich Muller found that in children with good appetites or with poor appetites the resorption was the same, but the retention was 0.03 grams per kilo as against 0.05 grams, a difference of 40 per cent. Dr. Schwarz believed that the reason this work had not been taken up more enthusiastically was because the internists had not decided upon the value of Schmidt's work. The great difficulty had been with fat indigestion. It was not easy to judge of fat indigestion by a microscopical examination of the stools. Even a chemical analysis of the stools alone did not furnish absolute data, for some of the fat contained in the stools might have come from the intestinal walls. In spite of this the method was one easily followed out and apt to give valuable clinical data. There was, however, a series of cases in which there was an indigestion without any change in the stools. A point in the treatment of these cases was rest; often placing the child on his back for an hour and a half every afternoon improved the digestion. His experience had taught him that milk was usually well borne, if not as whole milk, then in some form of skimmed or diluted milk.

Dr. Elias H. Bartley said that the accurate estimation of the quantity of fat in the stools was a very valuable addition to their knowledge; if this could be done, it would give much information which he had been very desirous of having. All admitted that fat indigestion was certainly a very common thing in intestinal disturbances occurring in early childhood as well as in infancy. In some of his cases where there was evident fat indigestion he had been obliged to reduce the fat in the milk down to between 1 and 2 per cent. in order to give the children any sort of comfort; in such cases he had found that some cases would tolerate butter if given with cereals, or with bread or zweibach; but, on the other hand, they would not tolerate the same amount of fat if given in the milk. The only interpretation of this he could give was that it was the cereal that broke up the butter and made something like an emulsion in the stomach. Dr. Bartley said that he had at the present time under his care a child where he was obliged to keep the fat in the milk down to about 2 per cent. If more than that was given it was evidenced by the putty character of the stools, an excess of mucus, excoriation of the nates, etc. All believed that when they gave a fairly well balanced food the question of quantity was very important. And here was where the heat value of the food came in. He had adopted in his feeding, as a minimum for children under one year of age, one gram of protein for every pound of body weight per day. That meant giving of about one ounce of milk for every pound of body weight per day. But some children would not obey the rule as to caloric values when it came to fats. All these calculations for determining the caloric value of the foods of infants must be modified to suit the baby under trial. These calculations were of value merely to check their feedings; it told them what the baby ought to have in its food to properly nourish it.

Dr. Fritz B. Talbot of Boston said that in cases of starvation some fat was excreted and was found in the stools. Under normal conditions the amount of

fat excreted in the stools did not increase when food containing fat was given. On this basis, he believed that the amount of fat seen under the microscope gave an estimate of the amount of fat in the stool. Normally about 20 per cent. of the dry stool was composed of fat. There was no difficulty in recognizing an absolutely normal or markedly pathological stool. He had made a rule based on experience with the stools of older children that when, with a No. 7 objective, he found six, seven, or eight droplets in each field, and when, after the addition of glacial acetic acid and heat, nearly the whole preparation showed fat, he called that an excess. But there was to be taken into account the individual equation in this, as in other microscopical examinations. With regard to Dr. Bartley's two cases which he reported, Herter and Kendall had shown in their bacteriological work on stools that an excess of one component would change the bacteriological flora; therefore it was fair to assume that the predominance of certain types of bacterial flora might cause indigestion. It was well known that overfeeding of protein would cause fat indigestion, and he believed that overfeeding of fat could cause sugar indigestion. In Dr. Bartley's second case the increase in the fat in the milk formula might have caused sugar indigestion, and the products of sugar decomposition caused the burning and irritated buttocks. Experience had shown that the microscopical examination of the stools was a very valuable aid in diagnosis and treatment, and he had found that it was valuable in its negative as well as in its positive results. When he saw a youngster with some obscure dyspeptic upset and examined the stools and found nothing abnormal, he felt that it was safe to say that simple method of treatment would cure the indigestion.

Dr. William P. Northrup said that many years ago when exact percentage methods of infant feeding were being investigated one heard frequent remarks about the infant's stomach not being a test tube and that percentage feeding might and might not meet the needs of the infant. However, the practitioner had profited by this method. A cook might prepare an excellent dinner by adding a pinch of this ingredient, a dash of that, and a cup of another, and yet be unable to tell the next day what she had put in it. But after all, fixed and exact data were valuable for the many dinners, the many cooks, and the improvement of method. What had been presented to them was another exact method of feeding infants and children as determined by their needs. Dr. Northrup considered this contribution valuable. If one saw an excess of any one ingredient, it certainly furnished a control; it furnished a point of departure which was destined to be useful in the future.

Dr. L. E. LaFetra said that some points emphasized might be still further dwelt upon, especially that a microscopical study of the stools would aid one in avoiding certain errors which without it were not easy to discover. He agreed with Dr. Morse that the stools in carbohydrate indigestion frequently looked like normal stools, being often brown and smooth. It was quite common to find infants losing in weight when the caloric value of the food was too high. The caloric method was not a method of feeding, but merely told whether a child was getting too much or too little food. It therefore served as a measure for any method of feeding.

Dr. John Lovett Morse of Boston said there were a few points on the clinical side of the subject to which he would refer. He agreed with Dr. Kerley that the prolonged use of milk was often the starting point of indigestion in infants, but he did not agree with the statement that milk was not well borne by older children with indigestion. In proper amounts milk usually did agree with them, although at times it might be necessary to give skimmed milk. The majority of cases of indigestion in children could be straightened out by common sense methods of feeding and such careful treatment was not generally required. As a rule he knew what the condition was from the macroscopical examination of the stools, but occasionally he was very much surprised by the results of microscopical examination and was prevented from falling into serious error. He quite agreed with Dr. Schwarz in what he had said regarding the importance of rest. Rest was an important adjunct not only in intestinal indigestion, but in children who were run down from any cause.

Election of Officers.—*Chairman,* Dr. Eli Long; *Secretary,* Dr. William Shannon.

WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held October 11, 1909.

Dr. William Linder in the Chair.

Symposium on Acute Anterior Poliomyelitis, Pathology.—Dr. Israel Strauss of Manhattan read this paper. He said that until the epidemic of this disease that had prevailed in Sweden in 1905, the pathology had not been carefully studied. Wickman wrote a monograph as the result of the careful study of 1000 cases. Harbitz and Scheel made an exhaustive investigation of the pathological anatomy of the disease, on the basis of a number of outbreaks occurring in Norway. It was only in 1907 that the speaker was able to obtain for the first time in this country pathological material. By means of a fine series of microphotographs thrown upon the screen he reviewed the pathological anatomy of this disease. He showed, in agreement with the former observers, that the disease of the cord was more extensive than had been formerly realized, and that the brain was likewise involved. In the sections that he presented, the brain showed but little edema and congestion; the same was true of the cord, but what it did show was characteristic. The grey matter of the cord was of a light pinkish blue, while the white matter had a curious translucent appearance. The inflammatory process in the cord involved the pia mater, the white matter, and the gray matter. It appeared as if the inflammation spread inward from the pia mater along the blood-vessels. There was a marked perivascular infiltration and infiltration of the adventitial wall. The exact origin of the infiltrating cells was in doubt. The most striking phenomena was the marked edema of the white and gray matter. In the latter there were foci of mononuclear and polymorphonuclear cells. These were apparently not identical with the polymorphonuclear leucocytes, for they had no neutrophite granules, but were probably cells of the wandering type. The ganglia in the gray matter of the cord showed various stages of degeneration. The disease was not a localized process in the cord, but was a general involvement of both cord and brain. This was shown clinically in the early stages by the pain, hyperesthesia, arthralgia, rigidity of the neck, and other manifestations, simulating a true meningitis, but in reality due to an infiltration of the pia, of the white, and grey matter, and to the pressure upon the sensory and motor ganglia. The areas of infiltration were quite distinct in the pons and in the basal ganglia. The extensive paralysis that occurred in the early stage of poliomyelitis was the result of the widespread edema and transudation in the cord. The residual paralysis was the result of the degeneration of the cells in the anterior horns, and in the grey matter chiefly at the base of the brain, from pressure necrosis.

One year ago the speaker had inoculated various laboratory animals, such as mice, guinea-pigs, and rabbits, with an emulsion made from the spinal cord of a fatal case of poliomyelitis. A guinea-pig thus inoculated developed paralysis of the hind legs and died. There were found on autopsy extensive hemorrhages of the cervical region of the cord. Langstein and Popper of Vienna had been the first to inoculate monkeys and other animals by means of interperitoneal injections of emulsions of spinal cord from a fatal case of poliomyelitis. Only two monkeys had shown any effect of the inoculation; one had become severely ill in the sixth day, and had died two days later, and the other had become paralyzed in the posterior limbs on the seventeenth day and had been killed two days later. In both animals the spinal cord had shown the lesions typical of poliomyelitis, but none of the other organs had shown any changes. Efforts to inoculate other monkeys with material from these animals had failed. The speaker had plated the cerebrospinal fluid obtained from various cases of poliomyelitis upon different culture media, without obtaining any cultures. A monkey was inoculated intraperitoneally with the blood from a case of poliomyelitis; this monkey survived with no untoward effects. An emulsion of cord from a case of poliomyelitis inoculated upon a sugar medium produced three colonies of a gram negative organism that had not yet been described. One of the monkeys inoculated developed an acute endocarditis, but none of the lesions of poliomyelitis. It appeared as if the latter disease invaded the system through blood and lymph channels. It did not leave any part of the cord uninvolved. It was possible that the pia mater was involved secondarily. The speaker believed that the cerebrospinal fluid did not contain the virus nor did the blood. The only thing that held the virus was the central nervous system. The virus was probably not a bacillus, else it would have been stained by one of the numerous stains employed. The histological lesions of poliomyelitis were strikingly like those of rabies. In both the ganglion cells were affected. In both there were similar lesions in the ganglia on the posterior nerve roots. Both were transmitted by means of material from the cord. From the curative viewpoint it was evident that one was confronted by a difficult proposition, for the pathological anatomy showed that the spread of the infection might be stayed, but not the original onslaught, whose damaging effects could not be foreseen or prevented. If a specific vaccine could be discovered, nothing short of universal vaccination would suffice to combat the disease.

The Symptomatology and Diagnosis of Acute Poliomyelitis.—Dr. W. P. Northrup of Manhattan read this paper. He said that the form of the disease seen in the present epidemic had features different from those seen in previous epidemics. He cited a few cases to illustrate the symptomatology. Little J. F. after witnessing the Hudson-Fulton parade was taken home, feeling tired and ill. One and a half days later he vomited, had fever, and aches in his muscles. He was sick for two days with symptoms suggestive of ptomaine poisoning. Following this he had retention of urine, and paralysis of both legs. Another case was admitted at the Presbyterian Hospital presenting similarly retention of urine; 15 oz. of the latter had been drawn off by catheter. In this case there was also paralysis of both legs. Another case cited was that of paralysis of the soft palate, as one of the symptoms of a polioencephalitis. The pathological process in poliomyelitis was a diffuse one; the disease was really a form of myelitis, affecting sensation, motion, the bladder, the rectum, the limbs, etc. A photograph was presented showing a "bulging-belly" child, in which there was an apparent abdominal hernia due to paralysis of the abdominal muscles. The diagnosis of the disease was next discussed. In the presence of an epidemic one was to suspect any case that began like a sharp attack of indigestion or of meningitis. With such an onset one was to have in mind pneumonia, acute cerebrospinal meningitis, tuberculous meningitis, and acute indigestion. The occurrence of paralysis settled the diagnosis. As regards the treatment of the disease, one had to consider that it was like a lightning stroke, and that there was no way of stopping it. Lumbar punctures repeated were worth while provided that at the first puncture the cerebrospinal fluid was found under pressure.

The After-Treatment of Acute Poliomyelitis.—Dr. Reginald Hall Sayre of Manhattan said that the after-treatment included internal medication, electricity, manipulation, and mechanical treatment. Internal medication included chiefly the use of strychnine. Hypodermatic injection had no advantage over the use of strychnine by mouth. The good results in the former case had been due rather to the large doses employed. It was desirable to administer the strychnine in increasing doses up to the full physiological effect. Electricity was of great use. It was quite comforting to the patient; the limbs became less blue and cold. In many cases considerable improvement followed its use. Interrupted galvanism and finally interrupted faradism were to be used. The smallest dose capable of causing the reaction was to be given, but not enough to cause pain. Manipulation was essential in the after treatment. Massage was to be given. It was no longer true that the presence of the reaction of degeneration made after treatment futile. Cases had been seen in which the reaction of degeneration was present, and in which recovery had occurred. Cases that seemed absolutely hopeless still had a chance to get better. Improvement was to be expected in many cases as long as two years after the initial attack. Unless stimulation was kept up for a long time, one was apt to be disappointed. It was extremely important that the body weight should be borne in a normal manner. It was desirable to put on the paralyzed limb a brace with a limited-motion joint; the lighter the apparatus the better. Surgery was often necessary. For talipes, if necessary, a tenotomy was to be done. The open operation was not required. Non-union of the cut ends of the tendon frequently resulted from too tight a bandage. Transplantation of tendons was frequently a valuable procedure.

Pathological Society of Philadelphia.

At a stated meeting held December 9 Dr. James E. Talley presented a specimen of "Ulcer of the Cardia." The patient was a man 34 years old with marked arteriosclerosis who was seized with symptoms of shock in conjunction with hematemesis, enterorrhagia, and severe abdominal pain, and terminating fatally. On post-mortem examination an ulcer was found at the cardiac extremity of the stomach, and in the depths of which was a ruptured sclerottic artery. Dr. H. S. Wieder presented "Two Ovarian Dermoid Cysts." One was of ordinary size and of the usual type, with sebaceous contents, together with hair and a bony formation resembling a scapula. The other occurred in connection with an ovarian cyst, and was of immense proportion. Drs. T. H. Weisenberg and Joseph McFarland presented a "Cerebellopontine Tumor." The patient was a man who had been treated by repeated operation and otherwise for several years for tic douloureux. Drs. David Riesman and A. G. Ellis presented a communication upon "Cases of Toxemic Jaundice." They reported several cases in men employed in an establishment for the manufacture of articles made from bone who presented jaundice with fever and other symptoms, but without the physical signs, of acute yellow atrophy of the liver. Dr. A. G. Ellis read a paper entitled "The Occurrence of Eosinophile Cells in the Respiratory Tract." Dr. Samuel Stern read a paper entitled "The Value of the Noguchi Butyric Acid Reaction

in Syphilitic and Parasyphilitic Affections." His observations led to the conclusion that a negative response is of more value than a positive one. Dr. Leo Loeb read a paper entitled "The Cell-granule in Their Relation to Functional Conditions in the Protoplasm." Drs. Herbert Fox and C. Y. White presented a communication entitled "Tumors in the Lower Animals" in which they recorded the cases in which new-growths were observed in animals dying at the Philadelphia Zoological Gardens.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Visiting Nurses in the United States. By Yssabella Waters. 8vo; cloth; 367 pages; $1.25. Charities Publication Committee, New York.

Pulmonary Turerculosis. By C. Muthu, M.D., M.R.S.C., L.R.C.P. 8vo; cloth; 201 pages; illustrated; 3s. 6d. net. Baillière, Tindall & Cox, London, England.

Die Gemütsbewegungen. Von Dr. C. Lange. 8vo; paper; 94 pages; 1.80 marks. Curt Kabitzsch, Würzburg, Germany.

Compendium der Operationslehre. Von Sonnenburg und Müksam. 8vo; cloth; 446 pages; illustrated; 9 marks. August Hirschwald, Berlin, Germany.

Skin and Venereal Diseases. 12mo; cloth; 240 pages; illustrated; series (10 vols.), $10; separately, $1.25. The Year Book Publishers, Chicago, Ill.

Anleitung zur Diagnostik der Abdominaltumoren. Von Prof. Dr. G. L. Sacconaghi. 4to; paper; 418 pages; illustrated; 12 marks. S. Karger, Berlin, Germany.

Die Epilepsie im Kindesalter. Von Prof. Dr. Med. Heinrich Vogt. 8vo; paper; 225 pages; 5 marks. S. Karger, Berlin.

Progressive Medicine. Edited by Hobart Amory Hare, M.D. 8vo; paper; 334 pages; illustrated; $6.00 per annum. Lea & Febiger, New York.

Forty-fifth Annual Report of the Trustees of the Boston City Hospital, for the forty-fifth year, February 1, 1908, to January 30, 1909, inclusive. City of Boston Printing Department, 1909.

The American Society of Tropical Medicine. Papers read before the society and published under its auspices. Vol. 4, 1909.

Practice of Medicine. By James W. Anders, M.D., Ph.D., LL.D. 8vo; cloth; 1,326 pages; illustrated; $5.50 net. W. B. Saunders Co., Philadelphia, Pa.

Practice of Gynecology. By W. Easterly Ashton, M.D., LL.D. 8vo; cloth; 1,009 pages; illustrated; $6.50 net. W. B. Saunders Co., Philadelphia, Pa.

Textbook upon the Pathogenic Bacteria. By Joseph McFarland, M.D. 8vo; cloth; 709 pages; illustrated; $3.50 net. W. B. Saunders Co., Philadelphia, Pa.

Textbook of Physiology. By William H. Howell, Ph.D. 8vo; cloth; 999 pages; $4.00 net; illustrated. W. B. Saunders Co., Philadelphia, Pa.

Dosebook and Manual of Prescription Writing. By E. Q. Thornton, M.D. 12mo; 410 pages; illustrated; leather; $2.00 net. W. B. Saunders Co., Philadelphia, Pa.

A Manual of Histology and Organography. By Charles Hill, Ph. D., M.D. 12mo; leather; 468 pages; illustrated; $2.00 net. W. B. Saunders Co., Philadelphia, Pa.

Keen's Surgery. Edited by William Williams Keen, M.D., LL. D. 8vo; cloth; 1,274 pages; illustrated; $7.00 net. W. B. Saunders Co., Philadelphia, Pa.

Index du Progrès Médical. 8vo; cloth; 1,016 pages. Le Progrès Medical, Paris, France.

Die Gonorrhoe des Mannes und ihre Komplikationen. Von San.-Rat. Dr. Hans Wossidlo. 8vo; paper; 337 pages; illustrated. Georg Thieme, Leipzig, Germany.

Internationale Beiträge zur Pathologie und Therapie der Ernährungsstörungen. Von A. Bickle. 8vo; paper; 127 pages; illustrated. August Hirschwald, Berlin, Germany.

Die Massage und ihre Wissenschaftliche Begründung. Von Sanitätsrat Dr. Med. Carl Rosenthal. 8vo; paper; 144 pages; 3 marks 60 pfennigs. August Hirschwald, Berlin, Germany.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of January 1, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	380	150
Diphtheria	286	43
Measles	514	15
Scarlet Fever	375	28
Smallpox	—	—
Varicella	84	—
Typhoid Fever	21	9
Whooping Cough	17	5
Cerebrospinal Meningitis	3	6
Malarial Fever	—	—
Totals	1,680	256

Intrapleural Injection of Sterlized Air in Pleurisy with Large Amount of Effusion.—A. Borgherini states that it is necessary in cases of large effusions into the pleural cavity to be very cautious in attempting to remove the fluid, and to remove only a portion at a time, lest we have serious consequences. When we combine with thoracentesis the injection into the pleural cavity of sterilized air the operation is no longer dangerous, and may be carried out at one sitting, all the fluid being removed at once. The air is sterilized and desiccated by passing it through a solution of permanganate of potash and caustic soda. In no case has it been necessary to repeat the operative procedure for reappearance of the fluid. The action of the air is mechanical. It lessens the weight of the thoracic contents, and aids the act of respiration. It prevents a too rapid expansion of the compressed lung, lessening congestion and edema of the lung, which may cause severe hemorrhage. In cases in which the lung does not expand it lessens the pressure of the other organs on the diseased side of the thorax and preserves the position of the mediastinal organs.—*La Riforma Medica.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended December 31, 1909:

		Cases	Deaths
SMALLPOX—UNITED STATES.			
Alabama, Mobile	Dec. 4–11	1	..
Montgomery	Dec. 4–11	10	..
Florida, Jacksonville	Dec. 4–11	1	..
Indiana, Muncie	Dec. 4–11	2	..
South Bend	Dec. 4–11	1	..
Kentucky, Lexington	Dec. 7–14	2	..
Tennessee, Knoxville	Dec. 11–18	1	..
Nashville	Nov. 13–20	2	..
Wisconsin, La Crosse	Dec. 4–11	5	..
Milwaukee	Dec. 4–11	1	..
Superior	Dec. 4–11	2	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	Oct. 30–Nov. 6	1	..
SMALLPOX—FOREIGN.			
Canada, Halifax	Dec. 4–11	1	..
France, Paris	Nov. 27–Dec. 4	4	..
Great Britain, London	Nov. 20–27	4	..
Italy, Naples	Nov. 27–Dec. 5	6	2
Mexico, Aguascalientes	Dec. 4–11	..	2
Mexico City	Nov. 6–13	..	1
Monterey	Dec. 5–12	..	1
Newfoundland, St. Johns	Dec. 4–11	3	..
Portugal, Lisbon	Nov. 27–Dec. 4	3	..
Russia, Libau	Nov. 21–Dec. 5	4	1
Moscow	Nov. 13–20	4	2
Riga	Nov. 20–Dec. 4	22	..
Warsaw	Sept. 25–Oct. 23	..	39
Spain, Barcelona	Nov. 20–Dec. 6	..	2
Madrid	Nov. 1–30	..	96
Seville	Nov. 1–30	..	1
Turkey, Constantinople	Nov. 21–28	..	1
Smyrna	Oct. 15–Nov. 4	..	50
Valencia	Nov. 15–Dec. 4	2	..
YELLOW FEVER.			
Ecuador, Guayaquil	Nov. 13–27	..	12
Venezuela, Caracas	Nov. 22–25	2	..
CHOLERA—INSULAR.			
Philippine Islands, Manila	Oct. 30–Nov. 6	11	10
Provinces	Oct. 30–Nov. 6	160	121
CHOLERA.			
India, Rangoon	Nov. 6–13	..	10
Java, Batavia	Nov. 6–13	218	26
Russia, general	Nov. 14–20	85	39
St. Petersburg	Nov. 14–20	31	5
Sumatra, Palembang	Nov. 6	..	Present
PLAGUE.			
Ecuador, Guayaquil	Nov. 13–27	..	39
India, general	Nov. 6–13	5,002	3,901
Rangoon	Nov. 6–13	..	1
Japan, Kobe	To Nov. 30	244	..

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Original Articles.

OBSERVATIONS ON PELLAGRA AT THE PEORIA STATE HOSPITAL, PEORIA, ILL.*

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AND

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SUMMARY OF HEADINGS.—I. The Peoria State Hospital: (*a*) Description, (*b*) Character of Patients.
II. Pellagra at the Peoria State Hospital: (*a*) Recognition and Extent of the Disease, (*b*) Occurrence in Previous Years, (*c*) General Data.
III. Clinical Picture of Pellagra: (*a*) Cutaneous Symptoms, (*b*) Digestive Tract Symptoms, (*c*) Nervous and Mental Symptoms.
IV. Treatment and Mortality.
V. Pathology of Pellagra: (*a*) Laboratory Examinations, (*b*) Autopsies.
VI. Epidemiology: (*a*) The Question of Infection, (*b*) The Question of Intoxication.
VII. Summary.

I. The Peoria State Hospital.—A thorough comprehension of the pellagra problem at the Peoria State Hospital necessitates a brief statement concerning the general character of the institution and its patients. The institution is located about five miles from Peoria on a plateau overlooking the valley of the Illinois River. It is constructed on the cottage plan, the first floor of each cottage being used as a general sitting room, with bedrooms on the second floor, and dining rooms in basement. There are two hospitals, male and female, to which patients are transferred when sick or disturbed. The cottages vary in size, accommodating from 50 to 150 patients. The institution grounds are not inclosed by wall or fence, their limits being imaginary lines. In none of the cottages are the windows barred. All inmates, with the exception of those cases known to be escapes, are allowed the freedom of the cottages and grounds, and the consequent exposure to sunlight during the summer is practically unlimited. This fact may, in part, explain the striking development of the pellagrous erythema.

For the care of its insane, the State of Illinois is geographically divided into districts, each district having its insane asylum. The rapid increase in the population with consequent proportionate increase in insanity, so overtaxed these institutions as to necessitate the transfer of the hopeless, incurable cases to the various almshouses throughout the State. To relieve the overcrowding and correct these deplorable conditions, the institution at Peoria was established in 1902, its official designation being, The Asylum for the Incurable Insane. The first 500 inmates of the Peoria State Hospital were drawn from other institutions throughout the State and were made up of the hopeless, untidy, incurable class.

In 1904 the capacity of the institution was greatly increased and the almshouses throughout the State were relieved of their old hopeless, incurable cases of insanity, by the transfer of such patients to the Peoria institution. Only within the past two years have acute cases been committed directly to the institution, and the majority of the patients belong to the chronic, incurable class. The following statistics show the growth of the institution: June 30, 1902, 622; 1903, 698; 1904, 762; 1905, 1,449; 1906, 1,729; 1907, 2,008; 1908, 2,021; 1909, 2,150. The patients are drawn from 102 counties throughout the State.

In 1908 the average age was 47 and the average age of those who died was 57. The death rate in 1903 was 3 1-5 per cent.; 1904, 6 1-3 per cent.; 1906, 10 per cent; 1908, 15 per cent. This marked increase in death rate is accounted for, in part, by old age; it is altogether probable, however, that the appearance of pellagra among the inmates has had some bearing on the increase in cases diagnosed as general paralysis of the insane; this increase being shown as follows: 1903, 0; 1904, 3; 1905, 30; 1906, 55: 1907, 47; 1908, 65. It is quite probable that

*As the result of a request from Dr. George A. Zeller, Superintendent Peoria State Hospital, and Dr. James A. Egan, Secretary of the State Board of Health of Illinois, to the Surgeon-General, U. S. Army, the writers received orders from the War Department, in the latter part of August, 1909, to proceed to Peoria, Illinois, for the purpose of studying pellagra, which had made its appearance among the inmates of the Peoria State Hospital. Soon after our arrival the State Health authorities also secured the services of Dr. W. H. Buhlig of Chicago, and a study of the disease, continuing for more than a month, was made in conjunction with the State Health authorities and the members of the medical staff of the institution.

The work was apportioned among the working party as follows: under the supervision of Dr. Buhlig, Mr. Holmes of Dr. Buhlig's Laboratory took up the examination of urine, differential white cell counts, gram stains of feces and certain cultural work; Dr. George Michell of the medical staff studied and tabulated the skin lesions and digestive tract symptoms; Dr. E. Z. Levitin of the medical staff took up the mental and physical condition of the male patients; Dr. C. R. Bell, the mental and physical condition of the female patients; to Dr. R. F. Winsor was assigned the blood counts, hemoglobin estimation, and assistance in autopsy work; Dr. Welton of Peoria made a study of the eye changes; D. H. Baldwin, D.D.S., of Peoria made a dental examination. The writers took general charge of a clinical study and a study of epidemiology.

The writers desire to take this occasion to express to Dr. Zeller, Superintendent, their thanks for his most hearty cooperation, his uniform courtesy, and for innumerable personal favors. We are also indebted to Dr. James A. Egan, Secretary State Board of Health of Illinois, for his active cooperation. We are under many obligations to the members of the medical staff of the institution, and desire to perticularly express our thanks to Dr. Michell, Dr. Watkins, Dr. Levitin, Dr. Bell, and Dr. Winsor for their enthusiastic and active assistance.

This report will also be published in the Bulletin of the Illinois State Board of Health.

many of these cases were pellagrous in character. The patients making up the population of the institution may well be designated as dregs and wrecks of humanity, and it is not to be wondered at that if pellagra is to be found in Illinois it should make its appearance among the inmates of this institution. Only a small number of cases have been reported from other State institutions.

II. Pellagra at the Peoria State Hospital.—Early in August Dr. F. J. Griffin, of the medical staff of the institution, reported to the superintendent, Dr. Zeller, a case showing symptoms of the disease, and after examination by Dr. Zeller and the medical staff a diagnosis of pellagra was made. A superficial examination of the inmates of the institution by Dr. Zeller revealed the fact that many patients presented the clinical picture of pellagra. The diagnosis of pellagra was confirmed a few days later by Dr. C. H. Lavinder of the Public Health and Marine Hospital Service. After becoming convinced of the actual presence of the disease, Dr. Zeller brought the subject to public attention and has been very active in arousing interest in the subject. He has been elected Secretary of the National Association for the Study of Pellagra, the next meeting of which will be held at his institution.

On August 23 a thorough examination of the inmates was undertaken by the writers, with the result that 66 inmates were found who presented the clinical picture of an acute attack of pellagra, while 150 additional patients were classified as atypical or suspicious. Cases presenting typical symptoms rapidly increased in number, and it could conservatively be stated that during our stay in Peoria we had seen more than 125 cases of undoubted pellagra. As the disease was not recognized as such until August 10, in the midst of the period of acute exacerbation, no accurate statistics are available as to the extent of the disease prior to this date. The medical officers in charge of the hospitals of the institution, after a study of the clinical records and death reports, stated that, in their opinion, between May 1 and August 10, 26 deaths occurred in the hospitals from this disease. Cases have continued to appear since our departure. It may conservatively be stated that at least 175 of the patients showed evidence of pellagra during the past summer. A series of one hundred cases were selected for detailed study, and the statistical tables included in this report are based on this number.

There is overwhelming evidence establishing the fact that pellagra has been prevalent in the institution for at least three or four years. Among the file copies of letters written by the superintendent to relatives and friends of inmates who died, several referred particularly to the appearance of sunburns on the backs of the patients' hands, attributing these burns to excessive exposure to fresh air and sunlight. Coroners' inquests have been held on patients who were thought to have incurred severe scalds of the feet by reason of carelessness on the part of attendants. Attendants have been dismissed for allowing inmates under their charge to become badly scalded on the feet and legs, presumably during baths. Early in the spring of this year the superintendent, in a lecture to the nurses, stated that sunburns on the backs of the hands had been altogether too common during the past summer and their recurrence during the summer of 1909 would not be tolerated. It is now realized that a large proportion of these cases were not ones of severe sunburns and scalds, but were cases of pellagra. The members of the medical staff, and nurses who had been connected with the institution for several years were questioned concerning the appearance of the symptoms of pellagra during previous years. The fact was easily established that 72 per cent. of pel-

TABLE NO. 1.—AGE, DURATION OF INSANITY, ETC.

Case No.	Age	Previous Attacks of Disease	Duration of Insanity	Years in Peoria	Other Disease
1	67	2	33	2	.....
2	48	2	2.5	2.5	Tuberculosis
3	30	2	8	3	Epilepsy
4	60	1	4	1	.....
5	69	2	21	2	.....
6	47	0	32	7	.....
7	54	2	18	7.5	.....
8	39	1	11	7	.....
9	68	0	25	1	Tuberculosis.
10	41	2	16	4.5	.....
11	45	2	13	5	.....
12	48	0	4	3.5	Heart disease.
13	56	2	18	4.5	.....
14	46	..	13	5	.....
15	64	2	9	2	Heart disease, Epileptic.
16	51	..	11	5	Tuberculosis.
17	57	1	1	1	Dysentery.
18	39	3	19	7.5	.....
19	50	..	19	7	.....
20	46	0	19	5	.....
21	54	..	25	5	.....
22	25	3	..	5	.....
23	51	..	1	5	Heart disease.
24	85	2	9	5	.....
25	49	3	18	4	.....
26	56	0	29	7	Tuberculosis.
27	43	2	17	7	.....
28	64	3	16	5	.....
29	52	2	13	7	Trichinosis.
30	64	..	4	3	Heart disease.
31	43	2	6	4	.....
32	63	1	27	1.5	Epilepsy.
33	47	..	11	7	.....
34	69	3	19	5	.....
35	22	0	2	5	.....
36	37	3	20	3	Tuberculosis.
37	37	1	19	7	Epilepsy.
38	57	2	..	2	.....
39	36	2	5	3	.....
40	82	3	..	7	.....
41	47	0	23	5	Epilepsy.
42	40	..	21	5	Heart disease.
43	57	2	25	5	.....
44	57	2	25	7.5	Heart disease.
45	55	3	16	5	.....
46	42	2	..	3	.....
47	59	0	11	7	.....
48	42	2	..	3.5	Epilepsy.
49	38	0	5	5	.....
50	54	1	28	2	.....
51	60	2	..	5	Epilepsy.
52	50	0	1	1	.....
53	70	2	..	7	.....
54	47	1	7	2	.....
55	53	0	1	5	Paresis.
56	63	1	..	1	Dropsy.
57	33	..	14	7	.....
58	42	3	21	7.5	Epilepsy.
59	37	2	..	5	.....
60	49	1	16	3	.....
61	68	2	28	3	.....
62	67	0	11	7.5	Heart disease.
63	24	2	24	3.5	.....
64	53	1	17	5	Heart disease, Tuberculosis.
65	40	3	10	7.5	.....
66	55	0	33	5	.....
67	49	0	25	4.5	.....
68	58	0	32	.5	.....
69	50	3	19	5	.....
70	59	0	15	7.5	.....
71	36	0	17	1	.....
72	41	0	3	.5	.....
73	51	..	7	.5	.....
74	32	0	1	.5	.....
75	30	1	7.5	7	.....
76	41	1	4	3	Heart disease.
77	51	2	15	5	.....
78	76	0	9	4	.....
79	63	3	14	4	.....
80	56	1	53	4.5	Epilepsy.
81	66	0	20	1	.....
82	29	2	..	3.5	Tuberculosis.
83	38	1	2	2	Paresis
84	48	0	17	7	.....
85	40	0	23	5	.....
86	43	2	7	3	Heart disease.
87	34	0	5	2	.....
88	37	2	12	2	.....
89	42	3	25	7	.....
90	51	2	8	2	Epilepsy.
91	73	0	..	7	.....
92	55	2	..	5	Epilepsy.
93	22	3	4	3.5	.....
94	32	0	32	2	Tuberculosis.
95	61	2	5	5	Heart disease.
96	49	3	32	5	.....
97	42	0	23	2	.....
98	30	2	6	3.5	Epilepsy.
99	51	3	11	5	.....
100	59	..	2	2	.....

lagrous patients had suffered from previous attacks, these acute attacks being recalled by two, three, four and occasionally five and six different medical officers and nurses.

As will be seen in Table No. 1, the average number of previous attacks was two. Of those suffering from previous attacks, 25 per cent. gave history of three previous attacks, 52 per cent. gave history of two previous attacks, and 23 per cent. gave history of one previous attack.

Sex.—Of the cases included in this study, 44 were males; 56 females. The male and female inmates of the institution were about equal in number, and it is believed that pellagra affects both sexes in about the same proportion. This finding is at variance with the experience in the asylums in the Southern States.

Occupation.—A large proportion of these cases had been insane for many years, and in many instances, incomplete records had been forwarded to the institution with them. Of cases showing records of previous occupation, 29 were housewives, 13 were farmers, 15 were laborers, 1 was a photographer, and 1 was a clerk.

Age of Pellagrous Patients.—As will be seen in Table No. 1, the youngest patient was 22; the oldest 85; the average age being 50 years. 57 per cent. of the cases were between 40 and 59 years of age. The distribution as to age decades was as follows: From 20 to 29, 4 cases; 30 to 39, 18; 40 to 49, 28; 50 to 59, 29; 60 to 69, 16; 70 to 79, 3; 80 to 89, 2.

Social Conditions.—Circular letters were forwarded to friends and relatives of these patients for the purpose of collecting, if possible, data relative to social status; institutional life; the use of corn products as an article of diet, and any possible facts which might indicate the appearance of the disease before commitment to institutions. Forty replies were received and the statements of possible interest were: (1) A large proportion of the patients had been asylum and almshouse inmates for many years; (2) In only a small percentage of cases had corn products been used as an article of diet, prior to commitment to institution, and in no case had corn products continuously been used; (3) With two or three exceptions these patients had been extremely poor and their sanitary surroundings in their home life had been bad; (4) In cases Nos. 28 and 59 it had been noted that the backs of the hands showed "salt rheum" and "sunburns" during the summer months.

Accompanying Organic Disease.—Inasmuch as Neusser attributes great importance to a sickly condition of the patient as a predisposing factor in pellagra, an investigation of concurrent diseases was made. 36 per cent. of the cases showed organic disease other than pellagra, exclusive of amebic dysentery. Amebic dysentery, though present in a large percentage of the cases (Table No. 2), had not been definitely recognized as such. Among organic diseases noted were: 12 cases epilepsy; 8, pulmonary tuberculosis; 12, organic heart disease. These diseases occurred in pellagrous patients in about the same proportion as was noted in the general population of the institution.

III. Clinical Picture of Pellagra.—In studying the literature on pellagra, one is struck by the fact that the symptomatology of the disease is an amazingly variable and changeable one. Many of the symptoms termed as characteristic of pellagra are by no means characteristic of this disease alone, but are of common occurrence in other diseased conditions. The symptom-complex is said to vary in different sections and at different seasons, and this variation, as noted in the literature of the disease is, in some instances, so striking and contradictory as to lead one to question the statement that pellagra is a disease entity.

In studying the cases at Peoria, an effort was made to determine as to whether or not any constant symptoms were present, which might be relied on in all cases for diagnostic and prognostic purposes. In considering the cases at Peoria, it must be remembered that the cases were limited to the insane, and, with few exceptons, it was manifestly impossible to place any reliance on subjective symptoms. Under these circumstances, in attempting to arrive at any definite conclusions, objective symptoms only were worthy of study.

European observers, in their clinical descriptions of pellagra, state that there are three cardinal groups of symptoms:

(1) Erythema; (2) digestive tract symptoms; (3) nervous and mental symptoms. In these cases, a study of the erythema, digestive tract symptoms, and, to some extent, the nervous symptoms, was possible.

The clinical picture of the disease showed such wide variation as to warrant a division of the cases into at least two types. These types may be designated as (1) mild attacks (probably of recent origin); (2) severe attacks (probably chronic in character and of several years' duration).

Mild Attacks.—The patients suffering from mild attacks included those in which an erythema was noted, involvement of the mouth was slight or absent, and diarrhea, if present, was of no consequence and of short duration. In these patients constitutional symptoms were absent and the patients were apparently perfectly well, except for the cutaneous lesions.

Severe Attacks.—In patients suffering from severe attacks the clinical picture was altogether different. The erythema frequently ended in bleb formation, the inflammatory reaction involving the tongue and buccal mucosa was intense, the diarrhea was severe and persistent, and dysenteric stools were frequently noted. Constitutional sysmptoms were the most striking feature of these cases. The picture was one of a prefound toxemia and physical failure was rapid and progressive. In some cases the toxemia was so severe as to change a picture of health to one of death within the course of a week.

The acute typhoidal type of the disease, referred to by some authorities, was not observed among these cases. While some cases presented the symptoms attributed to the acute typhoidal attacks, an investigation into their previous history showed that they had suffered from acute exacerbations during previous years and this warranted their inclusion among those cases suffering from severe or chronic attacks.

Cutaneous Symptoms.—No cases were included except those showing skin symptoms. Our conception of the disease in this country, at the present time, is a somewhat hazy one, and it is believed that the diagnosis of pellagra is unwarranted in the absence of skin symptoms. Among the cases at Peoria the skin lesions first appeared on the dorsum of both hands as bright red erythematous areas, irregular in outline, and varying as to size. The color of the skin over affected areas would grad-

ually assume a darker shade and after a few days a characteristic purplish, dusky red color would be in evidence. Occasionally the skin lesions would show a dark, greenish-bronze cast. The line of demarcation between affected and healthy skin was usually distinct and sharply outlined. After about ten days the color would begin to fade and desquamation of the epidermis would occur. Desquamation began over the area first affected and the squamæ were usually thin, fine, and bran-like. Desquamation was, as a rule, complete within a month after first appearance of the lesion. After complete desquamation the skin was smooth, soft, and pinkish in color, a distinct line of partially desquamated epithelium being noticeable around the edges, showing plainly the extent of the lesion.

In 36 per cent. of the cases the erythema appeared also on the forearms, usually involving the dorsal surface only. An erythema was occasionally noted on the front of the forearm, usually the radial aspect, and in some instances the erythema completely encircled the wrist in the form of a cuff. The extent of area involved seemed to have no bearing on prognosis. The effect of direct sunlight in bringing out the erythema was beautifully demonstrated in Case No. 100. This patient was admitted to hospital during the desquamative stage, and it was noted that during the summer it had been his custom to wear around both wrists bands of cotton cloth about one-half-inch wide, snugly fitting and incapable of removal except by cutting. When these wristlets were removed it was noted that the area of the skin covered by them was normal, while immediately above and immediately below these bands of healthy skin, active desquamation was taking place. In 17 per cent. of the cases, erythematous areas appeared on other portions of the body, their usual location being the face and neck. Occasionally blotches, resembling hemorrhages underneath the skin, reddish brown in color, appeared on the upper and lower lids encircling the eyes. Desquamation of these areas appeared to be very slight. In two cases erythematous areas were noted on the legs, but in no case was it observed on the dorsum of the feet.

The skin lesions were not noted on the palmar surface of the hands, except by occasional slight extension from the dorsum over the thenar eminence. In a few of the more severe cases, the vulva showed marked excoriation and irritation, but as the lesions could be attributed to other causes, they were not classed as distinctly pellagrous. Vaginitis was noted in a few cases only.

Symmetry.—The most striking feature of the skin lesions was the symmetry, which was noted on the neck and face as well as the hands and forearms. Perfect symmetry in the lesions on both sides of the body, as to location and extent, was noted in 97 cases of the 100.

Bleb Formation.—In 10 per cent. of the cases at Peoria, bleb formation was associated with the erythema. In some cases vesicles only were noted, while in others the vesicles became confluent, forming one large bleb. Bleb formation occurred only in cases showing severe constitutional effects, and bore an important relation to prognosis. Death occurred in 66 per cent. of the cases showing blebs. Edema of the hands was noted in several cases, more particularly those showing blebs. Pain on pressure was noted in one or two cases only, but the general insensibility to pain among the insane renders this observation of no value as a negative finding. In some cases a recrudescence of the erythema occurred.

It occasionally happened that the erythema appeared on one hand before the other became ex-

TABLE NO. 2.—SKIN AND DIGESTIVE TRACT SYMPTOMS.

	Skin					Digestive Tract		
Case No.	Hands	Hands and Forearms	Other Parts of Body	Bleb Formation	Symmetrical	Mouth	Diarrhea	Clinical Dysentery
1	Yer	No	No	Yes	Yes	Yes	Yes	No
2	Yes	No	No	No	Yes	Yes	Yes	Yes
3	Yes	No	No	No	No	Yes	No	No
4	Yes	No	Yes	No	Yes	Yes	Yes	No
5	Yes	Yes	No	No	Yes	Yes	Yes	No
6	Yes	No	No	No	Yes	Yes	Yes	No
7	Yes	No	No	No	Yes	Yes	Yes	No
8	Yes	Yes	No	Yes	Yes	Yes	Yes	No
9	Yes	Yes	Yes	No	Yes	Yes	Yes	No
10	Yes	Yes	No	No	Yes	Yes	Yes	No
11	Yes	No	No	No	Yes	No	Yes	No
12	Yes	No	No	No	Yes	Yes	Yes	No
13	Yes	No	No	No	Yes	Yes	No	No
14	Yes	Yes	Yes	Yes	Yes	Yes	No	No
15	Yes	Yes	No	No	Yes	No	Yes	No
16	Yes	Yes	No	No	Yes	Yes	Yes	Yes
17	Yes	No	No	No	Yes	Yes	Yes	No
18	Yes	No	No	No	Yes	Yes	Yes	Yes
19	Yes	No	No	No	Yes	Yes	Yes	No
20	Yes	No	No	No	Yes	Yes	Yes	No
21	Yes	No	No	No	Yes	Yes	Yes	No
22	Yes	Yes	Yes	No	Yes	Yes	Yes	No
23	Yes	No	No	No	Yes	No	No	No
24	Yes	Yes	No	No	Yes	No	Yes	No
25	Yes	Yes	No	No	Yes	Yes	Yes	No
26	Yes	No	Yes	No	Yes	Yes	Yes	No
27	Yes	Yes	No	No	Yes	No	Yes	No
28	Yes	Yes	Yes	No	Yes	Yes	Yes	No
29	Yes	Yes	Yes	No	Yes	Yes	Yes	No
30	Yes	Yes	No	No	Yes	No	No	No
31	Yes	Yes	No	No	Yes	No	Yes	No
32	Yes	No	No	No	Yes	Yes	Yes	No
33	Yes	Yes	No	No	Yes	Yes	No	No
34	Yes	No	No	No	Yes	Yes	Yes	No
35	Yes	Yes	No	No	Yes	Yes	Yes	Yes
36	Yes	No	No	No	Yes	Yes	Yes	Yes
37	Yes	No	No	Yes	Yes	Yes	Yes	No
38	Yes	No	No	No	Yes	No	Yes	Yes
39	Yes	Yes	Yes	No	Yes	No	No	No
40	Yes	No	No	Yes	Yes	Yes	Yes	No
41	Yes	Yes	No	No	Yes	Yes	Yes	No
42	Yes	No	No	No	Yes	No	Yes	Yes
43	Yes	No	No	No	Yes	Yes	Yes	No
44	Yes	No	No	No	Yes	Yes	Yes	No
45	Yes	No	No	No	Yes	Yes	Yes	Yes
46	Yes	Yes	No	No	Yes	No	Yes	No
47	Yes	No	No	No	Yes	Yes	Yes	Yes
48	Yes	No	No	No	Yes	Yes	Yes	No
49	Yes	Yes	Yes	No	Yes	Yes	Yes	No
50	Yes	Yes	No	No	Yes	No	Yes	No
51	Yes	Yes	Yes	No	Yes	No	Yes	No
52	Yes	Yes	No	No	Yes	Yes	Yes	No
53	Yes	Yes	Yes	Yes	Yes	Yse	Yes	Yes
54	Yes	No	No	No	Yes	Yes	Yes	Yes
55	Yes	Yes	No	No	Yes	No	Yes	No
56	Yes	No	No	No	Yes	Yes	No	No
57	Yes	No	No	No	Yes	No	Yes	No
58	Yes	No	No	No	Yes	Yes	Yes	No
59	Yes	No	No	No	Yes	No	Yes	No
60	Yes	No	No	No	Yes	Yes	Yes	No
61	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
62	Yes	No	No	No	Yes	No	Yes	No
63	Yes	No	Yes	No	Yes	Yes	Yes	No
64	Yes	No	No	Yes	Yes	Yes	Yes	Yes
65	Yes	No	Yes	No	Yes	No	Yes	No
66	Yes	No	No	No	No	No	Yes	No
67	Yes	No	No	No	Yes	No	No	No
68	Yes	Yes	No	No	Yes	No	Yes	No
69	Yes	No	No	No	Yes	No	No	No
70	Yes	No	No	No	Yes	No	No	No
71	Yes	No	No	No	Yes	Yes	Yes	No
72	Yes	No	No	No	Yes	Yes	No	No
73	Yes	No	No	No	Yes	No	Yes	No
74	Yes	Yes	No	No	Yes	Yes	Yes	No
75	Yes	No	No	No	Yes	No	Yes	No
76	Yes	No	No	No	Yes	No	Yes	No
77	Yes	No	No	No	Yes	Yes	Yes	No
78	Yes	No	No	No	Yes	Yes	Yes	Yes
79	Yes	No	No	No	Yes	No	Yes	No
80	Yes	Yes	No	No	Yes	Yes	Yes	No
81	Yes	....	....	....	....	....	....	....
82	Yes	No	No	No	Yes	Yes	Yes	Yes
83	Yes	No	No	No	Yes	Yes	Yes	No
84	Yes	No	No	No	Yes	Yes	No	No
85	Yes	No	No	No	Yes	Yes	No	No
86	Yes	Yes	No	No	Yes	Yes	Yes	No
87	Yes	No	No	No	Yes	Yes	Yes	No
88	Yes	Yes	Yes	No	Yes	Yes	Yes	No
89	Yes	No	No	No	Yes	Yes	Yes	No
90	Yes	No	No	Yes	No	Yes	Yes	No
91	Yes	No	Yes	No	Yes	Yes	No	No
92	Yes	Yes	No	No	Yes	Yes	Yes	Yes
93	Yes	Yes	No	No	Yes	Yes	Yes	Yes
94	Yes	Yes	Yes	No	Yes	Yes	Yes	No
95	Yes	No	No	Yes	Yes	Yes	Yes	Yes
96	Yes	No	No	No	Yes	Yes	Yes	No
97	Yes	No	Yes	No	Yes	Yes	Yes	No
98	Yes	No	No	No	Yes	Yes	Yes	No
99	Yes	No	No	No	Yes	Yes	Yes	No
100	Yes	Yes	No	No	Yes	No	Yes	....

TABLE NO. 3.—NERVOUS AND MENTAL SYMPTOMS.

Case No.	Spinal Tenderness	Reflexes						Change in Mental Condition	Type of Insanity
		Patellar	Wrists	Elbow	Epigastric	Plantar	Babinski		
1	.....	.....	.....	.....	.....	.....	.....	Depressed.....	Dementia præcox.
2	None....	Normal.....	Normal.....	Normal.....	Diminished.....	Normal.....	Yes....	No change.....	Dementia.
3	None....	Increased.....	Normal.....	Normal.....	Diminished.....	Normal.....	No.....	No change.....	Epileptic dementia
4	Yes.....	Diminished.....	Normal.....	Normal.....	Normal.....	Increased.....	No.....	Depressed.....	Senile dementia.
5	None....	Increased.....	Increased.....	Increased.....	Normal.....	Increased.....	No.....	No change.....	Dementia præcox.
6	None....	Increased.....	Increased.....	Normal.....	Diminished.....	Increased.....	No.....	No change.....	Dementia præcox
7	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	Yes.....	Increased.....	Increased.....	Increased	Diminished.....	Increased.....	Yes....	.....	Dementia
9	None....	Diminished.....	Diminished.....	Diminished.....	Increased.....	Normal.....	Yes....	Depressed.....	Senile dementia
10	None....	Increased.....	Normal.....	Normal.....	Normal.....	Increased.....	No.....	Depressed.....	Dementia præcox
11	None....	Nomarl.....	Normal.....	Normal.....	Normal.....	Normal.....	No.....	No change.....	Manic depressive.
12	None....	Increased.....	Normal.....	Normal.....	Normal.....	Normal.....	No.....	No change.....	Imbecility
13	None....	Normal.....	Normal.....	Normal.....	Diminished.....	Normal.....	No.....	.....	Involution psychosis
14	None....	Normal.....	Increased.....	Increased.....	Diminished.....	Normal.....	No.....	Depressed.....	Dementia præcox.
15	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Diminished.....	No.....	Depressed.....	Epileptic dementia
16	None....	Normal.....	Normal.....	Normal.....	Diminished.....	Diminished.....	.....	Depressed.....	Dementia præcox.
17	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	None....	Normal.....	Normal.....	Normal.....	Diminished.....	Increased	No.....	No change.....	Dementia præcox.
19	None....	Increased.....	Normal.....	Normal.....	Diminished.....	Increased	No.....	Irritable.....	Manic depressive.
20	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Increased.....	No.....	Depressed.....	Dementia præcox.
21	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Diminished.....	No.	No change.....	Terminal dementia
22	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Increased.....	No.....	No change.....	Dementia præcox.
23	None....	Diminished.....	Normal.	Normal.	Increased.....	Normal.....	No.....	No change.....	Alcoholic insanity
24	None....	Increased.....	Dimin she l.....	Diminished.....	Diminished.....	Diminished.....	No.....	Depressed.....	Senile dementia
25	None....	Increased.....	Diminished.....	Diminished.....	Diminished.....	Diminished.....	No.....	Depressed.....	Terminal dementia
26	None....	Increased.....	Increased	Increased.....	Diminished.....	Increased	No.....	Depressed.....	Dementia.
27	Yes.....	Normal.....	Increased.....	Increased.....	Diminished.....	Increased.....	Yes....	No change.....	Terminal dementia
28	None....	Increased.....	Increased.....	Increased.....	Normal.....	Diminished.....	No. ...	Irritable.....	Paranoia, terminal dementia.
29	Yes.....	Increased.....	Increased.....	Increased.....	Diminished.....	Increased.....	No.....	Depressed.....	Terminal dementia
30	None....	Normal.....	Normal.....	Normal.....	Diminished.....	Normal.....	No.....	No change.....	Senile dementia.
31	None....	Normal.....	Diminished.....	Diminished.....	Diminished.....	Increased.....	No.....	No change.....	Terminal dementia
32	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Increased.....	No.....	No change.....	Epileptic dementia.
33	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Increased.....	Yes....	Irritable.....	Terminal dementia.
34	None....	Normal.....	Normal.....	Normal.....	Diminished.....	Normal.....	No.....	No change.....	Involution spychosis
35	None....	Increased.....	Increased.....	Increased.....	Increased.....	Diminished.....	No.....	Depressed	Dementia præcox.
36	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Normal.....	No.....	No change.....	Dementia præcox.
37	Yes.....	Increased.....	Increased.....	Increased	Normal.....	Increased.....	Yes....	Depressed.....	Epileptic dementia
38	Yes.....	Diminished.....	Increased	Increased	Diminished.....	Increased.....	No.....	Depressed.....	Terminal dementia
39	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Normal.....	No.....	Depressed.....	Dementia præcox.
40	.....	.....	.....	.....	.....	.....	.....	No change.....	.....
41	None....	Increased.....	Diminished.....	Diminished.....	Normal.....	Increased.....	No.....	Depressed.....	Epileptic dementia
42	None....	Increased.....	Diminished.....	Diminished.....	Diminished.....	Increased.....	No.....	No change.....	Senile dementia.
43	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Diminished.....	No.....	Depressed.....	Manic depressive.
44	None....	Increased.....	Increased.....	Increased.....	Increased.....	Increased.....	No.....	No change.....	Dementia præcox.
45	.....	.....	.....	.....	.....	.....	.....	Depressed.....	Paranoia.
46	None....	Increased.....	Normal.....	Normal.....	Normal.....	Increased.....	Yes....	No change.....	Terminal dementia.
47	Yes.....	Diminished.....	Diminished.....	Diminished.....	Normal.....	Increased.....	No.....	Irritable.....	Epileptic dementia
48	.....	.....	.....	.....	.....	.....	.....	No change.....	Dementia præcox.
49	None....	Increased.....	Normal.....	Increased.....	Normal.....	Normal.....	No.....	No change.....	Dementia præcox, terminal dementia
50	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Increased.....	No.....	Depressed.....	Epileptic dementia.
51	None....	Increased.....	Increased.....	Increased	Diminished.....	Normal.....	No.....	Irritable.....	Involution insanity
52	None....	Increased.....	Normal.....	Normal.....	Diminished.....	Increased	.....	Depressed.....	Senile dementia.
53	None....	Increased.....	Diminished.....	Diminished.....	Diminished.....	Increased.....	No.....	Depressed.....	Dementia præcox
54	.....	.....	.....	.....	.....	.....	.....	No change.....	Paresis.
55	None....	Diminished.....	Diminished.....	Diminished.....	Increased	Increased	No.....	No change.....	Manic depressive.
56	None....	Diminished.....	Diminished.....	Diminished.....	Diminished.....	Diminished.....	No.....	No change. ...	Dementia præcox.
57	None ...	Normal.....	Normal.....	Normal.....	Diminished.....	Normal.....	No.....	No change.....	Epileptic dementia
58	Yes.....	Increased.....	Increased.....	Increased	Diminished.....	Increased.....	No.....	No change.....	Imbecile.
59	None....	Normal.....	Normal.....	Normal.....	Normal.....	Diminished.....	No.....	Irritable.....	Dementia præcox.
60	None....	Diminished.....	Normal.....	Normal.....	Diminished.....	Increased.....	Yes.....	No change.....	Terminal dementia
61	Yes.....	Diminished.....	Diminished	Diminished.....	Diminished.....	Increased	No.....	No change.....	Senile dementia.
62	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Diminished.....	No.....	No change.....	Idiocy.
63	None....	Increased.....	Normal.....	Normal.....	Diminished.....	Normal.....	No.....	No change.....	Terminal dementia
64	Yes.....	Diminished.....	Normal.....	Normal.....	Diminished.....	Normal.....	No.....	No change.....	Dementia præcox
65	None....	Increased.....	Normal.....	Normal	Diminished.....	Normal	No.....	No change.....	Dementia præcox
66	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Normal.....	No.....	No change.....	Terminal dementia
67	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Increased	No.....	No change.....	Puerperal mania
68	None....	Diminished.....	Normal.....	Normal.....	Diminished.....	Increased.....	No.....	Depressed.....	Senile dementia.
69	None....	Increased.....	Normal.....	Normal.....	Diminished.....	Increased.....	No.....	Depressed.....	Manic depressive
70	None....	Increased.....	Normal.....	Normal.....	Diminished.....	Normal.....	Yes.....	No change.....	Terminal dementia
71	None....	Increased.....	Diminished.....	Normal.....	Diminished.....	Increased.....	Yes.....	No change.....	Dementia præcox, terminal dementia
72	None....	Increased.....	Normal.....	Normal.....	Normal.....	Normal.....	No.....	No change.....	Dementia præcox
73	None....	Increased.....	Normal.....	Normal.....	Diminished.....	Increased.....	No.....	Depressed.....	Dementia præcox.
74	None....	Increased.....	Diminished.....	Diminished.....	Normal.....	Increased.....	No.....	No change.....	Dementia præcox.
75	Yes.....	Increased.....	Increased.....	Increased.....	Normal.....	Increased.....	No.....	No change.....	Dementia præcox, terminal dementia
76	None....	Normal.....	Diminished.....	Diminished.....	Normal...	Normal.....	No.....	Depressed.....	Dementia præcox, terminal dementia
77	None....	Normal.....	Normal.....	Normal.....	Normal.....	Increased.....	Yes.....	No change.....	Senile dementia.
78	None....	Increased.....	Normal.....	Normal.....	Diminished.....	Normal.....	No.....	No change.....	Paranoia, terminal dementia.
79	Yes.....	Normal.....	Normal.....	Normal.....	Diminished.....	Normal.....	.....	.....	Epileptic dementia.
80	None....	Increased.....	Increased.....	Increased.....	Normal.....	Increased.....	No.....	No change.....	Dementia præcox
81	None....	.....	.....	.....	.....	.....	.....	Depressed.....	Paranoia.
82	None....	Increased.....	Increased.....	Increased.....	Normal.....	Diminished.....	No.....	No change.....	Paresis.
83	None....	Increased.....	Increased.....	Increased.....	Increased.....	Increased.....	No.....	No change.....	Terminal dementia
84	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Increased.....	No.....	No change.....	Terminal dementia
85	None....	Diminished.....	Diminished.....	Diminished.....	Diminished.....	Increased.....	No.....	No change.....	Dementia præcox
86	None....	Normal.....	Diminished.....	Diminished.....	Diminished.....	Normal.....	No.....	Depressed.....	Idiocy.
87	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Diminished.....	No.....	No change.....	Terminal dementia
88	None....	Increased.....	Increased.....	Increased.....	Normal.....	Increased	No.....	Depressed.....	Terminal dementia.
89	None....	Normal.....	Normal.....	Normal.....	Diminished.....	Increased.....	No.....	No change.....	Epileptic dementia.
90	None....	Increased.....	Increased.....	Increased.....	Diminished.....	Increased.....	No.....	Depressed.....	Terminal dementia.
91	None....	Diminished.....	Diminished.....	Diminished.....	Diminished.....	Diminished.....	No.....	No change.....	Epileptic dementia.
92	None....	Diminished.....	Diminished.....	Diminished.....	Diminished.....	Increased.....	No.....	No change.....	Imbecility, terminal dementia.
93	None....	Increased.....	Normal.....	Normal.....	Diminished.....	Normal.....	Yes.....	No change.....	Imbecile.
94	None....	Diminished.....	Diminished.....	Diminished.....	Diminished.....	Increased.....	No.....	Depressed.....	Paranoia.
95	None....	Diminished.....	Diminished.....	Diminished.....	Diminished.....	Increased.....	No.....	No change.....	Terminal dementia
96	Yes.....	Diminished.....	Diminished.....	Diminished.....	Normal.....	Normal.....	No.....	Depressed.....	Epileptic dementia.
97	None....	Increased.....	Diminished.....	Diminished.....	Diminished.....	Increased.....	Yes....	Depressed.....	Dementia præcox.
98	None....	Increased.....	Normal.....	Normal.....	Normal.....	Increased.....	Yes.....	.....	Terminal dementia.
99	None....	Increased.....	Normal.....	Normal.....	Increased.....	Normal.....	.....	Depressed.....	Terminal dementia.
100	None....	Normal.....	Diminished.....	Increased.....	Diminished.....	Normal.....	.....	.....	.....

tensively involved, but in the course of time the lesions on both hands would show perfect symmetry.

Seborrhea.—Marked seborrhea involving the alæ of the nose was noted occasionally, but was by no means of common occurrence.

Digestive Tract Symptoms.—Mouth. In general terms it may be said that there were no distinct and characteristic mouth symptoms common to all cases. In 71 per cent. of the cases a variable degree of redness of the tongue or buccal mucosa was noted. In the milder cases this redness could be attributed to digestive disturbances, diarrhea, dysenteries, lack of personal care of the teeth and general bad condition of the mouth. The following extract from the 1908 report of Dr. W. J. Weatherwax, dentist for the institution, will convey some idea as to the general condition of the inmates from the standpoint of a dentist: "Many mouths are a mass of decayed teeth and roots, the remaining teeth, if any, entirely covered with deposits of tartar, the roots surrounded with badly inflamed gums with pus exuding constantly from pockets."

D. H. Baldwin, D.D.S., the dentist for the institution, examined the cases of pellagra on two different occasions, and his general conclusions are as follows: "1. In the mouths of patients suffering from pellagra we find in the early stages of the disease marginal gingivitis. As the disease progresses the inflammation gradually extends until the whole mucous membrane of the mouth is involved, and in the more severe cases, the gum and mucous membrane are soft and spongy and covered with mucous patches so soft that you will often find impressions of the approximal surfaces of the teeth. 2. I find a much improved condition in the mouth of the pellagra patients since my last examination one month ago. As the outward symptoms disappear the mucous membrane of the mouth assumes a normal condition."

In those cases presenting severe constitutional symptoms, the tongue was edematous and fiery red. The buccal mucosa was intensely inflamed. Ulcerating patches were frequently noted throughout the mouth, tongue, and buccal mucosa and excessive secretion of saliva was of common occurrence. In some cases the inflammatory reaction was so intense as to cause great pain, prevent protrusion of the tongue and greatly interfere with the taking of food. The intensity of the mouth symptoms had a direct bearing on immediate prognosis. In those cases presenting severe oral symptoms, death almost invariably occurred, even though the severe inflammatory reaction cleared up to a large extent.

Diarrhea and Dysentery.—Diarrhea or dysentery was present in 85 per cent. of the cases, but, as will be noted in Table No. 5, these intestinal disorders may, to a very large extent, be attributed to factors other than pellagra, *per se*. The percentage of cases showing protozoal infection—amebæ and flagellates—was very high (see Table No. 5). The milder cases suffered from diarrhea of short duration. Eighteen per cent. of the cases presented the clinical picture of amebic dysentery—frequent small stools, containing blood and mucus and of very offensive odor. We are of the opinion that, so far as the Peoria cases were concerned, it could not be said that diarrhea or dysentery was an essential symptom of pellagra. Sixty-six per cent. of those cases showing the clinical symptoms of dysentery either died or were rapidly failing and this complicating factor should be considered in determining death rates from pellagra. It was very evident, however, in the cases showing severe constitutional effects, that some additional factor other than flagellate and amebic infection was present. In the severe cases the physical failure was rapid and the patients presented the picture of a profound intoxication. The gross appearance of the stools varied from the normal to the dysenteric, dependent largely upon the presence or absence of protozoal infection.

The time of appearance of diarrhea in relation to other symptoms varied. In some instances its appearance was coincident with the appearance of the skin symptoms; again, it had existed in chronic form prior to the appearance of the skin symptoms, as would naturally be expected in amebic and flagellate infection; and in several of the severe cases proceeding to a fatal termination the diarrhea became persistent after the skin lesions had disappeared. In some of the fatal cases, prior to death, the skin lesions had disappeared and dysentery had been checked, the fatal issue being apparently due to exhaustion resulting from a severe toxemia.

Vomiting was seldom noted, and vertigo was an infrequent symptom.

The temperature was normal with but few exceptions. In two or three cases the temperature rose to 105° and 106° F., just prior to death.

Nervous Symptoms.—The condition of the important nerve reflexes is charted in Table No. 3. The only reflexes showing change of diagnostic value were the patellar and plantar. The patellar reflex was abnormal in 80 per cent. of the cases. A little less than two-thirds (62 per cent.) of the 100 cases showed increased patellar reflexes, while in 18 per cent. the reflex was diminished. In 68 per cent. of the cases the plantar reflex was abnormal, 53 per cent. showing increased reflex and 15 per cent. showing diminished reflex. Both the patellar and plantar reflexes, when abnormal, were in the large majority of cases, increased. Occasionally an increased reflex on one side would be accompanied by a normal or diminished one on the opposite side.

As some continental authorities attach some prognostic value to the Babinski reflex in pellagra, the cases were examined for this reflex. The Babinski was obtained in fifteen of the cases, and of this number only three died.

Spinal Tenderness.—This was noted in only 14 per cent. of the cases. In ruling this out as a symptom ordinarily present in the disease, it must be remembered that these cases developed among insane people in whom the sense of pain had been lost to a very great extent.

Mental Symptoms.—As all of these cases were insane and many of them had been so for many years, it was impossible to determine the exact extent of mental disturbance which might be attributed to pellagra. An examination of Table 1 shows that many of these cases had been asylum inmates for a great number of years, the average duration of insanity for the series being 13 years. Examination of Table 1 shows also that many of these patients had been inmates of the Peoria institution for several years, the average number of years being four, and this fact would seem to be a strong indication that the exciting cause of the disease is present in the institution. At the

same time, none of the nurses, attendants or other employees have, as yet, shown any evidence of pellagra.

Ten per cent. of these cases were committed to the Peoria State Hospital from civil life during the past two years, and it is very probable that some of this number are cases of pellagrous insanity. Of the ten cases referred to, the duration of insanity was as follows: Four cases adjudged insane 2 years ago; 5, 1 year ago; 1, 6 months ago.

The psychosis in these cases was as follows: Four dementia præcox, 1 alcoholic insanity, 1 involution psychosis, 2 paresis, 2 dementia unclassified.

The mental symptoms noted by continental authorities as being indicative of pellagrous insanity are, to say the least, not clear cut and definite, and it is extremely doubtful if expert psychiatrists in this country would state definitely that the Peoria cases were ones of pellagrous insanity. Forty-three per cent., or 43, of the cases showed mental change during the acute attack, 10 showing excitement and irritability, and 33 showing increased depression or melancholia.

Suicidal Tendencies.—In view of the importance attributed to suicidal tendencies by continental authorities, it is of interest to note that none of the 100 cases included in this series developed suicidal tendencies. This observation holds good, not only for this series of cases, but for all the cases of pellagra at Peoria.

Eye Findings.—Dr. Carroll B. Welton, of Peoria, examined the eyes of more than 50 per cent. of these cases as well as an equal number of controls, and his report on the eye changes may be found in the *Journal of the American Medical Association*, November 13, 1909.

IV. Treatment and Mortality.—The mild cases required no treatment. In the absence of marked diarrhea and constitutional depression, no treatment was required for the local erythema, which disappeared within three or four weeks. The treatment of the severe cases showing marked diarrhea and asthenia was most discouraging. Fowler's solution in increasing doses produced no noticeable improvement. Atoxyl hypodermically in 5-grain doses every seven days was administered, and in only one or two cases could improvement be attributed directly to medication. Thyroid tablets proved to be valueless. Normal saline was used in the cases of great severity with only temporary improvement. At the present time the most rational line of treatment would seem to be improvement in diet and the treatment of any complicating disease. We believe that the use of clabbered milk will prove of value in controlling the intestinal symptoms.

Twenty-two per cent. of the cases died; 10 per cent. were failing; 17 per cent. were improving; 51 per cent. recovered. An examination of Table No. 3 shows that in several of these cases sufficient cause for death was present, exclusive of pellagra, and these facts must be considered in determining the death rate in pellagra.

V. Pathology.—Laboratory Examinations; Blood. The blood findings are charted in Table No. 4. In taking blood pressure the Stanton instrument was used, the average pressure being 146. Considering the age of the patients, this was to be expected.

Hemoglobin and Blood Counts.—The hemoglobin average was 81 per cent., red cells 3,859,000, and white cells, 9,904. In 23 per cent. of the cases the white cells were normal; in 10 per cent. below normal, and in 67 per cent. there was more or less leucocytosis. Considering the condition of the teeth and intestinal tract this leucocytosis can be attribu-

TABLE NO. 4.—RESULTS OF BLOOD EXAMINATION.

Case No.	Blood Pressure (Stanton)	Hemoglobin	Blood	
			White	Red
		Per Cent		
1	....	..	.....	.....
2	103	55	16,000	2,500,000
3	138	85	9,200	4,250,000
4	180	83	6,400	3,750,000
5	205	85	14,000	7,000,000
6	132	90	10,000	3,500,000
7	....	..	.....	.....
8	154	75	11,000	3,750,000
9	....	70	9,000	2,350,000
10	170	85	8,400	4,500,000
11	150	70	10,000	3,900,000
12	134	80	11,000	4,890,000
13	138	85	12,000	4,728,000
14	130	60	8,200	5,200,000
15	162	95	12,000	4,700,000
16	115	90	20,000	4,50,0000
17	....	95	9,000	4,250,000
18	132	80	8,500	3,000,000
19	158	90	14,000	4,250,000
20	152	..	.....	.....
21	134	..	.....	.....
22	123	90	14,000	4,250,000
23	220	80	8,000	4,000,000
24	196	90	6,000	3,750,000
25	...	85	10,000	3,900,000
26	107	83	9,600	4,200,000
27	174	75	10,600	3,000,000
28	150	80	6,000	4,500,000
29	164	75	16,000	4,700,000
30	153	50	5,000	3,250,000
31	184	100	10,000	4,250,000
32	186	85	8,000	3,600,000
33	132	..	.....	.....
34	135	90	4,600	4,000,000
35	176	85	10,000	3,000,000
36	135	75	12,000	3,700,000
37	164	40	15,000	1,500,000
38	176	..	.....	.....
39	118	85	8,000	4,600,000
40	....	90	25,000	3,500,000
41	128	85	16,000	3,500,000
42	164	..	.....	.....
43	175	90	14,000	4,400,000
44	152	85	9,000	3,250,000
45	....	80	15,200	3,700,000
46	155	85	10,000	3,750,000
47	154	85	12,400	4,250,000
48	....	95	6,000	4,300,000
49	140	85	7,600	4,500,000
50	190	85	16,000	3,000,000
51	140	89	6,600	3,600,000
52	120	85	8,000	4,000,000
53	162	80	12,000	3,500,000
54	....	80	7,500	3,600,000
55	152	90	7,000	3,800,000
56	....	89	9,000	4,800,000
57	165	80	12,000	4,000,000
58	170	85	10,000	3,000,000
59	138	75	10,000	3,500,000
60	105	78	3,600	3,220,000
61	190	95	6,000	4,700,000
62	170	80	8,600	4,936,000
63	126	80	8,000	3,800,000
64	122	55	7,200	1,800,000
65	134	83	6,000	3,700,000
66	146	85	8,000	3,750,000
67	....	..	.....	.....
68	135	90	10,000	5,000,000
69	180	90	19,400	5,240,000
70	195	..	.....	.....
71	160	55	5,000	3,100,000
72	140	85	9,800	4,500,000
73	145	85	8,000	3,750,000
74	160	85	9,200	2,900,000
75	146	..	.....	.....
76	120	85	8,000	3,750,000
77	125	90	8,000	3,000,000
78	....	90	3,000	3,500,000
79	140	90	8,000	4,500,000
80	185	..	.....	.....
81	....	..	.....	.....
82	105	80	4,500	3,700,000
83	....	..	.....	.....
84	160	..	.....	.....
85	100	87	5,000	4,850,000
86	140	80	6,000	3,750,000
87	180	..	.....	.....
88	134	85	8,000	3,250,000
89	140	88	11,000	4,700,000
90	125	78	8,000	3,900,000
91	145	85	10,000	3,900,000
92	182	..	.....	.....
93	130	85	10,000	3,750,000
94	115	90	30,000	5,350,000
95	180	..	.....	.....
96	108	90	16,000	3,500,000
97	148	..	.....	.....
98	120	60	4,000	3,000,000
99	138	90	9,000	4,500,000
100	230	..	.....	.....

ted to factors other than pellagra. It was a noticeable fact that during the acute stage of the disease with the red cell count ranging between 2,000,000 and 3,500,000, the hemoglobin estimation was almost always above 85 per cent. Differential blood counts, examination of urine and certain other examinations done by Dr. Buhlig and Mr. Holmes will appear in the Bulletin of the Illinois State Board of Health.

TABLE No. 5

	92 Pellagrous Patients	107 Non-Pellagrous Patients	454 Soldiers in P. I.
	Per Cent.	*Per Cent.*	*Per Cent.*
Amebæ alone	18.4	7.4	....
Amebæ and flagellates	11.9	5.6	....
Amebæ and encysted protozoa	6.5	0.9	....
Flagellates alone	10.7	7.4	....
Flagellates and encysted protozoa	8.6	9.0	....
Encysted protozoa alone	28.2	28.0	....
Total infection with amebæ	36.8	13.9	16.2
Total infection with flagellates	31.2	13.9	24.5
Total infection with encysted protozoa	33.3	29.8	....
Total infection with protozoa	84.8	50.5	51.2
Negative	15.2	49.5	48.8

Feces.—Diarrhea has always been given as one of the cardinal symptoms of pellagra. This symptom was present at Peoria, and in view of our ignorance of the real nature of the disease it was thought worth while to make a microscopical examination of fresh stools. This was done in the usual way; fresh stools were collected, usually after a dose of saline cathartic, and the liquid part examined under one or two cover slips. It soon became evident that the pellagrous patients had a very high percentage of protozoal infection, and a number of non-pellagrous patients of the same general class were examined as controls. The results are given in Table No. 5. The results of a number of examinations of soldiers in the Philippine Islands under field conditions are given for comparison.

In explanation of the table it should be said that no attempt was made to differentiate between pathogenic and nonpathogenic amebæ, as such a differentiation is not regarded as practicable in clinical examination of stools; in 5 per cent. of both cases and controls the amebæ were very active and contained blood cells; in the other cases they were "resting." "Flagellates" include cercomonads and trichomonads; "encysted protozoa" include encysted flagellates and encysted amebæ and any other encysted forms. The only ova found were those of *Oxyuris* in one case among the controls. It will be readily seen that this condition is a very unusual one for a temperate climate because the patients in general had as much protozoal infection as do soldiers under field conditions in the Philippines, while the pellagrous patients had a much greater amount.

These findings are confusing in endeavoring to estimate the status of diarrhea as an essential symptom of pellagra. The few cases in which no protozoa were found had practically no intestinal disorder, while the remaining cases, showing every gradation of disturbance from a mild diarrhea to a marked and typical dysentery, had protozoal infections which could, in large part, explain the local symptoms. The possible bearing of the findings of examination of feces on the prevalence of pellagra will be considered under a discussion of epidemiology.

Autopsies.—We have records of eighteen autopsies which were usually made about 24 hours after death. A summary of the findings is given in Table No. 6; almost all the patients were senile and one-half of them showed serious concurrent diseases. The only organ which presented striking and constant lesions was the colon. In two-thirds of the cases well-marked ulcers were found, and from the findings in the stool before death and an ex-

TABLE NO. 6.—AUTOPSIES.

Case No.	Age	Date, 1909	Autopsy by	Colon	Small Intestine	Heart	Lungs
54	47	Aug. 13	Dr. W	Granular, punctate ulcers.	Atrophy, lower ileum, punctate ulcers.	Fatty degeneration.	Old lesion, right apex.
17	57	Aug. 14	Dr. W.	Thickened, extensive ulceration.	Lower ileum, ulcers swollen mucosa.	Fatty degeneration.	Negative.
1	67	Aug. 19	Dr. W.	Few ulcers lower end.	Injection, lower ileum, few ulcers.	Fluid increased, endocarditis.	Adhesions.
7	54	Aug. 21	Dr. W.	Injected, folliculitis, superficial ulcers.	Atrophy injection, lower ileum, few ulcers.	Fatty degeneration.	Negative.
48	42	Aug. 22	Dr. W.	Thick, injected, punctate ulcers.	Atrophy, lower ileum, injected ulcers.	Fatty degeneration.	Negative.
90	51	Aug. 29	Dr. B.	Injected, and swollen mucosa	Lower ileum, injection and swelling.	Mitral stenosis, fatty degeneration.	Bronchopneumonia; adhesions, old tuberculous gland.
29	52	Sept. 2	N. & W.	Folliculitis.	Folliculitis.	Adhesive pericarditis.	Adhesion.
99	..	Sept. 4	N. & W.	Injection and swelling.	Injection and swelling.	Negative.	Adhesions.
94	32	Sept. 6	N. & W.	Granular, folliculitis.	Tuberculous ulcers, and Tuberculous folliculitis.	Negative.	Cavities in upper lobes, adhesions.
26	56	Sept. 6	N. & W.	Folliculitis.	Small tuberculous ulcers, folliculitis.	Increase of fluid in sac.	Small cavities at apices.
78	76	Sept. 5	N. & W.	Ulceration swollen mucosa.	Folliculitis.	Negative.	Adhesions hypostatic injection.
53	70	Sept. 8	N. & W.	Ulceration, thick, injected.	Injection, folliculitis.	Negative.	Negative.
56	63	Sept. 11	N. & W.	Mucosa swollen.	Injected and edematous.	Fluid excess in sac, hypertrophy.	Fluid in both cavities, scars at apices.
38	..	Sept. 12	N. & W.	Ulceration extensive.	Negative.	Negative.	Anthracosis.
96	49	Sept. 14	N. & W.	Superficial ulcers.	Negative.	Negative.	Negative.
36	37	Sept. 15	N. & W.	Preulcerative folliculitis.	Lower end folliculitis.	Negative.	Tuberculous.
47	59	Sept. 17	Dr. N.	Extensive ulceration.	Acute peritonitis.	Negative.	Adhesions.
16	51	Sept. 19	Dr. B.	Thickened with swollen mucosa.	Negative.	Negative.	Tuberculous.

amination of sections in several cases most of these may be put down as amebic ulcerations. The ulcers were widely distributed, deep and undermined and gave the surface a "geographical" or "moth-eaten" appearance. The wall of the colon was considerably thickened and contracted in places. In one case perforation of an ulcer occurred, giving rise to an acute peritonitis. In this connection it is significant that Neusser speaks of old and recent ulcers as a finding in pellagra and another author gives perforation as an occasional cause of death. In the remaining cases a well-marked folliculitis was present and in several of these the follicles were the large preulcerative ones found in amebic colitis. The lower end of the ileum also frequently showed folliculitis.

The condition of the colon was such as to arrest one's attention, and an effort was made to find out how long it had prevailed. Autopsy records are available for the past two years. In most cases the intestines were not examined; in 12 cases they were opened, however, and in 8 of these particular mention is made of definite ulcerations. One case of multiple abscess of the liver occurred in a case with ulcerations; these facts speak for themselves.

The mesenteric lymph glands were not enlarged and the spleen was small and hard except in cases with concurrent infections.

The heart, lungs, liver, and kidneys showed no change which could be called significant. The brain in gross appearance showed only the edema of chronic dementia and the opacity of the membranes due to arteriosclerosis and old age. The cord was removed in four cases; only one case has been examined so far and it showed no degeneration of the posterolateral tracts.

VI. Epidemiology.—The failure of continental students of pellagra to agree on some definite form of the corn theory and the skepticism in some quarters of any form of this theory forced us to approach the disease with an open mind and some work was done on several different lines.

The Question of Infection.—If pellagra were an infectious disease, the infection would seem to be one of the following kinds: (1) General bacterial infection of the blood and other body fluids; (2) Local bacterial infection of the intestines. (3) Protozoal infection affecting chiefly the nervous system.

1. General bacterial infection.—Attempts at cultures, Table 4. Blood cultures were made on eight severe cases, four of whom died of the disease. In five cases, 5 c.c. of blood was drawn from a vein and incubated in 100 c.c. of glucose bouillon 48 hours and then transferred to glucose agar. In three cases 5 c.c. of blood was distributed in three tubes of bile, incubated, and transfers made. No growths of any kind occurred. The same method was applied to spinal fluid obtained by spinal punctures in eight cases; no growths occurred. Smears were made from the spleen at autopsy in five cases; no growths occurred except of colon bacilli in one case of peritonitis. It was, therefore, evident to us that no organism which will grow on ordinary media is to be found in the blood, spinal fluid, or spleen of cases of pellagra.

Examination of fresh blood and spinal fluid as well as of sections and scales of skin and of the contents of blebs were equally negative in regard to the presence of any specific organism. A number of authors have claimed that they have found organisms which they regard as specific in the blood and tissues, but we were not able to confirm any such findings.

2. Intestinal Infection.—No systematic work was done along this line, although several organisms

TABLE NO. 6.—AUTOPSIES (*Continued.*)

Liver	Spleen	Kidneys	Brain	Summary
Fatty degeneration.	Large and soft.	Fatty degeneration.	0	Well nourished, ileocolitis.
Fatty.	Small.	Fatty.	0	Well nourished, amebic colitis.
Gallstones and adhesions, fatty.	Small and fibrous.	Fatty.	Increase of fluid, injection of choroid plexus.	Well nourished, abscess of uterus. Endocarditis.
Fatty.	Large and soft.	Fatty.	Injected, adhesions.	Emaciated, enterocolitis.
Fatty.	Small and fibrous.	Fatty, large red.	0	Well nourished, ileocolitis.
Adhesions, fatty.	Small and fibrous.	Chronic interstitial nephritis.	Fluid increased, arteriosclerosis.	Emaciated, enterocolitis.
Empyema gall-bladder, miliary nodules.	Large and soft, miliary nodules.	Fatty.	Edema.	Slight emaciation, empyema of gall-bladder, trichinosis.
Fibrous.	Small and fibrous.	Negative.	Edema.	Emaciated, enterocolitis.
Passive congestion.	Large and soft.	Chronic interstitial nephritis.	0	Emaciated, tuberculous, both lungs.
Negative.	Small and fibrous.	Chronic interstitial nephritis.	Edema.	Tuberculous.
Negative.	Small and fibrous; adhesions.	Negative.	0	Well nourished, colitis.
Fibrous.	Small and hard.	Chronic interstitial nephritis.	Edema.	Colitis.
Slight cirrhosis.	Large and hard.	Chronic interstitial nephritis.	0	Well nourished, dropsy.
Negative.	Negative.	Chronic interstitial nephritis.	Edema.	Colitis.
Negative.	Negative.	Negative.	0	Colitis.
Fatty.	Large, firm.	Negative.	0	Tuberculous, colitis.
Negative.	Large and soft.	Negative.	Negative.	Peritonitis, perforation.
Negative.	Negative.	Negative.	0	Chronic colitis.

were isolated by plating out, and agglutinations tried without results. The clinical evidence, however, was against such an infection in the strict sense. Cases occurred in every building and no evidence could be obtained of foci of infection or transmission by contact. As mentioned before, no physicians, attendants, or employees have developed the disease. This fact seems to us most significant in giving a clue to the nature of pellagra. Persons sound in body and mind did not contract the disease, although constantly exposed to it.

3. Protozoal Infection.—The arguments in favor of the protozoal nature of pellagra have been based on analogies with sleeping sickness, kala-azar, etc. These analogies, in many respects, are not borne out by closer examination. The alleged mononuclear increase has not been found and the periodicity is of a very different nature. It should be said, however, that no attempts were made to infect animals with brain or cord pulp.

The Question of Intoxication.—Meanwhile our attention was being drawn to the intestines as a result of autopsies and examinations of the stools, and this led us more and more to the idea of an intestinal intoxication. If an exogenous or endogenous toxin was presupposed as the cause of pellagra the condition of the intestines could be easily brought into line as a predisposing factor, since the diseased mucosa would be more permeable to such a toxin. The question of food and water supply was, therefore, taken up.

TABLE NO. 7.—RESULTS OF CULTURES.

Case No.	Blood Culture	Result	Spinal Fluid Culture	Result	Autopsy	Result
16	Glucose bouillon, glucose agar.	0	Bile, agar.	0	.....	..
77	Bile, agar.	0	Glucose bouillon, agar.	0	.....	..
78	Glucose bouillon, glucose agar	0	Agar, 12 days.	0	Spleen smear on glucose agar	0
52	....	..	Bile, agar.	0	.....	..
94	.....	..	Agar.	0	Spleen smear on agar.	0
95	Glucose bouillon, glucose agar.	0	.....	..	.....	..
29	.....	..	.....	..	Spleen smear on agar.	0
53	.....	..	.....	..	Spleen smear on glucose agar.	0
71	Bile, glucose agar	0	Glucose bouillon, glucose agar.	0	....	..
96	Glucose bouillon, glucose agar	0	Bile, agar.	0	....	..
60	Bile, glucose agar.	0	.....	..	.....	..
53	Glucose bouillon, glucose agar.	0	Bile, agar.	0	.....	..
38	.....	..	.....	..	Spleen smear (peritonitis).	Colon bacilli
47	....	..	....	..	Spleen smear agar	0

Water Supply.—The water used at the institution comes from two sources: (1) An artesian well over 1,500 feet deep, which ordinarily supplies about 80 per cent. of the quantity used. (2) The Peoria water supply which ordinarily supplies about 20 per cent. of the total quantity, but occasionally is used in larger quantities. The artesian water is forced by compressed air into an enclosed surface tank, from which it is pumped to an elevated tank for pressure. The city water is pumped directly into the elevated tank.

TABLE NO. 8.

Monday, Feb. 1, 1909.

	GENERAL DIET	
Oatmeal	Peas	Steamed Apples
Bread, Oleo	Bread, Oleo	Bread, Oleo
Coffee	Coffee	Biscuit
	Steamed Potatoes	Tea
	LIGHT DIET	
Cream of Wheat	Broth	Rice
Toast	Toast	Milk
Hot Milk	Egg Custard	Chocolate
Coffee	Milk	
	TENT COLONY	
Oatmeal	Meat (boiled)	Eggs
Milk	Bread, Butter	Milk
Bread, Butter	Potatoes, Mashed	Bread
Coffee	Pickles	Biscuit
	Milk	
	SPECIAL DIET	
Cream of Wheat	Broth, Toast	Rice
Toast	Egg Custard	Bread, Butter
Hot Milk	Baked Potatoes	Chocolate
Coffee	Bread, Butter	Milk
		Biscuit
	ATTENDANTS	
Cream of Wheat	Beefsteak, Gravy	
Bacon	Mashed Potatoes	
Fried Potatoes	String Beans	
Bread, Butter	Bread, Butter	
Coffee	Baked Apples	
Sandwiches, Egg	Rice Pudding	
	Coffee	

Examination of the water was made in the usual way; examination for protozoa consisted in taking about a liter of water in a sterile flask; adding a tube full of sterile bouillon, incubating several days and examining a loop full of the scum which formed on the surface. Amebæ, flagellates, and fermenting organisms were found on each of three separate examinations of the tap water in one of the cottages.

The artesian water coming directly from the pump had something over 100 colonies to the c.c. flagellates, but no amebæ or fermenting organisms. The city water had as usual about 10 colonies to the c.c. flagellates, but no amebæ or fermenting organisms. The surface tank had no amebæ or fermenting organisms. The trouble, therefore, lay in the pipes and elevated tank, as a result of some previous contamination, possibly from the surface tank, which is not thoroughly protected; possibly from some break in the pipe system.

The amebæ in culture could not be differentiated from those in the stools; the question of their pathogenicity raises the whole amebæ problem which cannot be discussed here; but it is certainly not too much to say, especially under the local circumstances, that they should be regarded with suspicion. The same is true of the flagellates.

None of the reasons ordinarily given for the seasonal occurrence of pellagra hold good for this country, and it is not unlikely that these protozoa play a part in the seasonal periodicity of the disease. They are more active as a rule during warm weather. Summer diarrhea is a well-known complaint at Peoria; all the patients gain weight with the beginning of cold weather. The amebæ and flagellates, besides rendering the intestines more permeable to a toxin, may, by their periodical activity, predispose to the production of such a toxin.

Year	Average Number Persons Fed	Cost of Food per Day per Patient
		Cents
Ending June 30, 1906	1,725	10.0
Ending June 30, 1907	2,107	9.6
Ending June 30, 1908	2,147	11.4
Ending June 30, 1909	2,200	15.5

Food Supply.—The preceding table shows the average daily cost of food for each patient for the last four years.

The increase in the last year has been largely due to the cost of special food for consumptives. The other figures are a trifle lower than those for the other principal insane asylums of the State.

Due care seems to be taken in the purchase and handling of the food stuffs, and their preparation is under the supervision of a special dietitian. All the food is prepared in a central kitchen and distributed to the cottages by carts and wagons in covered receivers. Five diets are prepared for each meal, according to a bill of fare made out the previous day. (Table No. 8.) (1) General diet for the majority of the patients. (2) Light diet for patients in hospital. (3) Milk and egg diet for consumptives. (4) Special diet for infirm patients. (5) Diet for attendants. It will be seen that the diets are good as institutions go. The daily food in the general diet averages about 2,000-2,500 calories, which is made up approximately of 30 gms. proteid; 70-80 gms. fat and 300-400 gms. carbohydrates. Meat is given only twice a week. On the whole, it may be said that the food supply is satisfactory except that the general diet is somewhat deficient in proteids.

Granting that some damage to the intestines was a predisposing factor in an intoxication in a majority of cases, what was the specific toxin which produced the erythema, stomatitis, and debility? This leads us to the question of corn and the overwhelming consensus of opinion among those most concerned that corn is, in some way, responsible, is not lightly to be cast aside.

The following table shows the amount of principal corn products received:

TABLE SHOWING AMOUNT OF CORN PRODUCTS CONSUMED.

Corn Products	1907	1908
Corn Meal	31,200 lbs.	30,100 lbs.
Hominy	17,400 lbs.	14,500 lbs.
Corn Starch	1,420 lbs.	1,296 lbs.
Corn Flakes	3,912 lbs.	2,760 lbs.
	53,932 lbs.	48,656 lbs.
Population fed	2,107	2,147
Amount per year per patient	416 oz.	352 oz.
Amount per day per patient	1.1 oz.	.9 oz.

The patients on the general diet received rather more than the average for the whole population, but not to exceed an average of 2 ounces a day.

The possible relations of corn to the disease seem to be the following: 1. Good corn may be injurious in large quantities. This theory can hardly be used to explain the trouble at Peoria, in view of the amount eaten as given above. It has been estimated that about 16 ounces of uncured rice per day are necessary to product beriberi. For corn to hold the same relation to this disease, a much larger amount would have been necessary at Peoria.

2. Spoiled corn may be responsible; this was not the case so far as could be ascertained by the senses. The corn used was inspected on the corn exchange and at the mill, and it was No. 2, the best on the market. Nothing in the way of a "food scandal" could be unearthed. The corn meal was freshly ground, and the other corn products did not have to be transported any great distance. None of the corn products were spoiled in the sense of being mouldy, damp, hot or of bad odor or taste.

3. Toxins may be developed in the intestines by the action of fungi or bacteria on a corn diet. In regard to moulds, several trials were made, but no moulds were found which survived the heat of cooking. Of course this does not exclude them, but it makes them seem less likely as a cause. On the other hand, a spore-bearing bacterium was repeatedly found in corn meal and hominy which survived steaming for two hours, and seems to offer possibilities. This is a motile, sporé-bearing, gram positive, nonliquefying bacillus which produces a red coloration on corn and an odor like that of rancid fat.

In order to learn something of parasites on corn, a trip was made to the University of Illinois, and it was found that only in recent years has any definite work been done on this subject, and that much remains to be done, especially in regard to bacteria.

The organism mentioned above is apparently referred to by Burrill and Barrett (Bull. 133, University of Illinois, Urbana station, 1909, pp. 91-92), as causing disease of corn in the field. "Certain ears when stripped of the husks show grains which are evidently diseased, rather uniformly distributed among the sound kernels or in small groups on some part of the ear. The diseased kernels are dark in color, often corroded upon the surface, and are brittle in texture. Sometimes a shiny, mucilaginous orgum-like exudate is noticeable upon the outer surface of the grains. Upon microscopical examination, this exudate is found to be made up of pure culture of a medium-sized bacillus of short cylindrical shape and capable of rapid ciliate movement. These are present in myriads and what appears to be the same organism is found in great numbers in the crumbling, starchy portions of the affected grains. A conspicuous characteristic of such diseased kernels is the red color taken by the substance of the scutellum. When such grains are divided lengthwise through the flat surfaces the starchy portion is seen to be distinctly white, while that known as the chit is as distinctly red. The infection seems to begin externally with the silk and the bacteria follow a strand of this to its attached kernel, explaining how it comes about that any one of the latter upon the cob may be diseased among adjoining healthy ones. Where these bacteria otherwise live has not been ascertained. The bacteria of the corn-growing plant is a subject well worth special study."

The most common cause for disease of ears on the stalk has been found to be a kind of *Diplodia,* which has been stated by one author to be on the increase in recent years, and along with aspergillus, penicillium, etc., has been advanced as a cause of pellagra. The department of botany has furnished us cultures of known moulds and bacteria, and work is being done with these.

The most promising field for investigation seems to be along the line of an intoxication produced by bacterial action on corn products and possibly other carbohydrates in a damaged intestine, and this will be followed up. Several instances have come to our notice of a toxic action for animals, first of an excessive corn diet, also of a diet of corn gluten infected with moulds; and there are no doubt several kinds of disease connected, in some way, with corn, but pellagra, if associated with corn, must be due to one, not to several, kinds of corn poisoning.

The outstanding facts about corn raising in the last fifteen years are, that the shelled corn is marketed four to eight weeks earlier than it used to be, that the time of weathering and drying on the stalk

is cut short, and that more trouble is experienced in handling the corn and preventing it from going bad. These facts, together with the considerable increase of the use of corn products in the past few years, may prove to be of significance.

The recommendations respectfully submitted for the Peoria State Hospital were: (1) Cleaning out the pipes of the cold water supply; better protection of the surface tank; regular examinations of the water for bacteria and protozoa; examination of stools of possible cases of dysentery, especially among the untidy, and appropriate treatment of dysentery cases. (2) Elimination of corn from the diet of the pellagrous and more debilitated patients, and continued care in the purchase of corn products.

Use of Corn Products in the Army.—Statistics obtained from the Purchasing Commissary in New York show that the proportion of corn to wheat purchases is only 1 to 100, and that nearly all of the corn meal purchased is kiln dried. Samples of kiln-dried meal have been examined, and showed very few organisms of any kind, while freshly milled corn meal contains an abundance of various kinds of organisms. In Italy the drying of corn has been adopted by the government as a prophylactic measure. At present we would recommend that the purchase of kiln-dried meal be continued, and that any other types of meal purchased be freshly milled and made of the best No. 2 corn. No corn should be used in the diet of the sick suffering from intestinal diseases.

VII. Summary.—1. Of 2,150 inmates at the Peoria institution, the majority of whom have been almshouse and asylum inmates for many years, 175 were pellagrous during the summer of 1909. No physicians, attendants, or employees were affected.

2. About 70 per cent. of cases had suffered from previous attacks and pellagra has been prevalent at least four years.

3. The average age of cases was 50 years; the sex distribution was about equal.

4. Attacks were mild (skin symptoms, mild digestive tract symptoms without constitutional reaction) and severe (marked skin and digestive tract symptoms with pronounced toxemia).

5. A diagnosis of pellagra is not warranted in absence of skin symptoms. The symmetry of skin lesions was a most striking feature. When bleb formation occurred the death rate was high.

6. Digestive tract symptoms were not present in all cases. In some cases diarrhea and stomatitis could be attributed to bad teeth, and infection with amebæ and flagellates, but in other cases, the constitutional symptoms pointed to some additional specific poison.

7. Patellar and plantar reflexes were abnormal in about three-fourths of the cases, usually increased.

8. It was impossible to determine the exact extent of mental disturbance attributable to pellagra, as all patients were insane before the disease was recognized. The cases developed no suicidal tendencies.

9. Mild cases recovered without therapeutic aid. Severe cases were not much benefited by Fowler's solution, atoxyl, or thyroid tablets.

10. Feces; 84.8 per cent. cases showed protozoal infection (amebæ flagellate and encysted forms). These protozoal infections account in part for the intestinal symptoms and are believed to be a predisposing factor.

11. In 18 autopsies, well-marked ulcerations of the colon were found in 12 cases, and folliculitis occurred in all. No other organ showed any constant or striking alteration.

12. Cultures of blood, spinal fluid, and spleen pulp were uniformly negative.

13. The disease impressed us as an intoxication rather than an infection.

14. Not more than two ounces of corn were eaten per day; no evidence was obtained of the use of spoiled corn.

15. The possibility of an intoxication from bacterial action on corn products in a damaged intestine is considered the most promising field for study.

A PRACTICAL METHOD OF OBTAINING THE DUODENAL CONTENTS IN MAN.*

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The importance of testing the duodenal contents is evidently great. Here we find the most important secretions for digestion. The duodenal bucket[1] occasionally brings up the desired juice, but the same may be mixed with stomach contents, and its quantity is too small to make more detailed examinations. The aspiration catheter[2] which I introduced later over the thread of the duodenal bucket beyond the pylorus, into the duodenum, has also not quite succeeded in solving this problem. The introduction of the catheter is somewhat difficult, and it can be introduced only into the pylorus and the beginning of the duodenum, but not into the lower portions of the duodenum.

I have therefore constructed a new instrument for this purpose. It consists of a small metal capsule (14 mm. long and 23 mm. in circumference), which is perforated and can be unscrewed. This communicates with a long, thin rubber tube (8 mm. circumference and one meter long), and is marked at 40 (I. cardia), 56 (II. pylorus), 70 (III.), and 80 cm. distance from the capsule. At its end is a tip, to which a syringe can be attached (Fig. 1). This small instrument looks almost like the deglutable electrode. It can be used for aspirating stomach or duodenal contents, and might aptly be called a "duodenal pump" or "digestive juice aspirator."

Mode of Procedure.—The capsule of the duodenal pump, as well as the lower part of the rubber tube, are moistened with warm water and put into the pharynx of the patient. Then the latter drinks some water, and the instrument thus soon passes into the stomach. To be certain that the capsule did not get stuck in the esophagus, it is well to have the patient shake his abdomen and to aspirate a syringeful of chyme. This can easily be identified as gastric contents. Now we pass a syringeful of water and then one of air through the instrument. The rubber tube is then clamped off and left alone for about one hour. The patient is told not to close his mouth too tightly, so that the tube is not retarded in its wanderings. The patient must also avoid intentional swallowing of the tube. Through the peristalsis of the stomach the capsule is pushed on further, and usually passes through the pylorus into the duodenum and later into the beginning of the small intestine. It is best to have the patient read some light literature, in order to divert his attention.

*Read before the Clinical Society of the German Hospital and dispensary, November 11, 1909.

After one hour we examine how far the capsule has progressed; if sign III is near the lips (70 ctm.) or inside the mouth, we try to aspirate. If the capsule is in the duodenum, we generally obtain a clear, golden yellow or watery liquid of alkaline reaction and somewhat viscid consistency. If, however, we

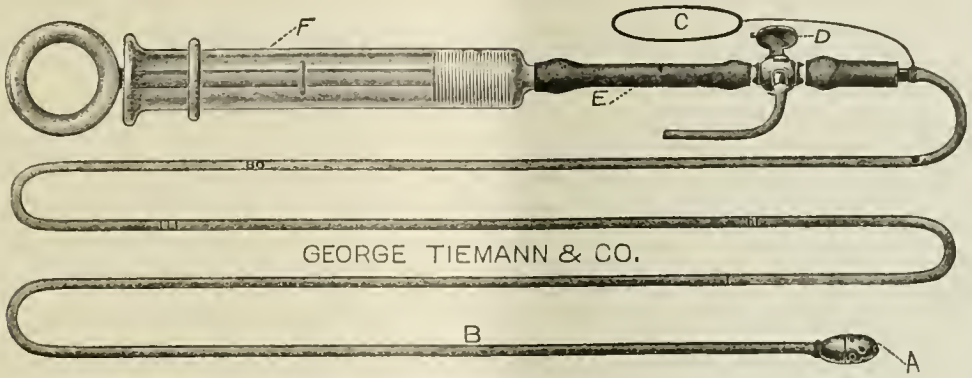

FIG. 1.—The Duodenal Pump. A, metal capsule, lower half provided with numerous holes; the upper half communicating with tube B; I, II, III, marks of I=40, II=56, III=70 ctm. from capsule; C, rubber hand with silk attached to end of tubing, which can be placed over the ear of patient; F, aspirating syringe; E, collapsible connecting tube; D, three-way stopcock.

are in the stomach, we obtain an acid liquid resembling the one first removed. This can, of course, occur if the tube lies in the stomach in a coiled manner, as the accompanying *x*-ray picture shows (Fig. 2). Should the latter be the case, we must partly

FIG. 2.—*X*-ray photograph of Miss H. lying with her abdomen on the plate, with the duodenal pump in the stomach. The tube is curled up and describes the shape of 8.

withdraw the tube, after putting water and air through it, up to the mark II (56 ctm.). The tube is then again clamped off, and after one-half to one hour the procedure is repeated. We generally succeed in nearly all cases (of course, not in such where there is pyloric stenosis) to obtain duodenal contents. After having obtained the desired contents, the tube is clamped and slowly withdrawn. When the beginning of the esophagus is reached the patient is told to swallow, and during this act the capsule is withdrawn.

The same instrument can, of course, also be used to study the act of gastric secretion during the entire period of stomach digestion from beginning to end. In this case the tube is fastened so that it cannot go beyond mark II; the capsule thus remains all the time in the stomach. Every half-hour or so the contents may be aspirated and comparisons of the acidity, etc., made, and thus the secretion of the stomach may be studied.

In examining the contents of the duodenum it is of importance to have evidence when we are in the stomach and when we are in the duodenum. I therefore wish to call attention to the following points:

1. If the capsule is in the stomach and we aspirate, the syringe quickly fills with fluid or air, provided that the holes are not clogged by thick food. The heavier rubber tube attached to the syringe does not collapse, as this organ is always filled with either air or liquid. If, however, the capsule is in the duodenum, one finds that the connecting rubber tube will collapse on rapid aspiration. This is caused by a vacuum forming, owing to the fact that there is not much air or liquid in the duodenum and because the walls of the latter are in close apposition to the capsule. (We find the same condition if the capsule is in the esophagus.) After waiting a short while and after slowly trying aspiration, fluid enters the syringe. If we find a larger supply of bile and pancreatic juice, it appears a little quicker, but always slower than from the stomach.

2. If the capsule is in the stomach and air is forced through, the patient feels the entrance of the air very plainly and can localize where it occurred. If the capsule is in the duodenum or jejunum, the patient does not usually feel the entrance of air.

3. The milk test. If we give patient two or three swallows of milk (provided, of course, that no milk had been previously taken), and then aspirate with the capsule in the duodenum, we obtain pure duodenal contents (golden yellow or clear as water) without any admixture of milk. If, however, the capsule is in the stomach, the milk appears at once. This milk test can be made still more reliable if, after aspiration of clear duodenal contents free from milk, we withdraw the tube up to mark II

Fig. 3.—X-ray photograph of Miss H. lying with her abdomen on the plate, with the duodenal pump in the digestive tract. The tube is seen to extend through the fundus and greater curvature of the stomach, also through the pylorus and the entire ring of the duodenum.

and a little further, and on renewed aspiration obtain the fluid from the stomach, containing unchanged or curdled milk.

4. The *x*-rays show the position of the capsule in the stomach or duodenum very plainly. A good apparatus shows not only the capsule, but also the course of the tube (Figs. 3 and 4).*

Preparation of the patient for the purpose of duodenal examination. It is best that the patient should take only fluid food on the day of examination. In most cases I have had him take a cup of tea and sugar without milk half an hour before the examination. Of many cases tested I will cite two as examples:

Case I.—Nov. 7, 1909. Mrs. R., 8:15 A. M., swallows the duodenal pump half hour after tea and sugar; 9 A. M., tube has gone down to 75 ctm. Upon aspiration a yellowish liquid appears, reaction alkaline. One hour later milk is given. On aspiration some more yellowish alkaline liquid is removed. The tube is then withdrawn into the stomach and a yellowish milky liquid is obtained, which reacts slightly acid.

Case II.—December 5, 1909. Harry Z. swallows half hour after tea and sugar, the duodenal pump. One hour later gastric aspiration shows a liquid containing traces of HCl. One hour and one-half hour later tube is 75 ctm. down and aspiration reveals a yellowish pancreatic secretion, alkaline, specific gravity 1003, about 6 c.c. steapsin, + slice of egg albumen nearly all gone; diastase +. Patient drinks milk and then aspiration is again practised. Again we obtain clear golden yellow liquid of alkaline reaction. The tube is then withdrawn beyond the mark II, and aspiration reveals a milky acid fluid.

*I am indebted to Dr. L. G. Cole for the excellent *x*-ray photographs.

Examination of duodenal contents. After inspection the reaction is tested with litmus paper. Usually the reaction is faintly alkaline. We have, however, exceptions to this rule, and I have occasionally obtained slightly acid contents, and twice I have found a positive HCl reaction in positively duodenal contents that contained bile. Then we make the test for the ferments (a) steapsin, (b) trypsin, (c) amylopsin.

(*a*) To test for steapsin I use a drop of neutral milk, two drops of water, two to three drops of duodenal contents (neutralized if the reaction is acid), and a small piece of blue litmus agar. This is placed into a miniature test tube and kept at blood temperature. If steapsin is present the agar piece will be red in twenty to thirty minutes, owing to the development of fatty acids.

(*b*) For the demonstration of trypsin I use a small piece of the white of a hard boiled egg, which is placed in the fluid to be examined (if acid, it is first neutralized) and kept a few hours at blood temperature. The piece of egg albumen disappears in the presence of trypsin. The ricin test used for pepsin is unsuitable for trypsin. If we add ricin solution to duodenal contents and leave it at blood temperature for a few hours, and then add hydrochloric or acetic acid, the ricin will often be precipitated, *i. e.* it was not changed into soluble peptone.

(*c*) Amylopsin. For testing for the presence of diastase we make use of a boiled starch solution or starch paper. We mix the duodenal contents with the starch solution (in equal parts), or insert a strip of starch test paper and leave it at blood temperature. After half to one hour we look whether the

Fig. 4.—Same as Fig. 3, after the ingestion of bismuth into the stomach. The shape of the stomach is distinctly visible, and outside of the stomach in the duodenum are seen the tube, describing the shape of this organ, and at its end the capsule.

fluid or the test paper contains starch by adding a weak iodine solution. In the presence of starch we obtain a blue color, in the presence of erythrodextrin a red color, otherwise only a trace of brown from the iodine.

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SOME EYE TROUBLES OF EARLY LIFE.*

FOR THE GENERAL PRACTITIONER.

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I SHALL limit this discussion to the refractive and muscular disturbances of the eye from infancy to youth. As introductory to this permit me to review briefly the refractive conditions of the normal and abnormal eye.

In the normal or emmetropic eye the dimensions are such, and the refractive media of that shape, size, and consistency, that parallel rays proceeding from infinity, or a distance of twenty feet or more, focus clearly upon the retina, with the accommodative apparatus in a state of absolute rest (See Fig. 1). The image of an object at less than twenty feet is made distinct upon the retina of a normal eye only with the aid of the apparatus of accommodation, which consists of the ciliary muscle, the lens, and the ligament or zonula of Zinn, which suspends the latter. Contraction and expansion of the three sets of fibers of the ciliary muscle are transmitted through the zonula of Zinn to effect change in the shape of the lens. Rays from objects within infinity are too divergent as they enter the eye. By this mechanism of accommodation they are so bent as to be received clearly upon the retina. The brain will not tolerate

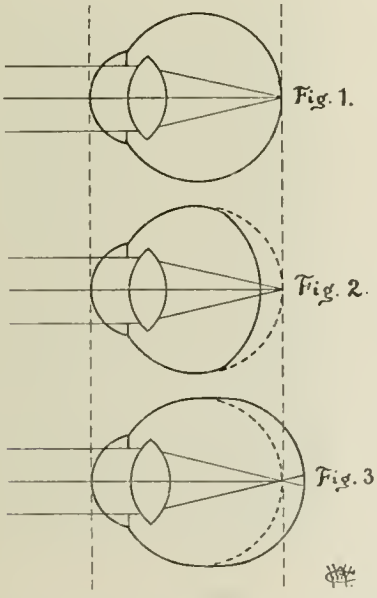

Fig. 1.

Fig. 2.

Fig. 3.

an indistinct image, and summons this apparatus which instantly responds to correct the defect. This is the operation of the emmetropic eye in far and near vision.

Unfortunately, most children are not ushered into life with a pair of eyes in this ideal condition. The eyeball of the infant usually has an anteroposterior diameter too short for the refractive power of the media. Parallel rays entering such an eye from infinity focus not on its retina, but theoretically at a point behind it. Only a blurred image is received

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FIG. 4.

upon this retina—really a truncated cone of rays whose apex is the principal focus behind this plane. Much more indistinct must be the image of objects within infinity, and the greater is the demand made upon accommodation to bend these divergent rays—a strain in direct proportion to the nearness of the object and the shortness of the globe horizontally. This condition we know as hyperopia, or far sight. (See Fig. 2). Later, as the child develops, the eyeballs should assume the proportions of emmetropia, and hyperopia should disappear. Sometimes this fails to occur in whole or in part, leaving a permanent hyperopia of greater or less degree.

Again, through congenital defect, or overdevelopment, the globe has an excessive horizontal diameter, or an increase in the refractive power of the media. In an eye containing either or both of these conditions the parallel rays reach a focus in front of the retina in the vitreous, with the result that it again receives only a blurred image from these diverging rays. (See Fig. 3). This is myopia, or short sight, and is rare in early life.

Another frequent imperfection is that in which parallel rays are not brought to a common focus in any one point on the retina. Through irregular curvature of the cornea and other refractive media we have foci of varying lengths in two or more different meridians, with the result that the retina receives an irregular picture. We term this astigmatism, in which is found another and serious hindrance to perfect vision. The effect of even small degrees of astigmatism is forcibly illustrated by placing cylinders before the exposed photographic plate, thereby producing an artificial astigmatism. Fig. 4 represents the image received by a normal or emmetropic eye. The blurring of Fig. 5 is due to only a + .25 cylinder, and the confused characters of Fig. 6 are made by a + .50 cylinder.

With one meridian normal, or emmetropic, in length, and that at right angles shorter, or hyperopic, we have simple hyperopic astigmatism. Or two opposite meridians may be of unequal length, and both shorter than normal, making a compound hyperopic astigmatism. In the same manner abnormally long and unequal diameters may produce myopic astigmatism, simple and compound. Also

*Read before the Stamford (Conn.) Medical Association.

with two meridians, one longer and the other shorter than the normal, we may have a mixed astigmatism.

Still other errors in vision may be due to muscular imbalance, in which are concerned the six muscles attached to each eye-ball, namely: The superior, inferior, external, and internal recti, and the superior

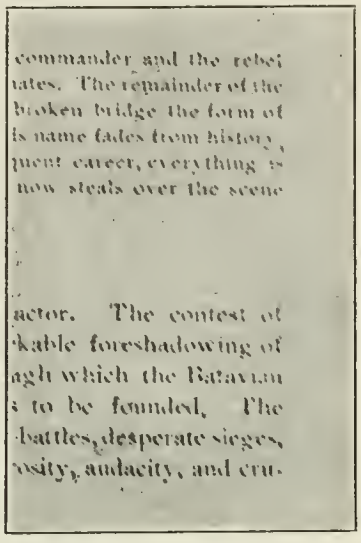
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Fig. 5.

and inferior obliques. It is only by the most perfect adjustment of this external apparatus that these two sets of muscles act in coordination and produce binocular vision. The minute lengthening or shortening of a muscle by an irregular attachment, or the abnormal increase or decrease in power of one muscle, or set of muscles, are among the common factors of imbalance. An illustration of the latter cause is the pair of eyes with the external recti equal in strength to the interni, whereas they should have only about one-third of that power, convergence, the function of the interni, being more necessary than divergence. These conditions all impose an extra strain on the young and immature nervous system.

I have thus stated these primary principles to more strongly emphasize the fact of the handicap with which many a child begins life. Claibourne sets forth the relation of early eye strain to these unfortunate social conditions in the following forcible words: "The causes of eye strain in children are found in refractive and muscular irregularities, in the unhygienic and badly illuminated school and study rooms, and in the silly and unreasonable demands made on the brain and nervous system of the children of this generation by parents and educators. At the very age when the tissues are most yielding and soft, and the whole nervous system is tingling with new and unanalyzed sensations, before experience has had opportunity to teach the value of economy of time and effort, mental and nervous loads are put on our children, which could not be borne under the most ideal conditions."

The symptom complex of eye strain includes a wide variety of conditions and complaints, many of which are seemingly remote from the cause, and are traced to it only after failures in treatment, and by a process of elimination in the diagnosis. Errors of refraction may give the small child no trouble whatever until he starts to school, when begins the first severe test of his accommodation. After a time the lid margins may become a little red, and fringed with fine branny scales and the conjunctivæ slightly injected. If this condition is neglected an exaggeration of these symptoms may appear in deeply red somewhat swollen lid borders whose edges are stuck together in the morning, some watering of the eyes, squinting, and occasional headaches. His face may assume an anxious expression, his brow be knitted, motions nervous and somewhat uncertain, and his features grimaced at times. Inattention may mark his course at school, and punishment from zealous teachers and disappointed ambitious parents has a discouraging mental and moral effect on the little victim. No doubt that many a mediocre career is thus begun, which with the recognition of the cause and removal of the same, might have been one of great usefulness and perhaps brilliance.

Headaches are probably the most common complaint from eye strain. These are usually supraorbital or temporal, but may be occipital, or even referred to the mastoid region. They are of a dull character, rather than a sharp pain, and may be felt early in the day and more or less continuously, or appear only after close application. There may also be aching in the eyeballs and redness of same after prolonged near work. Restlessness, peevishness, irritability, lassitude, cold extremities, are all sometime symptoms of eye disturbances.

The face and general appearance of many of these patients is interesting and suggestive. The hyperopic child may be painfully anxious and nervous in manner, his face older than his years and careworn. This may be the only outward indication of a severe nerve strain from which he suffers in overcoming the eye defect, in which he succeeds, but at a terrible cost. Contrasted with him is the typical myope whose face may be rather dull and apathetic, his motions slow and cautious, and he manifests little or no interest in the amusements of his playmates, but may be found at any or all hours absorbed in his books. This patient has partially given up the struggle with poor vision. He has found that he cannot improve it by straining, that sports or

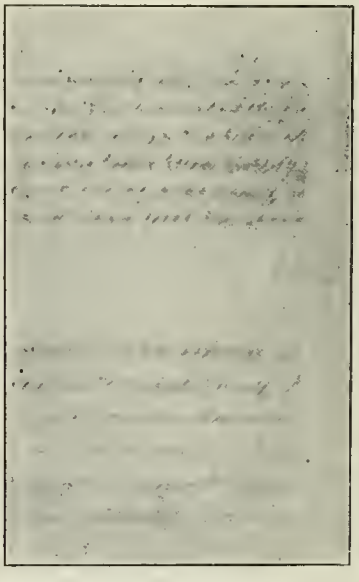

Fig. 6.

occupations requiring far and quick sight are impossible, and so he turns naturally to those employments in which his near vision is most useful. His compensation is a relief from the nerve strain which the successfully seeing hyperope endures.

Purely reflex disturbances are manifest in many

ways and may simulate, among others, diseases of the gastrointestinal tract and disorders of the nervous system. Dr. S. Weir Mitchell in 1876 made a profound impression by publishing his observations upon a large number of cases of nerve disorders which he found to depend largely if not wholly upon abnormal eyes. His insistence upon eye examination and treatment was probably more regarded by the profession at large because it came from an eminent neurologist rather than from an oculist. Abdominal pains and functional disorders of the digestive tract are emphasized by Dr. Gould as sometimes being symptoms of ocular strain. An unusual case of this class was reported by Dr. Ellice M. Alger of New York in 1907. A boy had severe intermittent abdominal pains for several months. The diagnosis of a local surgeon was appendicitis, and of another cholelithiasis. However, operation was refused by Dr. Robert T. Morris of New York until the factor of eye strain should be eliminated by refraction. He had normal vision in both eyes without glasses, complained of no headache or eye pain. Under atropine the total error was found to be small, and the wearing of a +° .75c., ax. 90° lieved all the symptoms.

A recent case of mine further illustrates this point. D. T., age 15, school girl, had "bilious" attacks for four years, and was lately having two or three a week. She complained of some pain in her eyes, and headaches especially during the attacks, which were most frequent late in the day. She gave a history of slight rheumatism. Menses began at age of eleven and are normal. Two months general treatment, including both medicine and diet, had failed to relieve the condition and these attacks continued as before. Examination of the eyes was negative as regards disease, and her vision was 20/20, or normal. With atropine the vision was only 5/20c in each eye. The refractive error was simple hyperopic astigmatism in the right eye, and simple hyperopia in the left. At the time of the atropine examination she stated that her eyes felt much better with the drops in them, while headache and tendency to nausea had disappeared. This was striking proof of the reflex effect of eye strain and of how quickly some of these patients are relieved. Since wearing the correction she has had no return of the old trouble, except when for two days she was, through accident, without her glasses. At this time she had slight headache and nausea.

Another case in point is that of a girl seven years of age with fair general health. No eye trouble before starting to school, which was only recently. Soon after beginning school work her eyelid borders showed irritation and were scaly in the morning. She sometimes complained of them being tired and had trouble in seeing the blackboard and some headache. Her vision was 20/20 in each eye, but under atropine was only 20/70 in the right eye, and 20/100 in the left. This proved to be a simple hyperopic astigmatism of low degree, and all trouble disappeared after she wore the correct glasses in school for a short time.

Cases of muscular imbalance with marked subjective symptoms are more common among children when they reach the upper grammer grades and high school, where the work is more exacting, and the hours of application are longer. Such a patient was M. D., age 15, who gave a history of severe headaches for past two years, especially in the left eye. Glasses previously given had afforded partial relief, but the symptoms of eye strain would still return. Her face wore an expression of great anxiety, brows were deeply knitted, and there was some photophobia and lacrymation besides much general nervousness. Vision was about normal in both eyes, but they quickly tired in examination, and could be tested only a short time at each sitting. The vertical muscular balance I found much impaired, the line of vision of the left eye being some 2½ degrees higher than the right. This we consider excessive, as even ½ to 1 degree of vertical deviation will often cause much disturbance. The strength of adduction compared with abduction was as 4 to 3, instead of at least 12 to 3. Her vision under atropine was 20/50 right and 20/40 left eye, and was brought to normal, or 20/20, with a weak plus cylinder. Subsequently she required prism exercises, which with this correction relieved the muscular strain, and she improved greatly.

A most interesting class of cases are the children with squint. Strabismus, or squint, is that condition in which the visual axis of one eye is deviated from the point of fixation. It is the result of two conditions: "A diminution of the visual power of one of the eyes, and a preexisting disturbance of the muscular equilibrium." Convergent strabismus occurs partiularly in hyperopia, which Fuchs states is found in about three-fourths of all these cases. The reason for this lies in the strong accommodative effort which the farsighted person must make to obtain clear vision, and in the intimate connection between convergence and accommodation. It develops usually at the age when fixation begins to make greater demands upon accommodation, that is from two to six years of age. Conditions which favor its development are: diseases of infancy which have produced opacities of the cornea, such as ulcerations complicating ophthalmia neonatorum, eczematous conjunctivitis, congenital poor sight or amblyopia, prolonged bandaging of one eye, and large refractive error in one eye only. Divergent strabismus is related to myopia much as hyperopia is to convergent strabismus. About two-thirds of these patients are nearsighted. It is favored by the difficulty the myope naturally has in accommodating. As the elongated eyeball is but rarely found in infancy, so divergent strabismus is not a condition of this early period, but develops with myopia during youth or later even. The very early treatment of the hyperopia in convergent strabismus is not only the logical but the practical course to pursue. While many still ridicule the idea of putting glasses on a child two to four years of age, it has been successfully done. Worth of London, among others, has written most convincingly in connection with a large number of cases reported cured. It is reasonable to believe that the time to begin this treatment is while the squint is still intermittent, or "periodic," and before the sight has been damaged. Operative treatment certainly should not be attempted before a long trial with glasses has been made, and some believe that ten years is the earliest age for a tenotomy. We can expect to cure, or even to assist a divergent squint only by operation. In recent periodic cases, the outcome may be good, but in those of long standing, and with high degrees of myopia, we can hope only for cosmetic results.

In closing I wish to emphasize the use of a thoroughly reliable cycloplegic in refracting children and youth. We have seen how active and powerful the accomodative apparatus is at this period of life and from cases cited that only by a complete paralysis of these muscles can we discover the kind and

extent of error that exists. With many others I have tested the various drugs for this purpose, and agree with the almost universal conclusion that for absolute accuracy atropine sulphate in weak solution, grains 2 to 4 in 1 oz., is the cycloplegic *par excellence*. It must be instilled three times a day for a period of three days, and sometimes more, to thoroughly prepare the eye for examination. Many parents hesitate at this, both because of the popular prejudice to belladonna and well intended but misguided sympathy for the child who must go blindly stumbling about for ten to twelve days. Here the family physician can render both his patient and the oculist a valuable service by emphasizing the absolute necessity for this treatment, and by reassuring them of the harmlessness of those transient symptoms which sometimes appear in the use of this drug.

To summarize, we have stated that:

1. The infant eyeball is usually too short anteroposteriorly, or hyperopic, for the refracting apparatus.
2. This diameter may rarely be too long or myopic.
3. The diameters may vary in different meridians, astigmatism, even small degrees of which can cause serious disturbance.
4. The resulting blurred retinal images from these causes are made and kept clear only by the constant action of the muscles of accommodation.
5. Imbalance of the extraocular muscles can result in much trouble.
6. These conditions may give no especial trouble, or even become apparent, until the strain on accommodation begins when the child starts to school.
7. They may prove to be an early and increasing handicap to the child.
8. Headaches are a common symptom of eye strain and disorders of the lids and conjunctiva are not unusual.
9. Remote reflex disturbances, such as nervous, gastric, and intestinal troubles, may have the same origin.
10. The fact of error of refraction, and its amount, may not appear without a cycloplegic.
11. Complete and rapid relief often follows careful correction of refractive and muscular imperfections.
12. These should receive prompt attention when first noted or suspected.
13. Atropine sulphate should be used in making these examinations of children and youth.

576 Fifth Avenue.

THE INTERPRETATION OF CLINICAL HEARING TESTS ACCORDING TO THE AUTHOR'S SENSITIVE HAIR THEORY OF SOUND PERCEPTION.*

By W. SOHIER BRYANT, A.M., M.D.,
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The interpretation of the results of hearing tests according to the author's sensitive hair theory of undifferentiated cochlear tone perception corresponds under most conditions to the generally accepted interpretations of these tests: For example, the interpretation and explanation of the tests for middle ear impairment and for nerve, cerebral, and cortical impairment of the cochlear nerve tract are unchanged. Upon the author's theory, however, the interpretation of clinical hearing tests differs in the cases of lowered high tone perception dependent upon cochlear lesions, *i. e.* lesions of the structures in the scala media. In this paper, the author will consider losses in high tone perception due to cochlear lesions alone.

Briefly stated, the author's sensitive hair theory of undifferentiated cochlear tone perception is: A sound wave, after it has been transmitted through the external and middle ear, and has entered the labyrinthine fluid, beats upon the sensitive hairs of Corti's organ. These sensitive hairs appear to the the author to be the means of the transmission of the sound wave impulses to the neuroepithelial cells. The sound waves pass over these sensitive hairs in much the same way as wind waves pass over a corn field. The motion of the hairs thus caused is transmitted down the hairs to the neuroepithelial hair cells of Corti's organ, which transform the sinus sound waves into a nerve motion, and the perception takes place in the higher centers of the brain, the sound waves not being analyzed in the cochlea as is generally supposed.

This sensitive hair theory of the undifferentiated tone perception is based on the phylogenetic and ontogenetic development and upon the author's histological findings of the structure of the organ of Corti.

The question as to whether this theory of the undifferentiated tone perception by means of the sensitive hairs will fulfill the acoustic requirements, is answered in the affirmative for the following reason: Every property of the sound wave is represented in the form of the wave and is expressed in the character of the wave form. Every character of the wave form is imprinted upon the sensitive hairs of the neuroepithelium of the organ of Corti. The neuroepithelium transforms the molecular sound vibrations into nerve impulses. The perception of tone depends upon the power of the brain to interpret the stimulus transmitted by the cochlear nerve.

Our histological observations have proved to us that the most delicate part of the cochlear mechanism is the sensitive hairs. This is shown by the fact that in all manipulations for the purpose of studying the histology of this organ, these hairs are largely destroyed and, before any other structure of the cochlea is affected, injury to the hairs is caused either by the manipulations or by the reagents used. These hairs, therefore, are most likely to suffer the first injury in disturbances of the scala media.

Besides being the most destructible structure of the terminal organ, the hair-band is also the most highly specialized portion of the cochlea, as shown by its phylogenetic and ontogenetic development. The mechanical structure, too, shows the specialization of the hair-band, since this hair-band is admirably adapted mechanically to feel the fine vibrations of the high tone sinus waves. The physical form of this hair-band—long elastic filaments—indicates a sensitiveness to molecular movement unsurpassed by any other structure of the body. Any interference with the terminal mechanism must, of necessity, interfere first with the perception of the highest tones, since the alteration in the mechanism would first disturb the fine adjustment of the sensitive hairs of the mechanism required for the transmission of the highest note-waves. Thus

*Read at the Sixteenth International Medical Congress and the Eighth International Congress of Otology, Budapest, August 29-September 4, 1909.

we explain why the high tones are lost first instead of the lower tones, or both at the same time.

In extent, the loss of high tone perception must be in proportion to the gravity of the lesion causing the interference of the transmission of the wave impulse from the endolymph to the cochlear nerve endings. The author believes that this impairment of auditory function must extend downward from the top of the scale, for the reason that the most delicate part—the part which transmits the highest tones—suffers first under abnormal conditions.

According to the author's theory, a localized lesion of the cochlear mechanism causes only a quantitative impairment of tone perception. A localized lesion cannot affect the qualitative tone perception, since the unaffected parts of the mechanism would still perform their function. A local lesion causes an interference with the transmission of stimuli from the affected part of the cochlea. This interference results in a lessening of the sum total of the stimuli which reaches the brain, and therefore results in a lessening of the sum total of the tone impression. The sum total of the stimulation of the auditory center is lessened in proportion to the area of Corti's organ which has ceased to functionate. Since a localized lesion could only cause a quantitative and not a qualitative perception of tone, it is the theory of the author that the lesion must be diffuse in order to destroy the perception of the higher notes.

Conclusion. In diseases of the cochlea, when there is only a quantitative impairment and not loss of high tone perception, the author maintains that the lesions of the cochlea must be localized. When, however, there is a total loss of perception of high tones from cochlear involvement, the author interprets this absence of high tone perception as due to a lesion which is diffused throughout the extent of the scala media.

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Asiatic Cholera.—Nichols and Andrews conclude a paper on this subject as follows: (1) With regard to sex and age, cholera occurred in proportion to the population, with an excess of cases in children under ten years. (2) Intravenous injection saved about 80 per cent. of the cases from collapse. (3) Nearly half of those who survived the stage of collapse showed some symptoms of uremia, and nearly one-third died of this complication. (4) In general, the intravenous injection of saline solution greatly reduces the mortality from collapse; the more often the patients survive collapse, the more important becomes the treatment of the subsequent uremia; with the present methods of treating uremia only about one-third of the cases recover.—*Philippine Journal of Science.*

LETTERS TO A NEUROLOGIST.

By JOSEPH COLLINS, M.D.,
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II.

New York, January 7, 1909.

My dear Doctor:—Somewhere I have read that an autobiography may be the more valuable in proportion to the amount of misrepresentation which it contains. If that is true, the contribution which I propose to make is of very little value. I want to give you some account of my life with the hope that you may be able to explain why it is that the light has gone out of it. I have no irresistible longing for confidential expansion; in writing to you I am moved chiefly by a sense of duty to myself. I feel also that confession is good for the soul, and I have heard or read that we get from others, if we are able to accept and to assimilate it, something which we never obtain by our own efforts. I recall once going to hear a popular, rather unconventional clergyman, and being struck by the yearning, expectant look in the faces of many of the congregation—"The desire of the moth for the star." Perhaps they were not ready for the message, perhaps he did not have one to give, for I shall not forget the portrayal of blankness on many of those faces when the sermon was over.

Your profession may have no message for me, or if it has, I may not be capable of interpreting it. I don't know just how to begin to tell you about myself. I have a morbid appetite for happiness, and the world has become to me a scene of misery. I married at eighteen a young man a few years my senior and of somewhat better social position; at least, his family had been wealthy for several generations, while mine were in straitened circumstances. I first met him at a little dance given by one of my schoolmates in the Christmas holidays of my last year at school. I was a very pretty girl and was considered unusually bright by my schoolmates. I was very much interested in music, in poetry, in art, in philosophy, and particularly fond of the mystic philosophers. To be perfectly frank with you, I think my interest in these things was superficial. Perhaps I thought them rather decorative, like an attractive environment, and felt that they gave me a mysterious charm. No doubt, in those days I took myself rather seriously. When, in addition to these attractions, I added that of being engaged to one of the best "partis" in our set, my head, in the eyes of my companions, was encircled with a romantic halo. I fancy adulation and admiration have been necessary to me from my earliest years. I married before I was 19 years old, and our son was born before I was 20. He is now 23, and my 43d birthday is not far off.

In the second year of our marriage, I plunged deeply into the whirl of social life. The novelty of it was more entrancing because of my simple bringing up. I was flattered and admired, and I enjoyed myself from morning until night. My husband apparently was always glad and ready to share my social engagements and pleasures, but in reality he is what is called domestic. He has never seriously tried to keep me from doing anything I have really wished to do, and fortunately he is not jealous. Also I must say he has never had cause to be. Although fond of admiration, the idea of a "grande passion" never appealed to me; it is not so much

that it would offend my morals as my sense of the fitness of things. A certain gleam in the eyes of a wood-be lover gives me a feeling of nausea, and I am quite sure that if I gave a man any rights over me it would not be long before I hated the sight of him.

My husband, in whom the paternal instinct, it seems to me, is abnormally developed, has wished for more children. At first I kept putting off the evil day until I should have more time or more inclination for the trial and trouble. The truth of the matter is that with the birth of my son I missed that growth of the soul which Balzac wrote about so convincingly and so charmingly. It must have been that I was too young to have borne a child or had not been properly appraised of the dignity and sacredness of the obligation. Possibly immaturity explains my conduct. I remember once when my boy was dangerously ill that I worked myself up into a sort of frenzy of anxiety. In the midst of it I caught sight of myself in the mirror, saw how grotesque my grief had made me look and instantly set about repairing the damage. Would I have done this if I had really loved him?

My son went to a preparatory school when he was ten years old, then to a finishing school, and finally to college, so that I scarcely had a chance to become intimate with him, and now, when I begin to feel a pride in his worth and attainments—for everyone thinks him clever and able—he is about to marry a girl whom I scarcely know, and I am afraid I will count for little in his life or in hers. Meanwhile, in spite of his essential goodness, I am beginning to find my husband's society excessively distasteful, and the commonplaces of domestic life, the visits to and from the family, the little round of duties, monotonous recurrence of meals, are insupportable. Indeed, the vapidness of my life at home gets more and more on my nerves every day. The truth is, my husband's point of view is not harmonious with mine. What he talks about fails to appeal to me; all his aims and ambitions seem so petty—I had almost said sordid. When I am nervous and sensitive to discordant sounds, do you wonder that when he comes clumsily or noisily into the room and sings, or whistles or yawns, I feel as if I should scream? In addition, I am not well, I have aches and pains all over my body. I often wake at dawn and fail to sleep again, and I am unable to digest my food.

For many years I had a new fad every winter, clog-dancing, playing the zither, private theatricals, tableaux vivants, raising dogs, bridge, riding to hounds, modeling in clay, a class in Italian—anything and everything, but now I feel too tired, too ill to make the necessary effort.

Other interests also have long palled on me. My friends no longer interest me; they seem so self-centered, and their conversation bores me. It is also beginning to dawn upon me that my society is no longer so attractive to them. Formerly I was able, if you can understand what I mean, to get possession of people, to exert a magnetic attraction, and for a time they would see with my eyes and hear with my ears, but this ascendency did not last very long. It was obviously a part of my vitality. I wonder if you will understand me when I say I lived always in a state of expectancy that someone would come upon the scene more attractive than the chosen devotee of the moment, or that something would turn up more exciting than anything I had yet experienced. My husband often says to me, "What is it you want that you have not got—a luxurious home in winter, a veritable summer palace, motors, horses, trained servants, all the money you care to spend, every wish gratified? Why are you discontented, unhappy, ill?" Why, indeed?

People still appeal to me, but they do not enthrall me, and secretly I have a contempt for them in their readiness to bow the knee to convention and tradition. I am sure that the atmosphere in which I live is unfavorable to the development of my soul; in truth, I have the greatest difficulty in finding anyone who shares my inclination for the esoteric and the symbolic, and I hunger for the society of one to whom symbolism in religion, art, and life means what it does to me. If I could meet a person like Walter Pater I feel that I should be understood, and that the spiritual communion which would exist between us would entail happiness. Formerly, I was very fond of music, but it no longer enthralls me, nor can I get exultation when I see beautiful pictures, as I could formerly. I have no desire to travel. Having spent much time abroad, the pleasures of fashionable resorts have palled upon me. Saddest of all, my looking-glass tells me that I am beginning to fade; the corners of my mouth droop, and even I can see that my expression is peevish and discontented. My rest at night is so much broken that I awaken in the morning unrefreshed in mind and body, weighted with the leaden anticipation of another day.

I think that my present condition is due rather to misfortune than to any great lack in my own nature. In the past, before this state of worry and helplessness set in, I often felt exalted impulses toward the good and the beautiful. It is true that religion as generally understood has made no appeal to me; but a beautiful sunset, a strain of music, a couplet of poetry would make me at peace with all the world. How often at such times have I felt that it would be entirely possible to relinquish my luxurious life and devote myself to the performance of some noble duty, such as caring for the sick and poor and the unfortunate. Many times have I planned to do so. It must be that my husband has not given me encouragement; that my spiritual growth has been stultified by his limitations and his altruistic Lilliputianism. I am sure that if he had cooperated with me to develop the finer parts of my character, that I should not now be left "naked to my enemies," to borrow Woolsey's famous line.

I wish it were possible for me to become a Roman Catholic. The warmth of their ceremonial attracts me; and their cathedrals, their services appeal to the symbolism of my soul. I sometimes think that if I were to join that Church it might awaken dormant sentiments and satisfy my heart and mind, which are so inadequately nourished.

For the past two or three years I have grown increasingly nervous and irritable, and I have had much advice and treatment from doctors. Now I am being urged to consult a Russian hypnotist in Paris. Perhaps you have heard that he accompanied Mrs. ——— when she returned to this country last year. He is the same man, I think, who has been over here to treat Mrs. ——— for headache. My husband thinks that I should go back to Aix, as the doctor there said that it was absolutely necessary for me to go back every year for five years before the treatment which he gave me would cure me, but Aix bores me to death, and the sight of

King George annoys me nearly as much as my husband. The truth is that no one pleases me; it all seems so empty and dreary. My life is not over at forty-three, is it? If it is not, it is rapidly becoming an unsupportable burden. Is nervous prostration staring me in the face, or am I threatened with insanity?

I must tell you that recently I have often thought I was going mad. I have been unable to control my thoughts; I have felt a sensation of hopelessness and insecurity which no one can understand who has not experienced the feeling of being utterly anchorless, bereft of what I suppose you call will power.

If you can give me any encouragement, or if you can show me the way out of this wilderness, you will earn my everlasting gratitude.

New York, June 1, 1908.

"Travaillons sans raisonner, c'est le seul moyen de rendre la vie supportable."—Voltaire.

My dear Madam:—You mistake ennui for disease. You are in search of happiness, not health. In fact, your quest is the same now as it has always been, only now that you have come to a time of life when the outside world is beginning to lose interest in you and when your vitality is not quite so dominant as it was, you say "cui bonum?", the question that is as old as mankind, and the answer to which depends entirely upon yourself. Certain ancient philosophers taught that the great secret of life consisted in placing our happiness in things which depend upon ourselves and not upon things which are at the mercy of circumstance. If I may judge from your letter, you certainly have not followed the teachings of such philosophers. Your life has been one of self-indulgence and lack of discipline. The only canon to which you have conformed your conduct is, "Do I want it?" You never asked, "What will the possession of this bring me? How shall I profit from this? How will others profit?" You have not known and you have not sought to learn if the gratification of your desires and the affirmation of your requests involved sacrifice upon the part of your husband or of your family.

You apparently believed that happiness was to be found by increasing your wants and by endeavoring to satisfy them, whereas in reality happiness is found by restricting one's wants. The great thing is to learn early the secret of renunciation. To get personally as much satisfaction as possible out of life and so to direct our conduct and activities that it will also be easier and surer for others to get it, this should be one of the chief objects of our existence. We should seek happiness in active life devoted to some absorbing condition, or in endeavoring to develop those emotions or intellectual tastes which are the fruit of the proper cultivation of our capacities, our endowments, and our fancies. But what have you done? You have rushed without ceasing, and now you are at a loss to understand why you are weary of the life that you have led, and fearful of the prospect that confronts you.

Have you ever seriously asked yourself the object and aim of life, not as an academic inquiry or as a contribution to the literature of immortality, but as an average woman, without particular training in religion or philosophy, might ask herself? If you have, you have probably reached the conclusion arrived at by the majority of us, that the object and aim of life is happiness. That, in reality, is what you are in search of now.

The relationship between the disease of our era, ennui, and dissatisfaction with life, or unhappiness, is not hard to find. It has been said that strenuousness is our national characteristic, but the disease has been mistaken for the remedial measure. We appear strenuous, but it is only our great effort to escape boredom. We are fearful lest we should have a few minutes or hours during which we may be obliged to think, or indulge in revery. We flee from abstraction as we flee from the plague. We in this country are so new at the game of life as it exists, and we are so hampered by the bonds of convention that we cannot play it from the point of view of the Hedonist. It bores us to live in the country. It bores us to dine at home. It bores us to restrict ourselves to our family circle. Reading for pleasure scarcely exists. Conversation as an art has perished as completely as the art of the Etruscans, and for table talk we must turn to Coleridge, Sidney Smith, or Emerson. Such a scene as that depicted recently by Dickinson in "A Modern Symposium" would be no more possible in this country than a discussion of Phædo at a fashionable dinner-party.

You see, I am endeavoring to point out to you that you are not entirely to blame for the state of desolation in which you find yourself. You cannot be absolved wholly, however, for I think much of your unhappiness can be traced to your voluntary and deliberate act of omission in failing to map your life during those twenty years of your early maturity when the constructive capacity is at its height, and in not, at the present time, cultivating those dispositions and tendencies which contribute to happiness. "Viellir est plus difficile que mourir, par la raison que renoncer une fois et en bloc à un bien coute moins que d'en renouveler le sacrifice tous les jours et en detail," saith Amiel.

It is at your age that, in nearly every country save ours, woman reaches the maturity of her charm and the height of her attractiveness. A sympathetic comprehension of persons and of life may give her an experience from which radiates that indefinite something that entrances and enthralls. Instead of being conscious of this power, you are overwhelmed with your helplessness and have no gratitude for the past, no hope for the future.

Can you not look back on your life and see why it is that you have failed to develop that equanimity and peace of mind which constitute the philosophy of late maturity? If you do so, you will find that you have sought happiness from without, rather than from within, and that such search is bound to be futile, sage and bard have testified from time immemorial—

"Thy body at its best,
How far can that project
Thy soul on its lone way?"

There are certain physical conditions which are essential to happiness, and of these that which we call health, or an approximation to health, is the most important. Nearly everyone, I presume, has known someone, usually a woman, who, despite semi-invalidism, has been self-sacrificing, courageous, resigned, cheerful, and magnanimous, a radiator of joy and goodwill, and who found ill-health quite consistent with happiness.

History abounds with examples, such as Symonds and Stevenson, showing that a capacity to receive,

to interpret, and to give pleasure, therefore to be happy, is not at all inconsistent with ill-health. In your own case, judging from the account that you have given me, it would appear that you have had exceptionally good health, nor can you legitimately accuse the rubicon that you now seek to bridge, rather than face its stream, with having anything material to do with your present state of mind. Just in proportion as the principles governing the causation of disease are discovered, and deductions drawn therefrom are established, so has the second great physiological epoch in woman's life, as an adequate exciting cause of disease of any kind, been relegated to the background. Not very long ago it was taught that nervous and mental disorders of various kinds were particularly liable to occur at this period of involution. Even to-day this belief is widespread among the intelligent laity, and such teaching is handed down from generation to generation in much the same way as was the poetry and legend of ancient Greece. In reality, aside from slight disturbances of the most conspicuous functions of the sympathetic nervous system, this period is often one of physical tranquillity, emotional growth, and intellectual maturation.

I cannot presume to advise you how you shall proceed to find your way out of the thicket into which the pursuit of pleasure has led you. No one can help you but yourself. The way out for you may be indicated; you may be aided to recall truths which no doubt are also platitudes, but the only one who can do anything with your character as it is now formed is yourself. First, you must battle with selfishness, for I fear that, insidiously and unconsciously, it has taken possession of you. What have you ever done for your family, for the community in which you live, for society, aside from an occasional "giving in" to your husband, or such sacrificial offering as a fancy dress ball, a musicale, or the gift of a check to Salvation Army, rescue mission, or hospital? I venture to say that you have never experienced a thrill from such conduct. Such delightful possession might have been yours had you ever done a truly unselfish act. To bestow something which costs us nothing may benefit the recipient, but not the donor.

"Who gives himself with alms feeds three,
Himself, the wandering poor, and Me."

Have you ever taken any real trouble about your charities? Have you sought out, at the cost of time and labor, any poor family to whom you could be an administering angel? Have you come to the rescue of the ignorant and erring of your own sex in their hour of direst need? Have you consoled them in their time of trial, and later on, have you by your unselfish sympathy encouraged them to face the world again? Have you ever proved yourself a true helpmate to your husband in any crises of his business life, and won his gratitude by your loyalty and devotion? Consider how much work there is in this world ready and waiting to be done!

Have you ever taken an interest in any of the questions of the day? There are many crying needs to be adjusted. You might devote some of your time, and all of your energy, to the establishment of a hospital for the treatment of the demi-poor, ill with so-called "functional" nervous diseases and the curable mental diseases. America well deserves the opprobrium of being the one great nation which makes no provision for those unfortunates who are not apparently sick and who are therefore excluded from all hospitals, but who in reality suffer infinitely more than those who have bodily ills. Such cases call for a much more elaborate and intricate therapy than typhoid fever, pneumonia, or broken bones.

Had you the slightest wish to protest against the enactment of a law to prevent humane vivisection when it was read before the Legislative Committee last year in Albany? You know, I have no doubt, that such diseases as diphtheria, hydrophobia, meningitis, and others have been stripped of their malignity, and that those terribly deforming and often fatal diseases, pulsating goiter and myxedema, now yield to treatment. And if you know this you know also that this epochal advance in therapy is entirely the outcome of experimentation upon animals. Many kindly but misguided people would stop this by the enactment of laws which forbid such experimentation. The very fact that a person of your social position had intelligence and interest enough to point out that we could not very well applaud field sports, in which animals are killed and maimed for amusement, and at the same time make laws which, put into action, would prevent investigations that save the lives of our children, would, I have no doubt, have had weight with the committee that had this matter in hand.

Do you realize that the problem of child labor in the cities of this country, and especially in the large cities, is one that urgently awaits solution? Do you know that earnest men and women, imbued with a spirit of eagerness to discharge their duty to their Creator and to their environment, are bending every effort to solve this problem, and solve it in such a way that it will not conflict with the principles of economics or of freedom?

Did you by chance see in a Sunday newspaper of recent date the account which one of our most talented operatic singers gave of her early life, and how generously and wholly she gave the credit for the success that had come to her to a kindly woman who not only provided her with the means necessary for the cultivation of her talent, but who encouraged her in the times of her despair and cheered her in the hours of her depression? The satisfaction that that woman must have in knowing that she has enormously contributed to the pleasure of thousands of people, and will continue to contribute, must be very great indeed.

But why enumerate? The more one does, the more one finds to do, and unselfishness is as capable of cultivation as any other quality. Indeed, it is not necessary to recall good deeds or to do good deeds in order to have the sense of happiness or to deserve the "well done, good and faithful servant." On the contrary, it is quite as possible to have it from thought as from act, but not the thought of introspection, of self-analysis of the good and evil of life. Indeed, it does not follow the thought of self at all, but of others, living and dead, and of the joy of life of those with whom we come in contact, and of the reputation and achievements of those who have gone before!

You may say that such counsel as I have to offer might have been of assistance had you received it twenty years ago, and you may think that the plastic stage of your life having passed, it is too late for you to avail yourself of it, but I think otherwise. One can do more with one's character at any age than with one's intellect. Read

the life of Alfieri, the Italian poet, and see what he did with his character and with his intellect at various ages. You will be astonished and benefited. Indeed, I am not at all sure that you are not more prepared now for the message which I have for you than you were when you were younger, particularly because happiness and contentment and peace of mind mean something different to you now than ten or twenty years ago.

While we are young, we are continually looking forward to something that will make us supremely happy—"Man never is but always to be blest." Youth is ever impatient for to-morrow, for next summer, for next year. The boy wants to be thought a man and the girl wants to look older. An undefinable something that is pleasurable waits the advent of next year, but when next year comes, anticipation is again projected beyond the moment. The truth is, we may be content, peaceful, pleasantly occupied, but we are never actively happy for more than a moment at a time. Nature is beneficent, the nearer we put ourselves in harmony with her laws, the more satisfaction we obtain. A well-spent youth means a happy old age. Youth is rarely a period of conscious happiness. We read great happiness into it across the valley of retrospection. As a matter of fact, when the stress and strain of life are over, when life's pleasures and responsibilities lessen, and we sit down to wait, unquestioning, we are quite as near to happiness as at any other time. The capacity to enjoy life is not peculiar to any age or either sex, it lies entirely in the individual. How often do we see those most apparently blessed by fortune, discontented, peevish, a prey to nervous disease, and on the other hand, the old, deformed and poor, at peace with themselves and with all the world, happy in putting to use the one talent.

For the sake of argument, let us agree that happiness does exist. Can we not also agree that it is almost independent of circumstances? As Heaven is surely a state and not a place, does not happiness exist solely in the spiritual side of our natures? Some favored mortals are blessed by having had a fairy godmother, who bestowed on them at their christening the greatest of all gifts, a good disposition, which is really, in a way, what is spoken of in the Bible as Charity. They do not have to struggle their lives through—young, they take all simple, natural pleasures naturally; old, they get pleasure from and live again in the young.

Humility and submission are qualities without which one cannot be at peace. At your age, the more important, for this time of life is full of renunciation—each day, each month, something is relinquished forever, but if one has cultivated the "seeing eye, the understanding heart," one is enabled to bear the inevitable with philosophy and gentle resignation. Taught by experience, one realizes that this world must be a training school for some unknown sphere, and that whether hereafter we continue to exist as individuals, or whether we only make, by passing through life, an eternal impression, it must all be worth while. There is no real waste in Nature; there must be some end and aim to this existence which our finite minds are unable to grasp.

On the side of your dressing mirror place a card inscribed with the sentence by Mme. da Deffaud:

"L'ennui est le tombeau de tous les sentiments."

Observations on Certain Forms of Infantile Anemia in Relation to the Hygiene of the School.—V. Giudiceandrea, from his experience in inspecting certain private and public schools in Rome, deduces certain conclusions with reference to the causation of some forms of anemia found in school children. Certain forms of anemia are not caused by the usual well-known morbid states, congenital and acquired, but seem to bear a relation to the conditions of the home and school life of the child. Between the ages of six and fourteen years there is a true scholar's anemia, which, in predisposed children, is brought about by the unhygienic conditions found in schools, especially the badly regulated bodily exercise and mental discipline. The anemia of growth, generally considered to be due to the growth in length of the body, without an equal growth of the hematopoietic powers, has much to do in causation with the hygiene of the family and of the school. The inspection of schools can be such as to assist in preventing these conditions, and the physician can be of great use, but his position in this matter is one of some delicacy.—*Il Policlinico.*

Galvanization of the Thyroid Gland and the Menstrual Function.—P. Galante says that there is a special relation between the diseases of the thyroid gland and the functions of the sexual organs. This is shown especially in exophthalmic goiter, in which the disease is accompanied by lack of sexual desire in the male and even impotence, and in the female by disturbances of menstruation. In the initial period of high tension there is metrorrhagia, while in the stage of cachexia amenorrhoea takes its place. The author details three cases of goiter observed by himself in which these relations were well shown. These cases demonstrate the necessity of early intervention in the treatment of exophthalmic goiter in order to obtain a cure. Galvanization of the thyroid gland has a marked influence on the menstrual function. The presence of pregnancy in this disease makes it necessary to use the greatest prudence in the use of this treatment, since abortion may be produced. In cases of dysmenorrhea accompanied by hyperthyroidismus, galvanization of the thyroid gives surprising results. The author believes that if this treatment be made use of in the acute psychoses which accompany Basedow's disease and disturbances of menstruation it will have an excellent effect.—*Annali di Elettricita Medica e Terapia Fisica.*

Mammary Opotherapy in Gynecology.—Batuaud describes a diminution of size of fibroid tumors of the uterus, especially of pure myomata, and a lessening of hemorrhages from the ingestion of the powdered substance of the mammary glands. Mammary opotherapy is indicated whenever we have too abundant menstruation, too short intervals between the catamenia, too prolonged periods, or hemorrhage between the regular periods. The medication brings back the normal rhythm of menstruation as to frequency, amount, and duration. It is useful in the menorrhagia of puberty, in young females with ovarian congestion causing metorrhagia, in salpongo-oophoritis with menorrhagia, and in metrorrhagia of fibroid tumors. It is also useful in hemorrhage of uterine sclerosis and other hemorrhages of the uterus at the menopause not allied with malignant growths. It is useless in hemorrhage from placental retention and from mucous or fibrous polypi. The dose is two powders of .50 grams per day, before meals. In hemorrhage between the periods there should be the same dose taken daily, and twice as much at the time of hemorrhage.—*Journal de Médicine de Paris.*

Appendicitis and Diseases of the Adnexa.—Paul Segond finds that appendicitis and diseases of the adnexa are frequently found together, and have a causative relation. The intimate relations of these two structures, their connection by a ligament, a chain of lymphatic, and the peritoneum and subperitoneal cellular tissue, all tend to account for the propagation of inflammatory lesions from one organ to the other. The two may be combined, the suppurative cavities being connected, or there may be only a surface lesion of one organ, while the disease of the other is fully developed. The diagnosis between an appendicitis and a right-sided inflammation of the adnexa is very difficult. When there are digestive disturbances in a salpingitis the appendix should be carefully examined. When a laparotomy is done for disease of the adnexa the appendix should be carefully sought for and if there is any suspicion of disease it should be removed. The indications for operation in all suppurative cases are imperative. When operation is to be undertaken in adnexal disease, if there is suspicion of appendicitis no vaginal operation should be done, and a median incision of the abdominal wall should be preferred.—*Gazette Médicale de Paris.*

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THE ACTION OF MAGNESIUM AND CALCIUM ON THE ANIMAL BODY.

DURING the past few years a series of reports have emanated from the Rockefeller Institute, each describing some phase of the researches of Meltzer and others on the action of the salts of magnesium, calcium, and other bases upon the animal organism, each representing a link in a chain, which, when welded together, forms a distinctly valuable contribution to medical knowledge. This welding process has now been done by Meltzer in a paper presented at the Sixteenth International Medical Congress at Budapest, published in the *Deutsche medizinische Wochenschrift* for November 11, 1909, and abstracted in full in the MEDICAL RECORD, volume 76, page 1006.

The first fact of importance to be discovered by Meltzer was the remarkably powerful depressive action of magnesium when injected into rabbits, cats, and other animals. This was so extreme as to produce complete anesthesia and narcosis. Subcutaneous or intraspinal injections of magnesium sulphate or chloride were followed within fifteen to thirty minutes by a complete flaccid paralysis, and total loss of the sense of pain, to such a degree that even major operations could be performed with no sign of suffering on the part of the animal, the anesthesia lasting, as a rule, in the neighborhood of two hours and terminating in perfect recovery with but few after effects. This discovery led to the use of magnesium sulphate, especially by means of intraspinal injections of 25 per cent. solutions of the salt, for the production of anesthesia in operations upon the human body, and also in the treatment of tetanus. The results in the latter were striking, indeed. Within a few minutes after the first injection the convulsions and rigidity disappeared and the patients remained for hours or days in a state of rest, often resulting in complete recovery from the disease.

The general use of the drug, however, as an anesthetic, was prevented by the narrow margin of safety in its use, even comparatively slight increases in the dose administered causing, in the animal experiments, death from respiratory paralysis. A search for an agent antagonistic to the action of the magnesium, and protective against its dangers, was therefore instituted, and in 1908 an article was published by Meltzer and Auer showing the power of the salts of calcium to neutralize and overcome the action of magnesium. The demonstration of this was impressive. If an animal were given a large lethal dose of magnesium sulphate, and the experimenter waited until paralysis was complete, the reflexes lost, respiration stopped, and the heart action a mere flutter, and then injected intravenously a few cubic centimeters of calcium chloride or acetate, the effect was immediate. The respiration returned and deepened, the lid reflexes were renewed, and within one to two minutes the animal sat up and hopped away. In the authors' own words "intravenous infusion of various calcium salts is capable of completely reversing the pronounced inhibitory effect brought on by the various magnesium salts. The respiratory paralysis, the lost lid reflexes, the motor paralysis, the lost general reflexes, the general anesthesia, the loss of consciousness, the cardio-inhibitory depression, the lowering of blood pressure—are all reversed and restored in a very short time and by a comparatively small quantity of calcium. We do not know of any instance in biology of such a striking, we may say miraculous, antagonistic effect." This antagonistic action of calcium to magnesium occurred whenever the latter was administered subcutaneously, intramuscularly, or intravenously, but failed entirely if the primary injection was made into the medulla or the arachnoid spaces. Further researches by Meltzer and Joseph demonstrated that the administration of physostigmine in therapeutic doses, while in no way interfering with the anesthetic effect of magnesium, decidedly aided in preventing the respiratory paralysis.

In concluding his Budapest paper Meltzer calls attention to the fact that of the four elements, magnesium, calcium, potassium, and sodium, the first is the most poisonous to the animal organism, and the toxicity decreases in the order named. The relative toxicity of the ions of these bases is in inverse proportion to the amount normally found in the serum of the animal, or, in other words, the less accustomed a tissue is normally to a substance, the more poisonous that substance is for the particular tissue.

These researches of Meltzer and his associates have developed a mass of knowledge not only new, but striking in its import and possibilities. As yet their practical application to the treatment of disease may not be very apparent, but whether or not they will ever lead to the adoption of a safe general anesthetic, administered by subcutaneous injection, from the viewpoint of the physiologist and the pharmacologist their value is considerable.

NASAL DIPHTHERIA.

PROPHETS of ill are not wanting who assert that the winter which is now upon us will show rather more than the usual number of cases of infectious disease, especially of diseases involving primarily the upper respiratory tract. If that is so, speaking for one of the worst and formerly most fatal of these among children of tender years, one will do well to remem-

ber that the Klebs-Loeffler bacillus is ever present among us, and that its tenacity and virulence vary considerably in different years. We are prone ever to think of diphtheria as a pharyngeal and laryngeal condition, and, fortunately, we have learned to regard every case of sore throat in children with suspicion. Experience has taught that many lives have been needlessly sacrificed because we have been too trusting of our diagnostic prowess, and, hence, every case of sore throat with exudate is now submitted to microscopic test by all careful practitioners. It is rather curious what surprising reports one may receive from a focus that looks like acute follicular tonsillitis or mycosis, or a result of some disorder of the stomach; consequently, when called to see a child, no matter what the alleged cause of the illness, one ought always carefully to inspect the mouth. This means thorough and systematic examination of the inner surface of the cheeks, gums, roof of mouth, tonsils, pillars of fauces, oropharynx, and the area beneath the tongue. Such care followed by immediate taking of smears and cultures will ofttimes well repay one the slight trouble which is thus occasioned.

We should not, however, attend too assiduously to the mouth and throat at the expense of overlooking an important nasal condition. Frequently the mother neglects to mention to the physician that the child has had a foul discharge from the nose for several days or weeks, thinking that what is considered to be an ordinary cold will shortly clear up without treatment. It is just these cases that furnish the greatest number of diphtheria carriers; for after the acute symptoms of fever, vomiting, anorexia, etc., have passed, the child is up and about, playing more or less half-heartedly, yet not really sick as the mother understands the term. Nevertheless, many such children harbor the Klebs-Loeffler bacillus in nearly pure culture, and it is probably because of the antiseptic properties of the nasal secretion that general toxic symptoms are not more in evidence.

The nasal discharge is greenish or greenish yellow, is very irritating, causing excoriation of the skin of the nose and lip, and is accompanied by slight bleeding and crust formation. Occasionally large pieces of membrane forming a partial cast or mould of the nasal fossa will be discharged. It is not unlikely that many cases of chronic nasal discharge which continue into youth as an atrophic rhinitis find their origin in a Klebs-Loeffler infection which becomes so attenuated as finally to lose its distinctive morphology. When a diagnosis of nasal diphtheria is made in an adult, an injection of not less than 5000 units of antitoxin should be at once administered—the rules for children have already been fairly well described by many authors. The nose should be irrigated with physiological saline solution every two hours, followed by a spray of lactic acid bacillus. Just what rôle the latter plays is not yet scientifically proven, but the tendency is to ascribe a sort of selective affinity on the part of these warring bacilli for each other. There is no question that this is sometimes a very helpful measure. Text-book descriptions of nasal diphtheria are for the most part brief and unsatisfactory, but the importance of early recognition of this condition needs to be emphasized.

CROTALIN AS A THERAPEUTIC AGENT.

Snake-venom, like all poisons, may be employed as a remedy for certain affections. Thomas J. Mays of Philadelphia has for some time been investigating the matter. His experimental study of crotalin (rattlesnake venom) led him to believe that the substance affects profoundly the cerebrospinal nervous system, and especially that part of the spinal cord which comprises the respiratory center and other closely allied centers (*American Journal of Clinical Medicine*, December, 1909). A. J. Wall, perhaps, has made the most elaborate experiment in regard to snake venom under the auspices of the British Government in India, a fertile field for work in this direction. He and other investigators demonstrate that the powerful snake venoms all actively affect the structures of the upper part of the spinal cord which are included in the medulla oblongata. According to the same authority cobra venom in man exercises a similar effect, only intensified, to that exerted by crotalin. The dried venom of the rattlesnake, known as crotalin, has a neutral reaction, is soluble in water and glycerin, and possesses all the physiological properties of the fluid secretion. Armstrong states that it has the following percentage composition: Carbon, 45.76; nitrogen, 14.30; hydrogen, 6.60; sulphur, 2.50. Mays concludes that 1-100 grain may be considered the average dose, to be repeated once a week. It can be given hypodermically, and by mouth in fluid form, as a reinforcing administration. The local effects are painful for a short time, and edematous swellings occur.

The author gives his experience with the therapeutic action of crotalin in several diseases. In cases of phthisis he has had most favorable results from the employment of the remedy, and it was noted especially that crotalin had a marked influence on many of the physical signs of phthisis and other lung diseases, notably on the auscultatory signs. Acute pneumonia, asthma, hay fever, and spasmodic cough have been greatly benefited by the employment of crotalin. Neuralgia, sciatica, brachialgia, and lumbago have disappeared completely and rapidly, according to Mays, under treatment with crotalin. And, lastly, epilepsy and multiple sclerosis have yielded to a great extent to this form of treatment, but in the case of these diseases experience has been too limited to pass a definite opinion. Mays concludes that there is a great future for the employment of crotalin in medicine, and hopes that it may be fully tested by the profession. All experiments with deadly snake venoms prove that the poison has a special affinity for the respiratory center and those ganglia allied to it in the medulla oblongata which are in connection with the vagus, and it may be well, therefore, indicated in certain respiratory diseases and those affecting some of the nerves in connection with the respiratory center.

The Effect of Alcohol Upon Gastric Secretion.

That the habitual use of alcohol in excess exercises a very injurious effect upon the functions of the stomach is sufficiently well known. Yet there have been surprisingly few attempts to study its influence by the only exact method available, that is, by the administration of test meals and the examination of the gastric juice obtained after them. Nellis B. Foster alone has carefully examined a number of patients in this respect and has found that a great majority of them secrete more than the normal amount of mucus, while the free hydrochloric acid in their gastric juice is diminished below the average values. In the *Zeitschrift für physikalische und diätetische Therapie* for December, 1909, Eisenhardt reports a careful study of the matter in the case of thirty patients, all of whom gave a reliable history of chronic misuse of alcohol in the form of beer and other spirituous beverages. Twenty-two of the thirty suffered from the subjective symptoms that usually accompany alcoholic gastritis, while eight others had no complaint whatever, though chemical examination of their gastric juice showed marked deviations from the normal. Three patients had gastritis accompanied by an excess of acid in the gastric juice, three others showed low acid values, while the majority, or twenty-three of the remaining twenty-four, showed the presence of "anacid gastritis" of the type that is usually associated with chronic alcoholism. The motor functions of the stomach were for the most part exaggerated, so much so, indeed, that Eisenhardt was compelled to express the contents of the stomach fifty minutes instead of the usual one hour after test meals were given. The functions of the intestines appeared to be much less affected, a result which is well explained by the fact that a part of the alcohol is absorbed from the stomach and the portion that reaches the intestines is much diluted and is distributed over a greater surface than when it first reaches the stomach. All of the results obtained were controlled by repeated examinations so that accidental findings were excluded. These results seem to corroborate the usual teachings in the matter; they add to them, however, the weight of experimental evidence and not that of mere conjecture founded upon subjective symptoms.

The Standardization of Drugs.

A bill has been introduced into Congress by Representative Coudry of St. Louis, providing for a single national standard of purity and strength for all drugs used in the treatment of disease in man or animals. The bill, as published in *The Pharmaceutical Era* of December 23, is rather crude and badly constructed, and if passed in its present form would probably give work to the courts for its interpretation, but in principle it is excellent and urgently needed. Under the provisions of the pure food law the U. S. Pharmacopeia and the National Formulary are the legal standards for all the drugs listed therein. But there are objections to such a provision, for neither of these books is a government publication, the standards they set up may be changed from time to time, and indeed have frequently been changed, without any apparent reason, and moreover there are many drugs prescribed daily by physicians which are not in the Pharmacopeia. The only permanent body claiming authority in the matter of the standardization of non-official drugs is one the authority of which is not recognized by the majority of the medical profession of the country. A bill written in intelligible and unequivocal language, entrusting the task of the standardization of all drugs, within and without the Pharmacopeia, to the Marine Hospital Service or some government-appointed commission of experts, would doubtless receive the warm support of the physicians and pharmacists of the country.

Reduction of Membership Dues by the American Medical Association.

We learn from an announcement in the *Journal of the American Medical Association* that the dues for membership in the Association have been reduced from five dollars to one dollar per annum. The announcement reads: "The annual assessment for membership shall be one dollar; and the price of subscription to *The Journal* shall be four dollars for members." There has been much complaint by members that they have received no benefit from the enormous financial success of the Association, and they will be pleased to learn that the officials have at last decided to let them share in the prosperity of their organization. The new rule will also no doubt result in a large increase in membership, for with the reduction of dues to one dollar many who do not care to subscribe to the official journal and who have hitherto held aloof because of the heavy assessment, may now be induced to join the society.

News of the Week.

The Harvey Society Lecture.—The fifth lecture of the Harvey Society will be delivered by Prof. Ludwig Hektoen of the University of Chicago, on Saturday evening, January 15, 1910, at 8:30, at the New York Academy of Medicine, 17 West Forty-third street. Subject: "On Certain Phases of the Formation of Antibodies."

The Tuberculosis Crusade of 1909.—Based on reports gathered from all parts of the United States, the National Association for the Study and Prevention of Tuberculosis has issued a bulletin in which it is stated that $8,180,621.50 was expended during the year just closed by the various interests fighting consumption in the United States. The bulletin, which is preliminary to a longer report, shows that in the year 1909 over 10,000,000 pieces of literature were distributed, and that 117,312 patients were treated and assisted by the sanatoria, dispensaries, and antituberculosis associations. By far the largest amount of money spent during the past year was for the treatment of tuberculous patients in sanatoria and hospitals, $5,292,289.77 being expended in this way. The antituberculosis associations spent $975,889.56, the tuberculosis dispensaries and clinics, $640,474.64, and the various municipalities, for special tuberculosis work, spent $1,111,967.53. The antituberculosis associations distributed the most literature, spreading far and wide 8,400,000 copies of circulars, pamphlets, and other printed matter for the purpose of educating the public about consumption. The health departments of the different cities also distributed more than 1,056,000 copies, which, with the work done by State departments of health, brings the number of pieces distributed during the year well

over 10,000,000. The largest number of patients treated during the year was by the dispensaries, where 61,586 patients were given free treatment and advice. The sanatoria and hospitals treated 38,758 patients, while antituberculosis associations assisted 16,968. New York State leads in the antituberculosis work done during the past year, having spent more money, distributed more literature, and treated more patients than any other State. Pennsylvania comes next and Massachusetts is third. The next seven States are Illinois, Maryland, New Jersey, California, Colorado, Connecticut, and Ohio.

Preventorium to Leave Lakewood.—In a letter addressed to Governor Fort of New Jersey, recently, the president of the Children's Tuberculosis "Preventorium," at Lakewood, stated that, owing to the opposition aroused against the project, the trustees had voted to move the institution from Lakewood.

Health Commissioner of New York City.—Mayor Gaynor has announced the appointment of Dr. Ernst J. Lederle as Health Commissioner to succeed Dr. Darlington. Dr. Lederle was Health Commissioner during the term of Mayor Low.

Mortality Rates in American Cities.—The Bulletin of the Chicago Health Department states that from the latest available returns of the fourteen largest American cities for the year 1909, death rates, computed on figures of population supplied by the United States Census Office, are as follows: Cleveland, 13.2; Chicago, 14.0; Milwaukee, 14.6; Detroit, 14.8; Pittsburg, 14.8; Buffalo, 15.1; St. Louis, 15.5; Philadelphia, 16.3; New York, 16.6; Cincinnati, 16.8; Boston, 17.6; Baltimore, 18.1; Washington, 18.5; New Orleans, 20.6. It is interesting to note that of the six healthiest large cities in the United States, five are located on the Great Lakes. From typhoid fever—the disease by which many authorities still gauge the sanitary status of a community—Chicago has, for the first time in its history, a lower death rate than any of the fourteen largest American cities. In each 100,000 inhabitants Chicago had 12.1 deaths from typhoid; Cleveland had 12.4; Cincinnati, 12.5; New York, 12.7; St. Louis, 14.4; Boston, 14.6; Buffalo, 18.9; Philadelphia, 22.2; Milwaukee, 23.3; Pittsburg, 24.0; Detroit, 25.5; New Orleans, 29.0; Baltimore, 31.2; Washington, 37.0.

Dr. Edward L. Munson, Major-Surgeon United States Army, has just been awarded the Seaman Prize of the Military Service Institute for 1909, for the best essay on the question "Should medical officers be responsible for the health and sanitation of the troops with whom they serve; and, if so, what should be their powers and duties? The prize amounts to $100, and is offered by Dr. Louis L. Seaman of New York, late Surgeon United States Volunteers, whose interest in the promotion of the efficiency and status of the military medical service is well known in this country and abroad.

Health Legislation in Ohio.—Three bills relating to public health matters have been prepared by the Ohio State Board of Health for the next Legislature. One is a bill to authorize the State Board of Health to establish a bureau for the prevention of infectious and contagious diseases, and to appoint necessary district medical inspectors. The bill provides in brief for a division of the State into not to exceed twelve districts, and for the appointment of a properly qualified physician as medical inspector for each district. Such inspectors may be selected after an examination to determine the fitness of applicants. It is provided that "The State Board of Health shall respond promptly when called upon for assistance by any local board of health or health officer, or the mayor of any city or village, or the justice of the peace of any township, and shall send a medical inspector to aid in diagnosing an infectious or contagious disease, in discovering its cause or origin, or in the enforcement of measures for its prevention." A second bill has been prepared, "To authorize the State Board of Health to produce antitoxin for free distribution for the cure and prevention of diphtheria." Under the present law, county commissioners are authorized to pay for diphtheria antitoxin, but only for use in indigent cases. The other bill is entitled, "A bill to promote the health of school children and to protect them from the evils arising from undiscovered or uncared-for physical defects and from contagious and infectious diseases." It provides in brief that every school child shall annually be examined by its teacher, and tested for sight, hearing, and obstruction to breathing. This is to be done according to directions to be prescribed by the State Commissioner of Common Schools, after consultation with the State Board of Health.

Medical College in Richmond Burned.—The University College of Medicine in Richmond, Va., was destroyed by fire on January 6. The adjoining Virginia Hospital was saved only with great difficulty. The Richmond College has offered the use of its buildings to the institution until the wrecked building can be rebuilt.

The "Lancet-Clinic" Enlarged.—With the issue of the January 1 number of the *Lancet-Clinic* this journal enters upon its one hundred and third volume. The publication, which has appeared for so many years as a small magazine-sized pamphlet, now appears in a larger form, to correspond with the other weekly medical journals of this country. The editor emphasizes the fact that it is no longer a local journal, but that "its theater is the United States, with especial reference to the Mississippi Valley."

The Illinois State Board of Health has issued a circular entitled "The Cause and Prevention of Consumption." This is the eighth revised edition of this pamphlet. It contains sixty-eight pages of instruction and advice upon the subject.

A "Pedicure Clinic" to be Established.—An announcement has been made in New York of the organization of a new institution to be called the People's Pedicure Clinic, the purpose of which will be to give to the indigent poor free treatment by chiropodists in a manner similar to the medical clinics of the city. The institution is the first of its kind in New York, if not in the world. Dr. Joseph P. Salomon will be the chiropodist in charge.

Health Agent Sued by Farmer.—An action for damages is being brought against the Chief of the Bureau of Sanitary Inspection of the New York City Board of Health by a farmer and dairyman of Roxbury, N. Y. The cause of the suit is the action of the Board of Health, through its chief inspector, in forbidding a dairy to receive milk from the farm of the complainant on the ground that the barns were in an unsanitary condition. The suit is to be a test case.

A Vaccination Fraud.—A young man who said

that he was a medical student was arrested recently in Long Island City on the charge of impersonating an officer. He had been representing himself as an agent of the Board of Health, and on this authority had insisted in vaccinating a number of people, for which he collected fifty cents a head.

The Americal Hospital of Paris has recently received a donation of $25,000 from Mrs. William B. Leeds in memory of her late husband.

Hospital Destroyed.—A dispatch from Vienna describes an accident which occurred on January 8 at Raibi, in Carintia. The sudden subsidence of the site of a disused mine completely engulfed a small hospital building. Not a vestige of the hospital remained, and only a huge cavity in the ground was to be seen. Seven inmates of the hospital, including Surgeon Wesseley and his family, perished.

Williamsburg Medical Society.—At the stated meeting of the society, held December 13, 1909, the following were elected officers for the ensuing year: *President,* Dr. Joseph Merzbach; *Vice-Presidents,* Dr. S. R. Blatteis and Dr. Adolph Bonner; *Secretary,* Dr. Alexander Spingarn; *Treasurer,* Dr. M. I. Levitt.

College of Physicians of Philadelphia.—At a stated meeting held January 5 Dr. Joseph Sailer read a paper entitled "Chronic Appendicitis." Dr. S. Weir Mitchell presented on behalf of the widow of the late Professor Henry C. Chapman a portrait by Sully of the late Professor Nathaniel Chapman; also, on behalf of Hampton L. Carson, Esq., silhouettes of Dr. John Redman, Dr. Samuel Powel Griffith and Dr. Abraham Chovet; also, on behalf of Dr. Henry D. Jump, a gold watch at one time belonging to the late Dr. D. Hayes Agnew. The following officers were elected for the ensuing year: *President,* Dr. G. E. de Schweinitz; *Vice-President,* Dr. Wharton Sinkler; *Secretary,* Dr. Thomas R. Neilson; *Treasurer,* Dr. Richard H. Harte; *Honorary Librarian,* Dr. Frederick P. Henry.

The Indianapolis Medical Society.—At the annual election of officers held January 4, the following officers were chosen: *President,* Dr. Samuel E. Earp; *Vice-President,* Dr. J. L. Freeland; *Secretary and Treasurer,* Dr. Roscoe H. Ritter.

Camden City Medical Society.—At its annual meeting, held January 4, the following officers were elected for the ensuing year: *President,* Dr. William H. Pratt; *Vice-President,* Dr. J. W. Martindale; *Secretary,* Dr. W. I. Kelchner; *Treasurer,* Dr. Emma Richardson; *Librarian,* Dr. Joseph H. Wills; *Historian,* Dr. A. B. Davis.

The Blue Earth County (Minn.) Medical Society, at its annual meeting, held December 25, 1909, elected the following officers: *President,* Dr. E. W. Benham of Mankato; *Vice-President,* Dr. H. B. Grimes, Lake Crystal; *Treasurer,* Dr. Lydia Osborn of Mankato; *Secretary,* Dr. T. C. Kelly of Mankato; *Censor,* Dr. A. G. Liedloff of Mankato.

The Fort Madison County (Ia.) Medical Society, meeting on December 27, 1909, at Fort Madison, elected the following officers: *President,* Dr. E. C. Chapman; *Vice-President,* Dr. W. C. Kasten; *Secretary and Treasurer,* Dr. Austin Philpott.

The Kennebec County (Me.) Medical Society, at its annual meeting at Augusta, December 30, 1909, elected the following officers for the ensuing year: *President,* H. E. Milliken of Waterville; *Vice-President,* R. H. Stubbs of Augusta; *Secretary and Treasurer,* Wellington Johnson of Augusta; *Censor,* O. C. S. Davies of Augusta.

The Santa Cruz County (Cal.) Medical Society held its annual meeting at Santa Cruz on December 20, 1909. The officers elected were: *President,* Dr. S. T. Pope of Watsonville; *Vice-Presidents,* Dr. E. B. Philbrook of Santa Cruz, and Dr. F. H. Koepke, of Watsonville; *Secretary and Treasurer,* Dr. E. E. Porter of Watsonville; *Censors,* Dr. A. F. Davis of Soquel, Dr. S. C. Rodgers of Watsonville, and Dr. W. A. Phillips of Santa Cruz.

The Sharkey County (Miss.) Medical Society met at Anguilla December 23, 1909. The officers elected were: *President,* Dr. S. K. Barrier; *Vice-President,* Dr. S. T. Hamberlin; *Secretary and Treasurer,* Dr. L. E. Martin.

The Washtenaw County (Mich.) Medical Society, meeting at Ann Arbor, December 29, elected the following officers: *President,* Dr. James Breakley; *Vice-President,* Dr. Waldron; *Secretary-Treasurer,* Dr. Keating.

The Hopkins County (Tex.) Medical Society at a meeting at Sulphur Springs has elected the following officers for 1910: *President,* Dr. W. E. Connor; *Vice-President,* Dr. J. R. McCauley; *Secretary,* Dr. M. C. Sheppard; *Censors,* Drs. J. J. Dial, S. B. Longino, and W. A. Clark.

The Jackson County (Tenn.) Medical Society has elected the following officers: *President,* Dr. J. W. Boggess; *Vice-President,* Dr. W. C. Maples; *Secretary and Treasurer,* Dr. Edward Boyd; *Censor,* Dr. S. H. Jones.

The Lonoke County (Ark.) Medical Society has elected officers for 1910 as follows: *President,* Dr. S. A. Southal of Lonoke; *Vice-President,* Dr. C. D. Ware of England; *Secretary-Treasurer,* Dr. F. A. Corn of Lonoke; *Assistant,* Dr. S. S. Beatty of England.

The Madison County (Ala.) Medical Society at a meeting at Huntsville elected the following officers: *President,* Dr. Claud Pettus; *Vice-President,* Dr. M. R. Moorman; *Secretary and Treasurer,* Dr. Edgar Rand; *Censor,* Dr. W. C. Wheeler.

The Milwaukee County (Wis.) Medical Society has elected the following officers: *President,* Dr. L. F. Jermain; *Vice-President,* Dr. W. A. Batchelor; *Secretary,* Dr. Daniel Hopkinson; *Treasurer,* Dr. Joseph Kahn; *Censor,* Dr. A. W. Gray.

The Mitchell District (S. D.) Medical Society has elected officers for 1910 as follows: *President,* Dr. Bert Menser of Bridgewater; *Vice-President,* Dr. E. W. Jones of Mt. Vernon; *Secretary,* Dr. W. R. Ball of Mitchell, and *Treasurer,* Dr. B. A. Bobb of Mitchell.

The Monteray County (Cal.) Medical Society, at the meeting at Pacific Grove, Cal., elected the following officers: *President,* Dr. T. C. Edwards of Salinas; *Vice-President,* Dr. M. Ritchie of Pacific Grove; *Secretary,* Dr. H. T. Crabtree of Salinas; *Treasurer,* Dr. John Parker of Salinas; *Censor,* Dr. J. E. Fankin of Gonozales.

The Muskogee County (Okla.) Medical Society, meeting recently, elected officers as follows: *President,* Dr. H. C. Rogers; *Vice-President,* Dr. S. P. Watkins; *Secretary-Treasurer,* Dr. H. T. Ballentine.

The Bastrop County (Tex.) Medical Society, meeting at Bastrop recently, elected the following

officers for 1910: *President,* Dr. N. B. Harris; *Vice-President,* Dr. O. N. Mayo; *Secretary and Treasurer,* Dr. J. G. Jones.

The Christian County (Ky.) Medical Society, meeting at Hopkinsville, Ky., December 23, elected officers for the ensuing year as follows: *President,* Dr. B. A. Caudle; *Vice-President,* Dr. James A. Young; *Secretary,* Dr. J. H. Rice; *Censor,* Dr. T. W. Blakey.

The Jefferson County (Ala.) Medical Society held its annual meeting at Birmingham, December 21, and elected the following officers: *President,* Dr. George W. Brown of Pratt City; *Vice-President,* Dr. E. S. Casey; *Secretary and Treasurer,* Dr. Charles E. Dawman; *Censor,* Dr. T. D. Park.

The Memphis and Shelby County (Tenn.) Medical Association, at its annual meeting at Memphis on December 21, elected officers as follows: *President,* Dr. E. C. Blackburn; *Vice-President,* Dr. J. W. Price; *Secretary,* Dr. B. N. Dunavent.

Obituary Notes.—Dr. John J. Archinard of New Orleans died at his home December 27, 1909, aged 38 years. He was a graduate of the medical department of Tulane University in 1893. He served as surgeon-major of the Second Louisiana Volunteers during the Spanish-American War. Dr. Archinard had the chair of clinical microscopy in the post-graduate department of Tulane. He was an ex-president of the Orleans Parish Medical Society, a vice-president of the Louisiana State Medical society, and a member of the American Medical Association.

Dr. James A. Burroughs of Asheville, N. C., died at his home December 29, 1909, aged 53 years. He was a graduate of the Louisville Medical College in 1882. At the time of his death Dr. Burroughs was the president of the North Carolina Medical Society, and was considered one of the leading authorities on tuberculosis in the South.

Dr. J. L. Carson of Bakersfield, Cal., died at his home on December 24, 1909, aged 48 years. He was a graduate of the Northwestern Medical College of St. Joseph, Mo., in 1894, and was a member of the Kern County Medical Society, the Medical Societies of the State of California, and the American Medical Association.

Dr. Guy M. Dunning of Lansing, Mich., died at his home December 24, 1909, aged 40 years. He was a graduate of the University of Michigan in 1904, and was a member of the Ingham County Medical Society, the Michigan State Medical Society, and the American Medical Association.

Dr. Martin A. Gilreath of Selma, Cal., died recently at his home. He was a graduate of the Vanderbilt University in 1891, and was a member of the Fresno County Medical Society, and the Medical Society of the State of California.

Dr. Alfred H. Hoadley of Northampton, Mass., died at the Dickenson Hospital in that city December 29, 1909, as the result of blood poisoning, aged 54 years. He was a graduate of the Albany Medical College in 1886, and was a member of the Hampshire County Medical Society, the Massachusetts Medical Society, and the American Medical Association.

Dr. Charles N. Lake of Detroit, Mich., died at his home December 26, 1909. He was a graduate of the Harvard Medical School in 1895, and was a member of the Wayne County, and the Michigan State Medical Societies.

Dr. H. K. Man of Dalton, Ga., died in Atlanta, December 26, aged 65 years. He was a graduate of the Medical Department of the University of Nashville in 1871, and had practised for many years in Atlanta before moving to Dalton.

Dr. J. Frank Perry of Boston, Mass., died on December 31, 1909, at the Boston City Hospital, aged 64 years. Dr. Perry was a graduate of the Harvard Medical School in 1873. He was at one time the editor of the *Boston Journal of Health,* and later established the Blue Hills Sanatorium at Milton. He was a member of the Suffolk District and the Massachusetts Medical Societies.

Dr. John Skinner of Roxbury, Boston, died at his home December 27, 1909, aged 85 years. He was a graduate of the Harvard Medical School in 1856, and was a member of the Suffolk District Medical Society and the Massachusetts Medical Society.

Dr. George E. Woodbury of Methuen, Mass., died suddenly at his home on December 26, 1909, aged 71 years. He was a graduate of the Dartmouth Medical School, a veteran of the Civil War, and a member of the Essex District Medical Society and the Massachusetts Medical Society.

Dr. Allen S. Heath of New York City died recently, aged 89 years. He was the oldest living graduate of the Medical Department of New York University, having received his degree in 1844. Dr. Heath during the Civil War was a surgeon in the navy, and later chief surgeon of the staffs of General King in West Virginia and of General Corcoran in Georgia.

Dr. Alfred Matthias Spalding of New York died recently at Speonk, Long Island, aged 50 years. He was a graduate of the College of Physicians and Surgeons in New York in 1883, and was a member of the Academy of Medicine and the Medical Society of the State of New York.

Correspondence.

NONALCOHOLIC CIRRHOSIS OF THE LIVER.

To the Editor of the Medical Record:

Sir:—Dr. Benedict's interesting and instructive paper in your issue of December 25 on "The Frequency of Hepatic Sclerosis in Nonalcoholics" leads me to ask permission to occupy a small portion of your valuable columns in recording a case of extreme hepatic sclerosis in a single woman of forty, in which there was not the slightest possibility of an alcoholic causation.

The last and fatal illness of the patient in question was ushered in by a sudden and profuse hemorrhage from the stomach, which was mistaken for and treated as a gastric ulcer by her physicians. After six weeks the patient went out, for the first time, on a chilly spring day. This was quickly followed by an acute pleurisy and pericarditis, which resulted fatally. The autopsy revealed an extreme degree of hepatic cirrhosis (atrophic type), large varices at the lower end of the esophagus (the probable source of the gastrorrhagia), extensive plastic pleurisy, and a pericarditis, with thick buttery layers of lymph between the membranes.

This patient had never exhibited during life any of the ordinary signs of cirrhosis; at least, none that were recognized by her medical attendants, who were men of exceptional eminence as diagnosticians. The compensatory circulation had been apparently perfectly established. But the history was significant and important from an etiological standpoint. The patient, as already stated, had never, except on rare occasions, used alcohol, not even during menstruation, as is so often the custom with women. She had been a sufferer, however, for many years from a subacute arthritis of the smaller joints of the hands and feet, which was regarded by her physicians, because of strong gouty antecedents, as a manifestation of that disorder of metabolism. From her youth, also, the patient had been a

large consumer of highly seasoned foods, condiments, and pepper—particularly red pepper, of which she ate liberally at most of her meals. Whether this was to relieve the dyspeptic symptoms from which she suffered in the later years, or was the cause of the latter, cannot now be said. But as this partiality for condiments dated from early childhood it has always seemed to the writer that it was not only the probable cause of the gastrointestinal catarrh, but possibly, also, of the arthritis, from the absorption of toxins, which there is some evidence to show may stand in a causative relation to some forms of chronic arthritis. But this, although related to the subject of this letter, is not its main purpose, which is to put upon record a closely observed case of marked hepatic cirrhosis, wherein alcohol as an etiological factor can be positively ruled out, and in which indulgence in highly seasoned foods, associated with gastrointestinal disorder, was a prominent feature in the life history of the patient.

D. J. Milton Miller, M.D.
Atlantic City, N. J.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

EVOLUTION OF THE BRAIN—DIVERGENT VIEWS OF ANGINA PECTORIS—ANOTHER MEDICAL RESEARCH ENDOWMENT—HOSPITAL SUNDAY FUND.

London, December 22, 1909.

Professor Elliot Smith, F.R.S., in the capacity of Arris and Gale lecturer at the Royal College of Surgeons, has just delivered a course on "Some Problems Relating to the Evolution of the Brain." The appropriateness of the college for a discussion of this subject is obvious from the fact that most of our knowledge about it has resulted from the work carried on in the Museum during the last seventy years. At first he dealt with the matter from the historical point of view. He described the great work of Sir Richard Owen on the structure of the brain in the marsupialia in 1836. Then came the destructive criticism of his successor in the conservatorship and the consequent retardation of the growth of a true knowledge of cerebral morphology. Owen's work underwent a temporary eclipse in the controversies occasioned by the publication of Darwin's "Origin of Species," the defenders of which displayed a degree of animosity against Owen that they failed to discriminate between good work and bad. But the overthrow of Owen's excellent work on the brain of the marsupialia was merely temporary. Discredited for a quarter of a century, it had been rehabilitated by recent research, and had become the foundation of our present knowledge of the morphology of the brain in the vertebrata.

In the second lecture Professor Smith dealt with the nature and origin of the neopallium, the disposition of the hippocampal formation, and the changes it undergoes in certain mammalia. He also attempted to explain some current misconceptions of the arrangement of the olfactory paths. He considered the state of the hemispheres in reptilia, amphibia, and dipnoi, and pointed out discrepancies in the views of several observers. Speaking of the early neopallium, he repudiated the term "archipallium," which had been wrongly attributed to him.

In the third lecture the professor indicated the nature of the factors engaged in preparing the way for the evolution of the neopallium, and the results of the operation of these factors in remodeling the architecture of the brain and indirectly of the whole nervous system, and even of the body which it subserves. He likened the nervous system of the lower vertebrata to a confederation of more or less autonomous states. The cerebrum chiefly belonged to the sense of smell and perhaps also to that of taste, but contributed its share to the control of the commonwealth and was itself only slightly influenced by the other sensory mechanisms. Impressions of sight were received by the midbrain, which in the lowest vertebrates played a more important part than the cerebrum. Other senses were represented by other parts of the brain, but no one of them exercised such a dominating influence over the others as the cerebrum does in mammalia. Thus a low vertebrate, say a fish, might see an object and recognize it as desirable or otherwise, but this consciousness was not greatly aided by other senses. So the fish was deceived by an imitation fly, but per contra would pass by another object as not desirable for food because it did not look like a fly. In the same way a lizard or a frog, depending largely for its information on the sense of sound, might have its attention roused by the sound of the gentlest splash of water or the rustling of a leaf, but be quite undisturbed by the loudest noises in its immediate proximity. The organs of the senses in animals without a neopallium responded only to their appropriate stimuli—that is to say, according to evolutionists, to those impressions which had come in the course of evolution to possess a precise meaning for them. This seems to be a statement rather than an explanation—unless the professor expects everyone to attach a peculiar meaning to the word evolution, which many people seem to think is itself explanatory of everything.

Angina pectoris has been the subject of much correspondence and discussion for several months, though I can hardly say that there has been a definite contribution to our knowledge of its origin or nature. The Harveian Society last month devoted a meeting to its discussion and as this society has often done on other occasions elicited a number of opinions which furnish a sort of summary of the subject. The paper which began the discussion was by Dr. Alex. Morison, who said it was "a painful affection of the heart, as a whole depending on a disorganization in the anatomical character or disorder in the physiological function of one or more of the factors in cardiac action, and associated in some rare cases with a fear of impending death." All this may be a comprehensive description, but it is hardly a definition, as he called it. He was driven to the conclusion that the character and situation of the conditions which originate it vary, and the heart, like other viscera, is endowed with low sensibility in normal circumstances, but in lesions of the internal surfaces or irritation of the nerve supply may prove as sensitive as analagous viscera. Referred pain may arise in the intraaortic or intracardiac nerves. As to treatment, cases of so-called vasomotor angina with valvular disease tended to subside. Not so with nonvalvular cases, which might end fatally, and needed not merely nitrites but morphine, atropine, and general anesthesia to relieve and to arrest death.

Sir Clifford Allbutt considered the cause of uncomplicated cases to be disease of the aorta above the valves and the distribution of pain to depend largely on the part involved. He admitted a cardiac pain, situated in the precordial area, but this was distinct from that of the typical angina attack. Early specific treatment was most important.

Sir Douglas Powell held that typical angina was due to atheroma and thrombosis of the coronary arteries. Mere aortic pain following exertion was not angina. Rise of arterial blood pressure was also a factor and he had seen cases improve on the development of mitral regurgitation.

Sir Lauder Brunton compared the pain to that of a distended bladder. He thought in some cases it was due to increased arterial blood pressure, in others to spasm of the coronary arteries. He advised carefully regulated exercise and rest after meals.

Dr. James Mackenzie thought irregularities of the heart and exhaustion of the cardiac muscle were mostly present and the distribution of the pain should be investigated.

Dr. Lees mentioned as a confirmatory sign a dilated aorta. Heavy smoking was a factor. The nerve plexuses about the aorta needed investigation to help towards a pathology of angina.

Dr. Colbeck said the main factor was pain in the heart, and any explanation proposed should account for the fear of impending death.

Sir John Broadbent thought most attacks depended on spasm of vessels induced by cold or exertion.

Dr. B. Thorne thought the real cause was distension of the heart. Tender areas over the apex, the third costal cartilage, and lower part of the sternum could at times be felt, in which case he advised blistering.

Dr. Ewart thought respiration had not been sufficiently considered. Spasm of the diaphragm might sometimes account for the pain of an attack.

Another medical research fund is announced. The late Dr. C. Graham, professor of chemistry at University College, has left the residue of his estate, after various bequests, to found a fund to be called the "Charles Graham Medical Research Fund," to be applied in aid of any research by a teacher or student of University College for the prevention, cure, or alleviation of human disease or suffering. The power is also given of conferring a gold medal of appropriate value for certain

researches. The "Charles Graham student in pathology" will be appointed for two years and receive a sum not exceeding £200 per annum. His position will be analogous to that of the "Sharpey student of physiology" in the same school.

The Lord Mayor presided over the annual meeting of the Hospital Sunday Fund on the 17th. The support during the year was said to have been very good, although there was some loss in connection with Sunday collections in consequence of the death of clergymen who were zealous supporters. But the largest number of contributing congregations had been last year, viz., 2,070.

Progress of Medical Science.

Boston Medical and Surgical Journal, December 30, 1909.

Medical Expert Testimony.—G. W. Gay says that the adoption of the following propositions would improve the present unfortunate condition of medical expert testimony in our courts: First, give the court authority to charge the jury upon the expert medical evidence; second, give the court authority to appoint medical experts in certain cases upon his own motion, said expert to be paid by the county; third, refer all important questions relating to the mental condition of the parties at suit to a commission of alienists or experts before the trial; fourth, the bench and bar should correct certain abuses attending the hearing of expert evidence in the courts. The first two propositions call for legislative action, the last two do not.

New York Medical Journal, January 1, 1910.

Choroiditis Dependent Upon Appendicitis.—R. T. Morris describes a case referred to him for opinion, the physician sending the patient stating that he had choroiditis which was probably due to toxemia arising from a diseased appendix. This proved to be the correct diagnosis. Examination showed a typical case of fibroid degeneration of the appendix with the type of irritation, which Morris calls protective appendicitis. This form of appendicular trouble is not always harmless, and may cause chronic derangement of the bowel from its influence on the intimate ganglia of the bowel wall. In this particular it seemed to lead to persistent intestinal dyspepsia from lack of control of the growth of the intestinal bacilli. The appendix was removed through a short incision and was found to consist of an organ the inner structures of which had been replaced by connective tissue. The patient at once began to recover from his intestinal indigestion, from his general nervous irritability, and from his choroiditis. At the present time he considers himself perfectly well.

Is the Demonstration of the Gonococcus as Simple a Matter as Is Commonly Supposed?—This question is considered by Eugene Fuller, who says that it is to be hoped that laboratory methods can be devised to make certain the differentiation of the different groups of diplococci found in urethral discharges. He mentions two cases illustrating the difficulties in the light of our present knowledge. Diplococci seen away from or outside of the leucocytes do not count or are supposed to be other forms of organisms largely, perhaps streptococci. Since the inauguration of this teaching Metchnikoff's theory now established has been advanced that in infections the function of the white corpuscles is to digest and destroy the germs in question. Consequently the finding of diplococci in the leucocyte in the process of natural destruction can hardly be at present looked upon as characteristic of the gonococcus. After the Gram stain one cannot really be sure that he is again looking through the microscope at the same leucocyte in which he previously saw diplococci, so the failure to detect diplococci retaining colorization in an atypical or chronic case might easily lead one to draw a false conclusion, even though the Gram method were held to be accurate. If one sends a smear to a high class histological laboratory it is not unusual to get the report that diplococci have been found which present the appearance or characteristics of gonococci. In other words, the authority making the report does not express himself positively as an examiner less experienced would be apt to do. That same authority in reporting, for instance, the finding of tubercle never words his report vaguely. He then states positively that the organism found was the tubercle bacillus. In atypical cases the writer has been informed by recognized authority that cultures should be made of the diplococci discovered before an accurate diagnosis can be made. The accurate making of cultures in such cases could, of course, be entrusted only to a laboratory specialist. In medical teaching great stress has very properly been laid on the danger of the transmission of gonorrheal infection by those of either sex who have once suffered from the disease. Terrible examples of such transmission are constantly coming to the surgeon's attention. As a result just as constantly individuals consult surgeons in order to have the question of their freedom from the possibility of gonorrheal contagiousness settled. Such individuals represent the conscientious, careful, and trustworthy element in the community. The individuals who transmit contagion to innocent parties are drawn almost wholly from a different element. They represent the careless, indifferent, conscienceless class. With this latter class a gonorrheal attack is forgotten as soon as the active subjective symptoms connected with it have subsided, and, like the person who "thought the gun was not loaded," subsequent sexual relations are entered upon oblivious to the possibility of disastrous consequences.

Indiscriminate Enucleation of the Tonsil.—P. Fridenberg says that enucleation as at present performed by competent operators is so effectual in removing a diseased organ that it would be doubly deplorable if it should come into disrepute, but he fears that such may be the case unless the zeal of the moment in this respect is restrained and we learn to perform the operation in proper instances only. He questions whether the removal of the tonsil with its capsule is either safe or useful in most cases. We know so little of the physiology of the tonsil, and especially of its capsule as a possible protecting mechanism, so little as to its part in so important a function as voice and tone production, that its complete removal, except for valid cause, must be earnestly deprecated. There are cases of submerged, adherent, irregular, or cystic tonsils, in which recurrent attacks of inflammation, evident disease, or extreme susceptibility to the acute exanthemata and infections of the upper respiratory tract, from colds to influenza, supply an operative indication which, quite in contradistinction to the factor of obstructed respiration, calls for radical removal of a source of infection, and not for more air space. Let enucleation of the tonsil, whether by finger or separators, by snare or scissors, be reserved for these cases. While there is no excessive hemorrhage, there is much traumatism, marked reaction, a slough which lasts for some time, and pain on swallowing which may not entirely disappear for a week or two. In at least one case of which the author has heard, extensive adhesions formed which glued together the pillars of the fauces on one side, with disastrous results for a previously beautiful singing voice.

A Comparison Between Clinical Infection and Experimental Inoculation in Syphilis.—D. Montgomery says that although man is most susceptible to the disease, his tissues are not equally so. The rete Malpighi and the immediate underlying papillary layer of the corium are especially vulnerable. There must be a wound in order to inoculate. The blood of the veins does not seem to have the power of destroying spirochetes possessed by the blood of the arteries. Next to coitus, the habit of kissing promotes the spread of the disease. It is extremely unlikely that the ordinary drinking cup communicates the virus unless there is a wound on the gums or lips, against which the cup is forcibly pressed. Wounds made by a barber frequently communicate the poison. Close shaving in a man with seborrhœic eczema is liable to occasion erosions. Barbers close wounds with silver nitrate sticks which may be covered with specific virus. Chancres on the hand in medical men are quite common. They occur either on the index fingers, especially about the nail, or on the web between the thumb and index, or between the index and the medius. The act of digital examination of the vagina puts these webs on the stretch, and naturally opens the lips of any wound or crack that may be present. Then again if the nail fold is not kept well pressed back, the forward growing nail naturally pulls on it, giving rise to hangnails of just such character as are best adapted to the introduction of the syphilitic virus. It is furthermore a well-known fact that infections on the dorsal surface of the fingers and hand are much more frequent than those on the palmar surface. Any lesion, therefore, about the nail, or on the back of the index fingers, or on the webs between these fingers and their neighbors, when occurring in obstetricians or gynecologists, should be viewed with suspicion, and if at all suspected, should be examined for spirochetes. Obstetricians are, of course, more liable to this class of infection even than gynecologists, because their patients are in the midst of full sexual life, and therefore are especially liable to have fresh, readily inoculated syphilis. From a natural history standpoint, this infection means that Nature here exhibits her usual care in the preservation of the type, together with absolute indifference for the individual. In

this instance the care is directed to the preservation of the *Spirochæta pallida*. Here we have an organism so selective in its habitat that it is practically limited to getting its food from one species of animals, from man. It thrives wonderfully well on man, and on the anthropoid apes, but is with difficulty transmitted to any other animal, and when so transmitted it has a precarious and short existence. The original geographical location of the disease was America, and to get to the chimpanzees in West Africa would have been impossible for an organism having such poor means of progression as the *Spirochæta pallida*. And, furthermore, to maintain itself among a sparse, thinly settled group, such as the anthropoid apes, would have been very difficult. It is therefore limited to man, and to secure its existence and due propagation it is hitched to man at the most active stage of his existence, and is ingeniously associated with one of his two strongest desires at this time of life, the sexual desire.

Journal of the American Medical Association, January 1, 1910.

The Therapeutic Utilization of Biliary Fistulas.—L. L. McArthur, having noticed the loss of water in irrigating biliary fistulas, conceived the idea of studying the effects of various fluids introduced through this route into the duodenum. First, as a means of deluging the system with water, he found that a temporary fistula may often be utilized with surprisingly good effects. He has repeatedly injected in such cases, by continuous irrigation of a warm salt solution, up to 3,000 c.c. of fluid as a means of flushing out the kidneys, clearing up a jaundice, or filling up the blood vessels, and in one case even added dextrose as supplying the food calories most readily assimilable. He is not recommending a cholecystostomy as a therapeutic measure for other ailments than those for which it was originally designed, but simply the utilization of already existing fistulas for indications similar to those mentioned.

Appendicitis.—L. G. Guerry reports his experiences with a consecutive series of 545 cases of appendicitis operations with only two deaths, these occurring in the first 100 patients operated on. This experience proves, in his opinion, that there is a factor in the surgical mortality that is not fully appreciated or provided against. In this total of 545 there were 240 chronic cases calling for an interval operation, with no deaths, as might have been expected. Of acute cases 92 patients were operated on within thirty-six hours. His rule, so far as he has one, is, he says, to operate as soon as the diagnosis is made, provided it can be made within thirty-six hours. After that the pathological conditions are different; the third and fourth day cases are the ones that furnish the mortality statistics. Guerry holds that there is a definite tendency to localization in cases of appendicitis complicated with suppuration; there were 213 cases of this kind in the series; 68 of these were first seen on the third or fourth day of the disease. The pulse in most cases was 135, temperature 104° F. Vomiting, distention, pinched features, and some delirium were also present. None of these patients was operated on at once, but all were treated according to the Ochsner method, which he thinks is life saving, at least in the practice of the ordinary surgeon and practitioner. Guerry emphasizes the fact that none of these patients was operated on immediately and none died. It must, he says, have been genuine insight in Ochsner to recognize that the chief factor in dissemination of the peritoneal infection is the vermicular movement of the small intestine and that physiological rest is the rational treatment of the diseased process, thus enabling nature the chance she seeks to localize the disease. Gastric lavage, also, is rational, as it carries off the regurgitated contents of the small intestine and favors the attainment of physiological rest of both organs. Guerry does not wish to be considered extreme, but he desires to emphasize the importance of utilizing and aiding the natural forces, and of using surgical discrimination and judgment in these cases In almost all cases he operated through the McBurney incision; when drainage is needed he drains through a stab wound to one side. The rule is to remove the appendix, but there are exceptions to this rule. He believes it better to enter the peritoneal cavity by Ware's modification of McBurney's method, pack off the infected area, and remove the diseased tissue. One of his patients who died had renal tuberculosis and succumbed on the eighth day with postoperative anuria. The other fatal case was that of a child who had been ill ten days and died of a continuation of the peritonitis.

Cutaneous Syphilis.—A. Ravogli publishes the results of his studies, microscopic and otherwise, of the proliferating growths of syphilis. He remarks that in a short article on elephantiásis (*Jour. Cutan. Dis.*, 1906) presented to the American Dermatological Association, he had maintained the luetic origin of this condition when occurring in the genitals, in many instances. He also held that all cases of elephantiasis are started by the presence of infectious germs or of parasites causing irritation and lymph stasis. He goes at length into showing how the germ of syphilis acts in producing vegetating papillary growths, etc. His microscopical findings are illustrated and he comes to the conclusion that the proliferating masses of the tertiary syphilitic ulcers show no special characteristics, but have common characters with the proliferations of other morbid processes. The imbibition of the tissues from the lymph stasis, the hypernutrition of the connective tissue corpuscles, cause their division and their proliferation. The normally limiting elastic fibers are gradually lost and the collagenous elements are left free to proliferate without restraint. That the spirochete is a starting point cannot be doubted, as they are shown in the secondary vegetating patches. In the tertiary they were not found, but this does not disprove the above assertion. It is possible they are not so readily stained or may be concealed in the deeper tissues. As regards treatment, it is not difficult to cure the secondary proliferated patches by internal constitutional treatment with external application of calomel or solution of mercurial chloride, one to five hundred. In some cases strong caustics may be necessary. In some cases other measures, like the use of iodide, local bathing with bichloride solution, one to one thousand, and local applications of mercurial plasters have been satisfactory, while in others extensive curetting was required.

Sea-Water Treatment.—T. LeBoutillier recommends the use of the Quinlin treatment in certain conditions of malnutrition, marasmus, and chronic indigestion in infants and children. He finds that there is an improvement in appetite in other children and relief of colic in infants, together with improvement of weight and muscular strength and ability to digest food. The subcutaneous injection of sea-water solution is not accompanied with the pain and other disturbances frequently following serum injections. The sea-water was obtained well out at sea and from a sufficient depth to insure against contamination by surface bacteria. He followed the Roberts Simon method, diluting 83 parts of sea-water with 190 parts of pure spring water, filtering through a germ-proof Berkefeld filter, and putting it up in sterile bottles. The usual injection sites are just below the angle of the scapula or in the gluteal regions, the former being preferable as less liable to contamination in children. The amount injected varied from 10 to 60 c.c., the usual dose being 15 to 30 c.c., according to age and urgency of the case, and from three times a week to every day for a short time. Sometimes five or six injections improved the condition so much that the patient was discharged. In other cases the treatment had to be kept up for several months. Effects on nutrition especially noted in his thirty cases are as follows: There is a slight increase in the amount of urine following the first few injections, in many instances there is improvement in the condition of the stools without any change in the diet. He considers this fact significant. There is improvement in the appetite and in the amount of food taken within the first two or three weeks; this is noticeable in older children suffering from malnutrition or chronic indigestion. In infants with distressing colic he has found this invariably relieved within the first two weeks. The skin in many cases was in the beginning harsh, dry, and more or less scaly. This cleared up entirely, whether in infants or in older children. The patients who were losing weight or stationary, as a rule gained after the first few treatments, sometimes as much as an ounce a day. In one or two cases there was an initial loss, but this was rapidly made up. The sleep of many patients was markedly improved. Two cases of marasmus illustrating the effects of this treatment are reported. The claim of French investigators that sea-water is more rapid in its action and induces a greater gain in weight than artificially made solutions is noted. The author does not verify this from his own experience, but he is making experiments with tablets made up with normal saline solution proportions and containing

sodium chloride, grains 34¾; calcium chloride, grain 1, and potassium chloride, grain ⅜. The treatment has suffered somewhat from being overpraised. The author considers it, however, a useful adjunct of other methods in the malnutrition of tuberculous disease or that following any of the infectious diseases. It does not dispense with hygienic, dietetic, or medical treatment, but should be used only for its tonic and stimulative action on the body cells.

The Work Cure.—H. J. Hall gives an account of an establishment started by him and carried on now for five years in which manual occupation is utilized in the treatment of neurasthenia. He says the normalizing effect of suitable manual work, or even of well-chosen intellectual work, on the neurasthenic or psychasthenic who has been idle or overworked, is very evident. The difficulties, however, in inducing the patient to exert himself and in selecting the proper work have made progress along these lines rather slow. Unfortunately it is true, also, that ill-advised work may be productive of positive harm and intensify all the symptoms. He had felt for a long time that an adequate study of the subject could only be made in an institution specially devoted to this purpose. He therefore established five years ago a small workshop for the making of hand-woven fabrics and has since added a number of artistic occupations, such as wood carving, metal work, and pottery manufacture, and the experiment has been fully justified. These crafts were chosen because of their universal appeal, their essential dignity, and the fact that they could be very gradually learned and proficiency in them would be valued by the patient. The patients as a rule enjoy the novelty of the treatment and are diverted more or less from their worry and suffering. From the first the patient is taught to economize strength and the simplest mechanical acts were often chosen at first and repeated until they could be performed without mental and physical fatigue. Gradually the difficulties and requirements of the work are increased, the essential point being an economy of nervous energy and the maintenance of a simple and direct mental attitude. Ample opportunities for rest are given, and for the necessary medical treatment, but no attempt is made to carry out the elaborate treatment of the sanatorium. If the patient is to be fully restored to usefulness he will have to give up these aids, and the earlier the better. Hall finds that the hand weaving is most valuable in the treatment, giving immediate and tangible results, and not requiring too close use of the eyes. Wood-carving comes next, especially for beginners, as it gives opportunity for broad free-arm movements as a balance to the finer closer work. Metal work is perhaps the least useful therapeutically, but it has a special value in certain cases. The pottery has developed rapidly and has been perhaps the most successful in its results, though most of the work has been done by the craftsmen rather than by the pupils. He gives a tabulated statement of the result as regards recovery. Improvement occurred in all cases and complete relief in 14; 91 of his patients were women. The conditions treated ranged from actual phychoses and insanity through hysteria and severe neurasthenia to the milder types. The insane cases were only received at the beginning. Two were improved, two very much improved, and one cured out of a total of five. It is not intended nowadays to receive any cases of insanity. Relapses have been very few among the patients. It should be added that the shops have been employed by some persons who were not ill, but wished to learn the handicrafts. Steps have been taken to establish a training school where nurses can learn the methods and extend their usefulness in private families or in other institutions. The establishment has been a serious financial burden and a great consumer of the physician's time, but is now nearly on a self-supporting basis. He finds that the ideas embodied in the work appeal, as a rule, not only to the profession, but to the patients themselves and to the people at large.

The Lancet, December 25, 1909.

The Effects and Use of Radium.—D. Turner reports six cases, three of rodent ulcer all cured, two of angioma both cured, and two of carcinoma, one cured and one still under treatment. Other conditions for which he has used radium are warts, lupus erythematosus, plain lupus, leukoplakia, and pruritus. He describes the apparatus he has employed, and says the radium appears to have two chief actions: (1) as a specific action on certain pathological condition as rodent ulcers, cancerous nodules, angiomas, keloids cicatrices, and fibrous contractions; and (2) an action producing inflammation and destruction somewhat similar to that produced by caustics and burns. Sometimes the one and sometimes the other may be used or they may be combined. The curative action of radium on rodent ulcers is an example of its specific effect. After a sufficient exposure the floor of the ulcer will be observed to fill up, the raised edges to subside, the surface to contract until the part will be covered with fresh, rather transparent skin. As a rule, no pain at all will be felt, and there may be but little inflammation, but the part may dry up under a scab. If radium be applied to a skin area in sufficient dose, there will be observed in the course of from a few hours to some days an area which will become slightly raised and a little tender. Over this a scab may form resembling, as has been pointed out, impetigo. This may last for some time or be replaced by another. The dose of radium ought to be measured by the product of the strength of the preparation and the length of exposure —what would be termed in electricity, ampère hours—but these quantities would be modified by the presence of screens.

The Vaccine Treatment of Pyorrhea Alveolaris.—K. Goadby says that cases of suppuration of the alveolus may be divided into: (1) those which exhibit some constitutional evidences due to intoxication or bacterial invasion, and (2) those which have no constitutional symptoms but have from time to time pathological manifestations about the oral mucosa. Following the author's classification, we make the following types: (1) the teeth are not loose and gums appear normal. Careful examination will show a little pus between the teeth, showing the interdental bone has already become affected. (2) The gums bleed easily and the interdental spaces are enlarged. (3) The hypertrophied gum becomes shrunken, bone removed between the teeth, patches of rarefying osteitis are scattered about the alveolus, and the bone thinned so that a needle may be passed through it at the tooth-root level. (4) The teeth are all loose in their sockets, the gums are boggy, the alveolar process has become absorbed, and the breath usually has a marked fetor. In the author's experience a cure has followed many cases with the vaccine treatment, a specific vaccine being prepared from a given case, the one chosen for therapy being the one which showed a deviation from the normal in the opsonic index to the patient's own serum. As a rule, constitutional symptoms after employment of the vaccine have been wanting. Occasionally vomiting, acute headache, and general malaise have ensued. It is not uncommon when the *Micrococcus catarrhalis* is employed as a vaccine to get a disturbance closely resembling an acute coryza, particularly in persons who are subject to colds in the head. Locally, surgical methods yield the best results. The actual cautery has seemed to act best. It should be undertaken after immunization has been secured. Lymphatics are sometimes enlarged, but this need not stop the treatment. Treatment necessarily covers a long time. Care should be taken before beginning treatment to ascertain the stage to which the pathological process has progressed.

British Medical Journal, December 25, 1909.

Diver's Paralysis.—G. Blick says that the points that have impressed him in connection with diver's paralysis are the following: First, signs of asphyxia are nearly always present. It would appear from this that in the rapidly fatal cases death is largely due to affection of the breathing centers. Second, in roughly two per cent. of the cases in which death is not immediate, meningitis set in in about a week. In this respect, however, considering the damage done to the nervous centers the only wonder is that it is not a more frequent occurrence. Third, the question arises as to the cause of the congestion found on autopsies of fatal cases. Is it due to over-expansion of the vessels by gases suddenly released from pressure or is it simply part and parcel of the condition of asphyxia? From concomitant appearances in the thorax it would appear that the latter is the true explanation. Fourth, the paralysis of the bladder and loss of power of micturition are constant and occur in cases so slight that it is practically the only symptom calling for attention. Patients often walk to the hospital for catheterization. Fifth, the apparent point of selection for the most striking lesions of this disease is in the cervical cord. All of the large cordal hemorrhages found could be covered by three cervical vertebræ. Two explanations are suggested for this localization, the comparatively large size and motility of the spinal canal at this point and the fact that this portion of the cord is movable in the metal helmet of the diver, the rest of the body being covered with the rubber dress, closely pressed to the body by the water pressure.

Theoretically there is nothing to choose from the pressure point of view. Is there anything in the movement? It must he remembered that a diver's dress at a great depth precludes bending the back beyond a very slight degree.

The Uses of Catgut in Surgery.—This question is considered by C. Y. Pearson with special reference to iodine catgut and iodine-formalin catgut. His general conclusions are as follows: First, the use of simple aseptic catgut is unsafe no matter how it is prepared. Second, iodine catgut may be used safely in all cases in which a quickly absorbable suture or ligature will answer. Third, the use of iodine-formalin catgut is indicated when slower absorption of the ligature material is desired and if prepared in the manner stated by the author it may be used in all those instances in which it has been customary to use chromicized or sulphochromic catgut. Fourth, the operating surgeon should be personally responsible for the manner in which any catgut he uses is prepared. The mode of preparation recommended is as follows: The catgut is laid in an alcoholic solution of iodine. At the end of eight days it is removed with sterile forceps, placed in a sterile jar, and washed with either a weak solution of carbolic acid or with running water to remove the alcohol and iodine from the outer layers and to permit more freedom for the action of the formalin. Then it is placed in a three per cent. formalin solution for from 24 to 48 hours, according to the thickness of the gut, washed by running water for a few hours to remove the formalin, and finally placed in 50 per cent. alcohol containing one-half per cent. iodine and 5 per cent. glycerine, the latter rendering the gut more pliable.

Indications for Immediately Opening the Abdomen in Acute Cases.—Among the conditions enumerated by W. G. Spencer are hernia, appendicitis, gastroduodenal ulceration and perforation, gangrene of the gall-bladder, acute pancreatic abscess, twisted ovarian cysts or dermoid, salpingitis, hematocele, extrauterine pregnancy, streptococcal infection following abortion, intestinal obstruction, abdominal injuries, cesarean section, and renal obstruction with suppression of urine. Abdominal surgery can, as a matter of fact, be well done in private houses, and it will be found that Lord Lister's well-known directions contain all the essentials for successful surgery. In our large hospitals, in which one case closely follows another into the operating theater, the many elaborate suggestions of bacteriology are necessary to prevent infection. The author discusses various noted points in the lesions named and defines his own course in the various clinical emergencies.

Berliner klinische Wochenschrift, December 13, 1909.

Nitrites, Nitrous Acid, and Nitrous Oxide as the Poison in Cholera.—Emmerich answers Hyman van der Bergh and Gutterink in their recent article in which they were unable to substantiate Emmerich's theory that the symptoms of Asiatic cholera were due to the absorption of nitrites from the intestines. The argument is too involved for an abstract, but the main points are that though methemoglobin was not demonstrated spectroscopically by van der Bergh, nevertheless the brown color of the blood in cases of cholera proved that it was present. The formation of lactic acid by the cholera vibrios changed the nitrites into nitrous acid, which injured the intestinal wall and aided in the absorption of the poison.

Münchener medizinische Wochenschrift, December 7 and 14, 1909.

The Etiology of Acute Anterior Poliomyelitis.—Paul H. Römer has made careful bacteriological and inoculation experiments with the tonsillar culture, cerebrospinal fluid, cord and brain substance, etc., of a series of cases of poliomyelitis. His results were largely negative. He concludes that the cause of epidemic infantile paralysis in all probability does not belong to bacteria which can be stained or cultivated easily. This virus occurs in the brain and cord of the infected individuals, and may be transmitted to monkeys by intracerebral, and, according to Knöpfelmacher, by intraperitoneal injection. In case of experimental monkey poliomyelitis the disease may be carried to other monkeys. In this way an artificial cultivation of the virus may be produced in time.

Treatment of the Early Stage of Acute Anterior Poliomyelitis.—Hohmann calls attention to the great hypersensitiveness of the spine often occurring in the early stages of poliomyelitis, and reports two cases in which this was relieved promptly by putting the child up in a plaster jacket. He says that further observations are required to determine whether this absolute rest of the spine has any actual effect upon the course of the disease or is only symptomatic.

The Significance of Coagulation in Controlling Postpartem Hemorrhage.—Neu has carried on a series of experiments as to the influence of coagulation of the blood in postpartem hemorrhage and the factors which control it. It was previously considered that thrombi found in the uterus in the neighborhood of the placenta were of pathological import. Neu attempted to prove that these were physiological and one of Nature's methods of controlling hemorrhage. He accepted the two premises that the addition of serum from animal tissues increased the coagulability of blood, and that the thrombokinase which did this was not free in the blood but confined to the tissue cells. All other necessary elements for coagulation, fibrinogen, calcium, and thrombogen occur in the blood, but to produce coagulation thrombokinase must be added from the tissues. To prove that thrombokinase was contained in the placental tissue he rubbed this up with normal saline. On addition of 0.4 c.c. of this extract to a definite amount of fresh blood complete coagulation occurred instantly, whereas the controle blood required from 18 to 20 minutes under identical conditions. Similarly, coagulation occurred five times quicker in blood dropped upon the fresh placenta wound of a dog. He concludes that while the most important factor in stopping postpartem hemorrhage is muscular contraction, that nevertheless the presence of the thrombokinase liberated from the injured decidua cells and vessel endothelium, by stimulating coagulation, also aids in the hemostasis.

Zirconium Oxide as a Producer of Contrasts in Roentgenology.—Kaestle says that a chemical substance to be used in the organs to produce *x*-ray shadows must have the following characteristics: (1) It must not, as a result of chemical charges, cause either local or constitutional injury to the person of the patient; it must pass through the gastrointestinal canal unchanged. (2) Its absorptive power for *x*-rays must be as great as possible. (3) The preparation must be free from odor or taste, and the color must be such that it may be mixed with some common article of diet. (4) It must be cheap. Owing to the numerous cases reported of bismuth poisoning, the salts of bismuth do not fulfill the first requirements. Iron oxide, which has been recommended more recently, is objectionable on account of its color and its lower degree of absorption of the *x*-rays. The author has been experimenting recently with zirconium oxide as a substitute. He had previously tried thorium oxide, but found this, though efficient and harmless, to be too expensive for practical use. The zirconium oxide is a white, odorless, tasteless salt, quite insoluble except in hot sulphuric acid. The powder is entirely unchanged in the animal organism. Subcutaneous injections of the salt into animals showed it to have no toxic action whatever. The injected animals gained in weight, and no albumin or casts could be found in the urine. Animals killed after the injections showed no pathological changes. The author believes that in zirconium oxide we have an ideal substance for *x*-ray work. Its absorbent power for the *x*-ray is good. It is much greater than that of iron oxide and scarcely below that of bismuth. Owing to its white color and the possibility of pulverizing it easily, it can be added to a porridge and will be taken by the most particular of patients. As a routine the author recommends that 150 to 200 grams of the salt and 200 grams of bolus albus be added to one liter of lukewarm water. It is inexpensive. It costs but 11 marks ($2.75) per kilo, or about 85 pfennigs (21 cents) for sufficient for an examination of the stomach.

A Rare Case of Nicotine Rash.—Näcke reports the case of an insane patient who drank a cup of coffee in which he had steeped 7 to 10 grams of chewing tobacco. Acute nicotine poisoning resulted, with nausea, vomiting, vascular and pupillary symptoms. Immediately afterwards an intense general erythema appeared with marked itching. This lasted 5 days and disappeared without peeling. There was no fever, albuminuria, or gastrointestinal symptoms. It was of interest that during the height of the rash the mental condition cleared up markedly, but rapidly relapsed after the recovery of the skin symptoms.

Exomphalos.—I. F. Hicks reports a case of umbilical hernia in a new-born infant. On the eighteenth day the child was operated on for strangulation at the umbilical ring, with invagination and adhesions. Six or eight inches of the ileum were resected and the ends of the divided intestine brought together and united by Lembert sutures. The mesentery was stitched where a V-shaped portion had been removed. The bowels were kept locked by opiates for six days, when the infant had a natural evacuation, and since then an uneventful recovery.—*Journal of the American Medical Association.*

Book Reviews.

Schemata zum Einzeichen von Kurven bei Stoffwechselkrankheiten. Von Dr. Hermann Schall und Dr. August Heisler, Assistenten der Medizinischen Universitätsklinik Marburg a. Lahn. Würzburg: Curt Kabitzsch (A. Stubers Verlag), 1909.

An evidence of the widespread interest in metabolic disorders is shown in the publication of these very excellent charts, which permit the recording in convenient fashion of body weight, the amount of urine, the excretion of sugar, sodium chloride, albumin, and uric acid, and, in the form of curves, the intake of water, carbohydrate, protein, and fat. One chart will do for a period of six weeks. It would be difficult to conceive of anything more satisfactory for the specific purpose.

Spezielle Dietetik des Lungen- und Kehlkopf-Schwindsuechtigen. Von Dr. Felix Blumenfeld, Wiesbaden. Berlin: Verlag von August Hirschwald, 1909.

This is an enlarged and improved edition, in which Dr. Blumenfeld considers the various kinds of food applicable in tuberculosis, general sanitary care of the body, therapy of special symptoms and complications, general climatic and psychical therapy (a chapter of unusual interest), and other pertinent matters. Nothing new is presented, but the work as a whole is an excellent one, from which a physician caring for tuberculous cases may derive much practical information.

Leucopathies, Métastasea, Albuminuries, et Ictères Leucopathiques. Par le Dr. Émile Feuillié, Ancien Interne en médecine des hôpitaux de Paris; Médaille des épidémies (Dunkerque, 1908), Pharmacien de 1re classe; Licencié et sciences physiques; Stagiaire de l'Académie de médecine aux Eaux Minérales; Préparateur à la Faculté de Médecine. Paris: G. Steinheil, Éditeur, 1909.

The monograph is devoted to experimental studies to show that leucocytes are endowed with the power of emigrating into the tissue in order to escape circulating toxins, and are then capable of following these toxins as they are excreted, for example, into the tubules of the kidney, and there absorbing the toxins and being thrown off from the body through the tubules in the form of leucocytic masses or leucocyte casts. Apparently, the author considers that it is important for the body to eliminate the poisoned leucocyte rather than to destroy it in the tissues. Some inconclusive animal experiments and clinical histories are offered to prove this thesis. The author thinks that the cells of the renal tubules never appear in the urine, but only leucocytes, and that the cylindrical cells are leucocytes, not casts composed of renal cells. Albuminuria, he thinks, is often due to exudation of leucocytes solely. He thinks that edema is possibly due to destruction of leucocytes and the anaphylactic phenomena have the same basis. Several colored plates are introduced to illustrate some of the lesions of the kidney supposed to be due to the emigration of leucocytes.

The Dietetic Treatment of Diabetes. By B. D. Basu. Published by the Panini Office, Bhuvaneshvari, Ashram, Allahabad, 1909.

The pamphlet is a semi-popular one on the treatment of diabetes. It is not without errors, as, for instance, when the statement is made that: "There is no constant proportion between the sugar and nitrogen of the urine, and so the origin of sugar from proteid is doubted." On the other hand, there is a good deal of very sensible advice concerning the nature and amount of food suitable for the diabetic, in some instances giving the details of methods of cooking. It should be especially helpful to patients who are on a diabetic diet.

Diagnostic Methods: Chemical, Bacteriological, and Microscopical. A Text-book for Students and Practitioners. By Ralph W. Webster, M.D., Ph.D., Assistant Professor of Pharmacological Therapeutics and Instructor in Medicine in Rush Medical College, University of Chicago; Pathological Chemist of Cook County Hospital, Chicago. With 37 colored plates and 164 other illustrations. Philadelphia: P. Blakiston's Sons, 1909.

In estimating the value of a new book on chemical, bacteriological, and microscopical diagnostic methods employed in medicine and surgery, it is inevitable that comparison should be drawn between the new volume and those previously in the field, in order to see whether it possesses any point of superiority over its predecessors. From this aspect the general make-up of the volume, the binding, paper, and type are excellent. An especially useful feature is the setting off of each subject paragraph by the use of large heavy-faced type, not run in with the headline. There are, however, a great many omitted and broken type throughout the text, for which the author is hardly responsible, and which it is difficult to avoid in a first edition. One general criticism which may be offered is that forty-two of the plates have been transferred from Tyson, and many others from Hawk. This, of course, is an easy method of obtaining cuts and is satisfactory from the publisher's point of view because of the low expense. But in getting out a book of this type it seems only right that the illustrations of the more frequent parasites, crystals, and apparatus should be freshly drawn, or, better, photographed. The colored plates, on the other hand, are very largely original, and, on the whole, can be highly commended, though, of course, the color reproduction is not so satisfactory as in the finer lithographic plates we are accustomed to see from Germany. Some, as, for instance, the plate given up to *Streptococcus pyogenes* (pyrogenes in the plate) could have been very properly replaced by a half-tone photomicrograph costing much less than the inset plate. The colored plates of the blood are perhaps the most satisfactory.

To take up the different parts in detail, the volume begins with a chapter on the sputum, which is satisfactory in every way. The section on searching for the tubercle bacillus is especially good, the writer calling attention to the necessity for care in determining the specific gravity of the fluid from which tubercle bacilli are obtained by centrifugalization, to the fact that not all acid-resisting bacteria are tubercle bacilli, and to the advantage of separate staining and decolorizing for the preparation of the ordinary smear slides. He is also right in insisting on the necessity for inoculating guinea-pigs in doubtful cases. In the next chapter, on the secretions from the mouth, nose, and conjunctiva, the recent morphological studies on the trachoma bodies are introduced, though the matter is still unsettled.

In the chapter on gastric analysis, Uffelmann's test is rightly described as unsatisfactory. Töpfer's method of determining the acids is given as the most satisfactory for clinical purposes, as is undoubtedly the case, the criticisms of its slight inaccuracies being based upon the common delusion that the stomach secretes a mathematically exact amount of hydrochloric acid in each of the varying nervous and physical derangements of the body. In estimating pepsin, the new edestin and ricin methods are quite properly not admitted, as there is still some doubt whether they will prove satisfactory for general use. They are certainly still in an experimental stage, and the use of a toxic substance such as ricin about the laboratory is questionable.

In the chapter on the feces, the blood tests are very fully considered, and the author has shown a commendable restraint in limiting himself to the standard, thoroughly tried procedures, and has not run after all the evanescent methods which appear almost weekly and are shown in about as short a time to be utterly unreliable. The diagnostic limitations of the chemical methods of studying the feces are properly emphasized. Mention of Janeway's recent finding of the *Trichina spiralis* in the blood of man is an illustration of the thoroughness with which the recent literature on parasites has been searched.

Perhaps the strongest chapter is that on uranalysis, in which the reviewer has failed to find anything for serious criticism. It is very full; the more valuable of the recent analytical methods are given; and the importance of being extremely cautious in drawing diagnostic hints from microscopical examinations alone is fully kept before the reader.

In regard to the Wassermann reaction, the *Spirochæte pallida* and the opsonic index, the writer takes a justifiably conservative position, which the profession at large would do well to imitate. On the whole, the book may be characterized as one of the best on the subject, if we except the illustrations. The author has successfully steered between the dogmatism of the quiz compend and the voluminous obscurity of the German monograph.

Klinische Mitteilungen aus dem Gebiete der Ohren- und Nasenkrankheiten für Studierende und Aerzte. Von Dr. Victor Lange, Kopenhagen. Berlin: Verlag von S. Karger, 1910.

This is an interesting collection of thirteen papers on various topics connected with nose, throat, and ear disease, and is not in any sense a connected textbook. Of special interest we note those on "Adenoids and Enuresis," "Intermittent Otalgia," and "Some Rare Cases of Idiosyncrasy to the External Application of Various Remedies." All are interesting. The book is printed with unusual clearness.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 16, 1909.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

The Pellagra Problem, Past and Present.—Dr. W. J. BABCOCK of Columbia, S. C., read this paper. Two years ago pellagra was but the shadow of a name to most of them, while to-day the health authorities of the National Government and of at least twenty-two States were engaged in the endeavor to solve the mystery of its origin, prevention, and cure. In 1735 Gasper Casel of Spain described an erythematous condition prevalent in the Asturias under the name of lepra asturiensis, and this really was the starting point for the authentic study of what was now known as pellagra. There were several apochryphal references to a similar malady. Barnino in 1600 described a pellagroid condition in the American Indians which was attributed to eating Indian corn. In 1771 Frapolli adopted the name now given to this disease. Italy, Spain, and France had been studying an erythematous condition for over a century before its complete identification as one and the same condition was recognized. This was due to the fact that the most striking feature of the condition objectively was the dermatitis, but clinically this was the least important symptom. Pellagra was not a skin disease, but was a constitutional disease as much as was smallpox. In 1776 resolutions were passed by the Board of Health of Venice to regulate the persecution of pellagra; they were based upon the assumption that the malady was caused by spoiled corn. The first record of observation of pellagra made by an American physician was by Dr. Earle of New York; he made references to cases in 1839 that he had seen in Milan. It was believed now by medical officers of the insane asylums of Georgia and South Carolina that pellagra had been present for at least thirty years in these institutions although unrecognized. Dr. Babcock described the work done in the study of this disease in these States. A committee, of which Assistant Surgeon-General Kerr of the United States Public Health and Marine Hospital Service was chairman, was now at work investigating pellagra. The evidence already at hand pointed emphatically to the existence of an epidemic of pellagra at the present time. Pellagra therefore must be recognized as an endemic malady which had of recent years assumed epidemic proportions. Among predisposing causes Babes mentioned innate weakness or anomalies of the nervous system. Lombroso placed cretins and epileptics as among those predisposed by nature to pellagra. Mild mental symptoms, melancholy and even neurasthenia preceded pellagrous attacks. Heredity had a certain influence. The association of pellagra with corn was based upon: (1) The fact that pellagra had followed the introduction of corn into European and African countries. (2) Pellagra was endemic only in corn-eating countries. However, it should not be forgotten that there were vast corn-growing areas where the disease had not been recognized. (3) People who did not eat corn products were free from pellagra. (4) A diminution of the use of corn products caused a corresponding lessening of pellagra and *vice versa*. Two recent French writers, Nicholas and Jamhon, had abandoned the corn theory, sound or mouldy, and tended to consider pellagra as a symdrome of diverse origin among which alcohol and poverty were of prime importance. In Italy certain writers attributed pellagra to intoxication by penicillum glaucum, or cryptogams allied to it, or to their toxic products developed on corn or other cereals. Dr. Babcock had known pellagrins to make homocidal attacks upon other patients and attempts at suicide were almost as symptomatically characteristic of this affection as they were of melancholia. In regard to prophylaxis Dr. Babcock quoted Dr. Lavinder to the effect that evidence of the communicability of pellagra was insufficient to warrant quarantine measures in the present state of our knowldege and that one must take cognizance of the connection between corn and pellagra in efforts at prophylaxis as new theories in regard to the etiology of the disease had not been definitely proved.

The Symptomatology, Pathology, and Treatment of Pellagra.—Dr. J. J. WATSON of Columbia, S. C., read this paper. He said that the malady was so insidious in its onset that it was difficult to state what were the earliest premonitory symptoms. The first thing usually complained of was some gastrointestinal disturbance, such as loss of appetite, burning sensation in the epigastrium, excessive desire for food and drink, or more often diarrhea with more or less stomatitis and salivation. Soon the patient felt disinclined to exerting himself. The characteristic symptom of the disease was the erythema on the hands and arms not covered by the clothing. The skin eruption might be either dry or wet. The eruption began as an erythema on the backs of the hands and extensor surfaces of the forearms, extending up the arms to the point where the sleeve reached, and there ended abruptly, being absolutely symmetrical if the sleeves were symmetrical, which was usually the case. Patients who were unable to work, and who sat about and held their hands, had the eruption on the flexor surface to the same extent as on the extensor surface. The erythema lasted a few days, and then began to fade and the skin to desquamate in fine scales if the dermatitis had been mild. As the redness faded the site of the erythema assumed a somewhat cyanotic hue. This was gradually replaced by a characteristic light liver or chocolate color which could not be mistaken or confounded with any other skin disease when once seen. In negroes it was readily recognized by an increase in the pigmentation, the site of the eruption appearing as though soot had been smeared on that part of the hand and arm. After a time the eruption scaled off and left the hands soft and glistening. The erythema later would again appear and the eruption would follow the same course as before. This might happen several times during the summer. As a result of these repeated inflammations the hands became hard and wrinkled and frequently deep fissues occurred on the fingers. In those who went barefooted, the feet and legs did not escape. The eruption appeared in the spring months and persisted until July, August, and September; it then disappeared to make its appearance in the following spring. In some cases there was a mild relapse in October. The crowning characteristics of the pellagra eruption were the symmetry and color. The wet form differed only in degree. When the dermatitis was severe, bullæ formed; when they broke large ulcers were left to mark their site, or large flakes of skin desquamated, leaving a raw surface. The whole clinical picture was analagous to a burn of the first degree. The wet form involved a greater area than the dry. This form had frequently been diagnosed as dermatitis exfoliativa. The buccal mucosa became very red, the tongue and mucosa of the lips showing particularly this characteristic symptom. The tongue, denuded of its epithelium, was smoth and glistening. Its color was cardinal red. Sandwith had called it the "bald tongue." The stomatitis was accompanied by a profuse flow of thick saliva. When the mouth was opened, strings of saliva would extend from the upper to the lower teeth. The small black or bluish-black papilla seen on the tongue had been given the name "stipple tongue" by Dr. Lavinder. The swollen and tender salivary glands, with the salivation and swollen gums, had often been mistaken for mercurial salivation, but there was absent that disgusting fetid odor so characteristic of the mercurial ptyalization. Other mucous membranes were inflamed. Hemorrhoids

were frequently complained of. The mucosa of the vagina was the seat of inflammation, and vulvovaginitis was not at all infrequent. Lombroso said that pyrosis was never absent. Vomiting sometimes occurred, but was not a constant feature. In advanced cases dysphagia was complained of. In some cases there were marked gastric symptoms. Diarrhea was a feature of the disease at some time in its course, and varied from a few soft stools a day to twenty or more. They were often as frequent at night as in the day. The diarrhea was obstinate and was not affected by the ordinary treatment of diet. It often improved when drugs were discontinued and the diet not restricted. It was due to disease of the spinal chord and involved the sympathetic system; it was a neuropathic manifestation. In the terminal stage, when rise of temperature set in, the diarrhea frequently ceased. Meteorism was present with the diarrhea. The diarrhea followed the same course as the erythema and stomatitis, namely, it had exacerbations and remissions and persisted through the spring and summer months, with a slight recrudescence in October, and then disappeared during winter to reappear the following spring. Pupillary abnormalities were striking in some localities, and in some seasons varying from year to year. The pupils reacted sluggishly, both in light and accommodation. The pupillary phenomena must be due to a disturbance in the cilio-spinal center. Pains in various portions of the body were often complained of. Tenderness at some point along the spine was almost constant. The mild cases were practically afebrile, with a morning temperature often subnormal. A temperature of from 102° to 108° F. or over was not infrequent in cases progressing to a fatal termination. The pulse increased with the toxemia or temperature, and counts of 160 were not unusual in fatal cases. There was nothing characteristic about the urine. The reflexes were usually exaggerated. Vertigo was complained of by nearly all the sufferers. Mental depression was as constant as the erythema and diarrhea and varied from a mild case of the blues to severe melancholia. Hallucinations and delusions were sure to occur at some time in the disease. While pellagrins were not talkative, at times they complained of real or imaginary ills. As the disease advanced they talked less, often not even answering questions, and finally they passed into a state of absolute mutism. The gait was either paralytic or paralytic spastic. The patients walked with their legs far apart, and as paresis set in the stride was very much decreased and the patient assumed a peculiar shuffling gait. Dr. Watson gave a lantern slide exhibition of cases after giving a very brief account of the pathology and treatment of the disease.

A Case of Pellagra.—Dr. Howard Fox presented a farmer, fifty-one years of age, a native of Georgia. The first symptoms of the disease began two years ago with loss of appetite and gradually increasing loss of flesh and strength. In the spring of 1908 an eruption appeared on the backs of the hands. His memory had gradually become very poor. Last summer he suffered from diarrhea and presented a fiery red tongue. Examination showed a dull, expressionless face, mental depression, a dermatitis of the backs of both hands, marked arteriosclerosis, some rigidity of the muscles of the legs, and exaggerated patellar reflexes. This was the first case of pellagra ever shown before any medical society in New York. Two cases had, however, been previously reported from Brooklyn by Dr. Sherwell, and one had recently been seen by Dr. Lavinder at the Marine Hospital on Staten Island.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held November 26, 1909.

Dr. John O. Polak in the Chair.

Large Lipoma of the Labium Majus Obstructing Labor.—Dr. Arnold Sturmdorf presented this tumor which was removed from a primipara, thirty-six years old. She claimed that she had carried this growth for eight years without discomfort. The tumor was quite hard, very slightly movable, and was attached by a broad base which involved and obliterated the outlines of the left labium majus. On its surface was a network of tortuous and dilated veins. It measured 12.5 cm. in length, 10.5 cm. in diameter, and 29.5 cm. in circumference. The fetal head was presenting at the vaginal outlet when she entered the hospital and was arrested by the projection of the growth on the left, and an old anchylosis of the right side. The removal of the growth permitted the prompt spontaneous delivery. This was one of the rarest of gynecological affections and represented a most unusual dystocia.

Adenocarcinoma of the Corpus Uteri.—Dr. Sturmdorf then presented this specimen. In addition to irregularity of outline and great increase in the number of glands, the epithelium proliferated, forming multiple irregular layers invading the corporeal structure of the uterus. The patient was a widow, fifty years old; she had had two children, eighteen and twenty years ago, with normal labors. The menopause occurred twelve years ago. She had a vaginal discharge which had existed for ten years, but she had never experienced any pain. On examination, the cervix appeared normal, but the uterus was somewhat enlarged and boggy, with adnexa free. An examination of the scrapings prompted a total hysterectomy. The pathologist reported this to be an adenocarcinoma of the uterus. This might assume a type sometimes spoken of as malignant adenoma, a glandular overgrowth in which the greatly increased glands invaded the musculature of the uterus. It was very difficult to differentiate such an early malignant adenoma from an advanced type of hyperplastic glandular endometritis, termed benign adenoma. The mucosa of the body of the uterus was entirely replaced by the cancer growth, which extended as far down as the internal os, and there stopped, leaving the cervical canal and vagina free from involvement.

Interstitial Ectopic Pregnancy and Tuboovarian Abscess in the Same Patient.—Dr. Sturmdorf also presented a uterus which showed an ectopic gestation on one side and a tuboovarian abscess on the other. This condition was not of rare occurrence. The patient was twenty-eight years old, married four years, and stated that she had never before been pregnant, and had never suffered from any gynecological affection. She had menstruated regularly seven weeks prior to her first examination; she admitted that when two weeks overdue, suspecting pregnancy, she had submitted to an attempt at artificial abortion; this resulted in producing an irregular, occasionally profuse, painless flow which had continued during the following four or five weeks. Her temperature was normal and there was no tenderness. Attached to the left side of the uterus was an irregularly shaped, soft, elastic mass which filled the left lower pelvis. The history, symptoms, and the mass seemed to make the diagnosis of ectopic pregnancy a logical one. Abdominal section, however, revealed the uterus to be completely embedded in extensive organized adhesions. The mass to the left which had been interpreted as the gestation proved to be an old tuboovarian abscess, while the junction of the opposite cornual area with the tubal isthmus presented the soft bulging of an existing ectopic gestation. Where they expected to find an ectopic, they found an abscess; where they expected nothing, they found the most dangerous form of ectopic pregnancy. The complete absence of all signs and symptoms pointing to the existing extensive results of previous infection were worthy of comment.

The Induction of Labor and Manual Dilatation of the Cervix by Harris's Method.—Dr. H. M. Little of Montreal read this paper. He said that during the past few months the tabulation of the statistics of some forty cases

of eclampsia and a compilation of the medical report of the Montreal Maternity Hospital for the past year had given him an opportunity to become familiar with certain features of the general work which had impressed him strongly. Two of these features which stood out strongly and seemed most worthy of attention were the results of the induction of labor, and those of *accouchement forcé* by the Harris's method. The reports of the Section on Obstetrics and Gynecology of the New York Academy of Medicine, always well written and attractively presented, were the most widely read of any American obstetric transactions, and served as a guide in the treatment to the majority of practising obstetricians in the United States. Records of 3,000 cases in Montreal showed an average of about 11 per cent. of contracted pelves. During the past year he found that with 87 contracted pelves there were 70 normal labors, and but 17 instances of dystocia. That was, 80 per cent. of the labors terminated without interference. If they considered that normal labors occurred in 80 per cent. of the 11 per cent. of all cases in which the pelvis was more or less contracted, it was a simple deduction to see that pelvic dystocia was to be expected in about one of fifty cases; and if they excluded from these, those in which forceps or version might be employed with advantage, the chances of serious pelvic dystocia were seen to be extremely remote. Owing to the success of certain advances along surgical lines, pubiotomy and the various modifications of abdominal section, they owed the favorable reception of two other operations, multiple incisions of the cervix and the so-called vaginal cesarean section. It was on account of the widespread notice that these two operations had obtained that he brought before the Section the results gained by two other and older operations which had fulfilled all purposes. He referred to the favorable results gained by the induction of labor and manual dilatation of the cervix. Dr. Little said he had been struck by the number of cases of dystocia on account of the birth of a child unusually large or exceedingly heavy, even though the pelvis was normal. Vaginal cesarean section had been recommended in cases where the cervix was rendered abnormal by carcinoma, fibroids, or extensive scars. It had also been suggested in cases of eclampsia, placenta prævia, heart disease, nepritis, chorea, vomiting of pregnancy, tuberculosis, and infrapartum infection. Labor had been induced 45 times in the series of 3,000 cases. The method employed was as follows: The vulva was first shaved and cleansed. The cervix was exposed and its anterior lip was fixed with a tenaculum. The bougie used was a moderate sized rectal tube, about 25 cm. long, in which holes, about 3/10 cm. in diameter, were made at intervals of about 5 cm. This was fixed upon a flexible metal director inserted about 5 cm. from its tip. The metal director served to hold the bougie steady during its passage into the cervix, and after director and bougie had passed into the cervix the director was steadied and the rubber tube shoved up between the membranes and the uterus by means of a long forceps. The director was then reinserted into the next opening in the tube, passed up until it was well within the cervix and the tube again shoved off up into the uterus. In this way it was possible to pass in the tube as if it were solid and yet allow the freest of excursion once it had gotten between the uterus and the membrane. The softness of the tube precluded the possibility of perforation of the uterus and the membranes were never ruptured. The average time from the introduction of the bougie till the onset of labor was six and a half hours. In spite of the early onset of pains in the majority of the cases, it was found necessary to interfere for the completion of labor in about one-half the cases. Nineteen of the 45 cases died, but as the operation was in by far the greater number of cases undertaken in the interest of the mother, this showing was relatively good, particularly when the deaths were analyzed. *Accouchement forcé,* or so-called "bloodless" dilatation of the cervix by Harris's method, had been employed on 52 occasions; two more cases were added where dilatation was accomplished by means of the Pomeroy bag. The indications were, eclampsia, 15 cases; to terminate labor after induction, 8; placenta prævia, 8; toxemia, to shorten labor, 4; danger to the mother or child during labor, 9; prolapse of the cord, 3; transverse presentation, 2; fever intrapartum, 2; extreme rigidity of the cervix, 1; other causes, 2; a total of 54 cases. There were five deaths, three cases of eclampsia, one case of placenta prævia, and one after pubiotomy. In the 52 cases operated on by the Harris's method but 14, or 29 per cent., escaped without a certain amount of laceration. In the two cases in which the Pomeroy bag was used there was more or less tearing of the cervix. Two dangers of manual dilatation, hemorrhage and infection, had not been noted to any extent. A total of 28 normal puerperiums in 49 cases, 57 per cent. was not unsatisfactory, particularly as seven of the eight moderately high temperatures after the use of Harris's method were noted, three times in association with placenta prævia, twice where they had high fever before the operation was undertaken, once in a case of pyelonephritis, and once after the placenta had been removed manually. In concluding, Dr. Little said that the induction of labor and occasionally the completion of labor by manual dilatation offered an alternative to surgical procedures in the treatment of many of the graver complications of labor. These two operations not only were simple but were capable of application under almost any circumstances; they were so simple that they might be employed by a practitioner even without the aid of assistants. When carefully employed they were practically devoid of danger and had the advantages of being not only of wide application but of almost universal use in that the manual dilatation of the cervix must be completely employed as a preliminary to either operation with forceps or version. Where carefully employed the maternal mortality should be nil, though particularly in the induction of labor there might occasionally be deaths from too long delay before labor was induced. The same, however, would apply no matter how the patient was delivered, for once the bougie was inserted it was but a short time until the patient either delivered herself spontaneously or could be delivered by other methods.

Dr. J. Clifton Edgar believed that if one had much experience in the use of Champetier's bags in the induction of premature labor, he would cling to this method; however, the method proposed by Dr. Little appealed to him, and he would try it. Whatever method was employed, the results depended upon the intrinsic irritability of the uterus. In some instances there would occur a very short labor; in others a very long one. It was the condition of the uterus itself that counted, and not so much the method employed. In the cardiac cases one should endeavor to shorten the second stage. With regard to *accouchement forcé,* he believed that all methods employed became after all a personal equation; they all had their use. Dr. Edgar obtained his best results with the use of the Pomeroy bag in *accouchement forcé;* but one could not rely upon the Pomeroy bag to open the uterus three and a half, or three and three-quarter inches within an hour, without lacerating the cervix. In obstetrical emergencies which demanded very rapid dilatation of the cervix, the choice of operation should depend upon the condition of the cervix. In New York one met with cervices that were very resistent, and it seemed to him that there should be no absolute choice of any one method. It was to be borne in mind at all times that it was the rigidity of the cervix that was to be overcome and which caused the danger.

Dr. James W. Markoe said that the old Krause catheter had been introduced into the uterus for the production of premature labor without the best results, and he believed

that with the new method with a rectal bougie better results would be obtained. During the past few years he had been in the habit of packing the cervix with iodoform gauze, packing it in well up, with the patient upon her back; he packed it in as tightly as he could. This had been a very serviceable method with him. However, this method with the rectal tube seemed to be of better service and induced labor quicker than with the small bougie. The induction of labor was not often carried out at the Lying-In Hospital; out of about 60,000 there had been but 256 patients on whom labor had been induced. This was a very small number, but they should remember that the cases came in late and this would account for the small number. With regard to *accouchement forcé*, where forcible dilatation of the uterus was required, in the hands of the inexperienced it was a very dangerous method and, therefore, should be done as little as possible. Among the 60,000 cases at the Lying-In Hospital, this operation had been performed but about 648 times. The cases calling for it were very varied. In one case, for instance, a woman had a cervix dilated to about two fingers and under her bed was a pool of blood. This was a case of central placenta prævia. The immediate delivery of the child called for a true *accouchement forcé*. When this was performed with the use of the bags, it was a slow process; his idea of the term *accouchement forcé* implied that it must be done rapidly. This operation was done in cases of placenta prævia, eclampsia, cases that demanded an immediate delivery of the child. At the Lying-In Hospital he usually used a steel dilator where the cervix was undilated before performing manual dilatation. The danger was not so much from the dilatation as it was in the extraction of the child through the rapidly dilated cervix. Dr. Markoe said he was delighted to hear the statistics from Montreal; he heartily agreed that too much surgical work was done and for the induction of labor, *accouchement forcé* should be more often employed, and would give better results when properly performed. It should, however, be done with great care. If improperly done there was great danger attached to its performance.

Dr. Charles Jewett said that the induction of labor by obstetric methods, properly carried out, was practically without maternal mortality. There were no fetal deaths that could be properly charged to the interruption of pregnancy when it could be done within the last two or three weeks. In contracted pelvis the operation, while it had not a large field, held an important place in obstetric surgery. There were four principal methods at their disposal: the Krause method, the hydrostatic bag, manual dilatation, and vaginal cesarean section. The choice must depend upon the individual case. In most cases the labor terminated within twenty-four hours. The inelastic water-bag was quicker than the bougie. Dr. Pomeroy with his bag had completed the dilatation in favorable cases within one hour. In many cases of placenta prævia this was the ideal method, especially in cases with hemorrhage with an undilated cervix. In the interest of asepsis it was better passed within the amniotic sac and it controlled the bleeding better. Manual dilatation was sometimes better than the bag or the bougie. Vaginal cesarean section found its chief indication in eclampsia with rigid cervix. This was especially true prior to the last one or two months, when extraction was easy. With reference to the technique in the use of the bougie, Dr. Jewett had not found it necessary to use an anesthetic. The patient was placed in the Sims position, the cervix exposed and drawn forward in the usual way. He used two bougies, the largest that could be had. Dr. Little's rectal tube would no doubt be a gain over the bougies usually employed. The knob was removed from the proximal end and a stilet introduced. The distal end was bent nearly at a right angle, making a large sweep about three or four inches from the end. This passed easily the angulation at the junction of the cervix and lower uterine segment. As the bougie entered the uterus, the stilet was withdrawn about one inch, and the soft nose of the bougie found its way between the membranes and the uterine wall without risk of harm. He did not remember having ruptured the membranes with this technique. The instrument was pushed up gently till resistance was felt, then the stilet was withdrawn and the rest of the bougie was fed into the uterus, inch by inch, catching it near the cervix with a Keith clamp. Most of the bougie he assumed was coiled up in the lower segment where it was most effective in provoking pains.

Dr. George L. Brodhead said that years ago, at the Sloane Maternity Hospital, the bougie was almost universally used for the induction of labor, but the membranes were ruptured so frequently that when the de Ribes bag was brought into use, he had tried it and had been using it ever since. Prolapse of the cord had happened in two or three instances, but the use of the bag had been, as a rule, a valuable and reliable method of procedure and so far as the maternal mortality was concerned, there was none. With regard to *accouchement forcé* he believed that prior to the operation, in cases of eclampsia, for instance, the use of the balloon was advisable in order to obtain both softening and dilatation, for the cervix in some of these cases was very rigid. In placenta prævia he was afraid to use *accouchement forcé*, preferring to use the Champetier bag until good dilatation of the cervix was obtained; then the foot should be brought down and the child extracted very slowly. Rupture of the uterus had occurred very frequently during the rapid dilatation of the cervix and subsequent extraction in placenta prævia, and he believed that generally speaking it would be safer to use the bag, or even to do version with slow extraction, than to resort to *accouchement forcé*.

Dr. Franklin A. Dorman said he had been very much interested and edified by Dr. Little's paper which showed so much thought. The induction of labor was indicated, even in a relatively large pelvis, when the woman was at term, when there was an excessively large child. The words in the paper sounded the keynote of the situation when the statement was made that these patients should not be allowed to go beyond a few days after term. At term the results were good in such cases. Many multiparæ, if advised to take a good dose of castor oil, or given a little digital stretching of the cervix, would go promptly into labor. This was a simple method of inducing labor. If the women were not at term, it was more difficult to bring on labor and get good results because of the poor muscular action. The labor would drag along and the women would often play out before the low uterine segment was dilated. Manually, one might then be unable to get the child out. In such cases one was occasionally justified in making a section of the lower segment of the uterus. In the cases of rigid cervices seen in eclampsia, the long and thick cervices, where one wished to get a softening of the cervices, it could be accomplished by the use of the bag better than by the use of the bougie; it produced a mechanical action not obtainable by the bougie. The bag certainly had an advantage over the bougie, although the uterus was more responsive to the latter. In cases of placenta prævia, one should not omit the use of the dilating bag. Such patients should be carefully watched. If one attempted to dilate the cervix manually, there was liable to occur a tear of the cervix. Dr. Dorman said he had seen many cases of ruptured uteri because the operators did not realize that they were tearing it.

Dr. Robert L. Dickinson said that two weeks before term, one could with advantage strip the membranes in most primiparæ, and even in multiparæ, and always when a large child was anticipated, and thus induce labor. They lost too many first children and mostly from over-develop-

ment. He felt very grateful to Dr. Little for introducing the use of the rectal tube. Dr. Dickinson had ruptured the membranes with Krause's bougie, and once had loosened the placental edge. The *x*-ray had taught them that any attempt, save by the proctoscope, to pass the rectal bougie well up into the colon would coil it in the rectum. The same thing would occur when it was passed into the uterus, and he did not believe it was as dangerous as the bougie. As to *accouchement forcé*, there was no method used to dilate the cervix but what brutally contused the parts, and left a thickened external os, not effaced, never taken up. He said he had taken a strong stand against the use of the Bozzi dilator. He preferred to use manual dilatation by Edgar's method when one feared to displace the engaged head. Pomeroy's bag had a field of usefulness in placenta prævia. Time was an important element in these cases. There was usually a rigid cervix in cases of eclampsia at the sixth or eighth month. He said he knew of no method so satisfactory in dealing with this ring of gristle as the cutting operation.

Dr. Asa Barnes Davis said that his experience with the use of the bougie in these cases showed that it was uncertain in its action. He had used, for a long time, packing with gauze to the exclusion of everything else. He packed well through the cervix as far as he possibly could, plugging the cervical canal and vagina as well. This he considered a very essential thing to do in inducing labor. His experience with the Pomeroy bags had been of a very limited nature. He had found that packing with gauze was very satisfactory and very efficient. They met with cases where it was necessary to empty the uterus rapidly; the element of time was a very important matter in some cases. In such cases one could not wait for the action of a bougie. Often dilatation was a very difficult thing. As a matter of fact, a large number of so-called dilatations were not dilatations at all. One could not dilate more than four fingers without tearing the cervix. As to the vaginal cesarean section, it was an easy matter to open the uterus by means of an incision; but it was a difficult matter to repair a cervix and uterus afterwards. Sometimes the tear extended in the direction of the incision; if it extended laterally one was apt to tear into large blood vessels when one would meet with an alarming hemorrhage.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners of South Dakota.

July 14 *and* 15, 1909.

ANATOMY.

1. Give the fundamental principles of an animal cell. Describe briefly four classifications of cells.
2. What is cartilage? Name and describe the several kinds.
3. Define: Mulberry mass; primitive streak, ectoderm. What structures are formed from the mesoblastic layer?
4. Describe a complete uriniferous tubule, showing the blood supply and various kinds of epithelium.
5. Give origin and insertion: Psoas magnus: Serratus magnus; Teres major; Deltoid.
6. Give a description of the arteries and veins of the rectum.
7. Describe and trace the course of the lymphatics of the mammary gland.
8. What displacement occurs in an intracapsular fracture of the femur? Why?
9. Name and describe the ligaments of the knee joint.
10. Describe a hepatic lobule.

PHYSIOLOGY.

1. Where, in the human body, are the following substances found? (*a*) Fibrin; (*b*) mucin; (*c*) leucin; (*d*) chondrin.
2. Describe the nervous mechanism of muscular contraction.
3. Define stammering, and state the cause.
4. Describe the blood, and compare arterial with venous blood.
5. What is the physiologic function of the liver?
6. What is the rate of circulation of the blood in the (*a*) arteries, (*b*) veins, (*c*) capillaries?
7. Describe the physical properties of (*a*) lymph, and (*b*) chyle.
8. Define reflex nervous impulses, and give examples.
9. Explain the difference between human and cows' milk.
10. Define secretion, and name some of its products.

CHEMISTRY.

1. (*a*) What is chemistry? (*b*) What is meant by chemical force or affinity?
2. (*a*) Give a definition of a crystallized substance. (*b*) Under what condition will matter crystallize?
3. What is meant by the terms amorphous, polymorphous, isomorphous?
4. (*a*) Explain the term quantivalent. (*b*) Mention some univalent, bivalent, trivalent, and quadrivalent element.
5. If a certain volume of hydrogen weigh twenty grains, how much will a like volume of oxygen weigh?
6. State the difference between inspired and expired air, and explain how this is brought about.
7. Give chemical composition and general properties of bismuth subnitrate. Explain the dark color of the stools following its therapeutic use. Name its most dangerous impurity and give test for same.
8. (*a*) What substances might be indicated if a specimen of neutral or slightly acid urine show a precipitate upon boiling? (*b*) How would you differentiate between them?
9. (*a*) Give a test to detect sugar in the urine. (*b*) Give in detail a quantitative test for sugar in the urine.
10. State if the following prescription is chemically compatible. If not, why?

℞

Tinct. ferri chloridi, ʒvi.
Ext. buchu fl., ʒss.
Potassi citratis, ʒvi.
Aquæ dest. qs. ad, ʒiv.

M. et. Sig. Take a teaspoonful every four hours with a glass of water.

BACTERIOLOGY.

1. What is understood by ptomains? Toxins?
2. How do bacteria multiply?
3. When called to a case where diphtheria is suspected, describe fully the technique of taking a culture; the preferable culture medium and stain, and process of staining.
4. Name three conditions essential to bacterial growth. What are the most common microorganisms of suppuration?
5. What is the supposed microorganism of cerebrospinal meningitis? How is the bacteriological diagnosis of this disease made?

PATHOLOGY.

1. Contrast hyperemia and passive congestion
2. What is the pathology of arteriosclerosis?
3. Define osteomyelitis.
4. Give the technique of an examination of the sputum.
5. Give a brief outline of Ehrlich's side chain theory.
6. Describe "healing by second intention."
7. Give causes, symptoms, macroscopic, and microscopic findings in atrophic cirrhosis of the liver.
8. Define embolus, thrombus.
9. Give the pathology of urticaria.
10. Name three forms of nucleated red blood cell.

PRACTICE AND THERAPEUTICS.

1. What are the clinical forms of acute gastrointestinal catarrh of childhood?
2. What is varicella? Variola? Give differential diagnosis of same.
3. Define idiopathic anemia. Give symptoms. Differentiate idiopathic anemia and progressive pernicious anemia.
4. What is acute chorea? Give pathology, symptoms and treatment.
5. Describe neurosis of bladder. Give symptoms and treatment. In what way does neurosis of bladder differ from cystitis?
6. What is ascites? Give symptoms, physical signs, and treatment. What is liable to be mistaken for it?
7. Define bronchopneumonia. Lobar pneumonia. Give differential diagnosis.
8. (*a*) What are the modes of administering drugs? (*b*) Give therapeutic uses and contraindications of chloral hydrate.
9. Give symptoms of intestinal obstruction and name the different types.

10. Give therapeutic uses and contraindication of digitalis. Describe poisoning from digitalis.

OBSTETRICS.

1. Describe ovulation.
2. Describe a case of pregnancy at beginning of fourth month.
3. When would you apply the forceps? When would you not apply the forceps?
4. Give causes, symptoms, and dangers of a premature detachment of the placenta, and treatment.
5. Phlegmasia alba dolens. Give symptoms, treatment, and results.
6. What precautions do you take to prevent rupture of the perineum? If considerably torn, what do you do, when and how?
7. With right shoulder presenting, arm straight, and hand born, palm of the hand facing the right thigh of mother, thumb backward, what would be position of child in utero, and what would you do?
8. What is meant by the "stages of labor"?
9. How would you prevent mastitis?
10. Describe care of the mother for first three days after the birth.

DISEASES OF WOMEN.

1. Describe the contents of the female pelvic cavity, and show relations.
2. Give treatment in detail of a submucous fibroma.
3. Give the symptoms and treatment of a chronic retroversion of the uterus; (*a*) medical; (*b*) surgical, giving details of one operation.
4. Etiology and treatment of (*a*) cystocele; (*b*) rectocele.
5. Etiology, symptoms, and treatment of pelvic adhesions.

SURGERY.

1. Diagnose and treat a case of acute serous synovitis in its most frequent location.
2. Describe a case of cellulitis of the hand. Give treatment for same. What does it often accompany?
3. Give cause and treatment of varicose veins of the lower extremities.
4. Give the most common seat of fracture of the inferior maxillary, and its treatment.
5. Give cause and treatment for hallux valgus.
6. Describe Bassini's operation for the radical cure for inguinal hernia.
7. Diagnose a movable kidney. What operation would you perform for its relief? Describe the operation.
8. Diagnose an ischiorectal abscess. Give etiology and treatment.
9. Name the most common dislocation of the shoulder joint and give method of reduction.
10. Describe an operation for the radical cure of hydrocele.

EYE AND EAR.

1. (*a*) Give diagnosis of iritis. (*b*) Name, describe, and treat five common pathological conditions of the eye.
2. (*a*) Name all the bones which form the orbital cavity. (*b*) Which are common to both orbits?
3. What do you understand by the following: Hypopyon, Argyll-Robertson pupil, mydriasis, presbyopia, ptosis?
4. Where would you look for the cause of much of the ear trouble in children? Discuss briefly.
5. Describe and treat five pathological conditions of the ear.

JURISPRUDENCE.

1. Differentiate between antemortem and postmortem wounds.
2. What would guide you in determining whether a gunshot wound was self-inflicted?
3. Describe briefly duties of coroner when finding of dead body is reported to him.
4. What do you understand by abortion, infanticide, dementia, poison, syncope, catalepsy?
5. (*a*) Treat a case of opium poisoning. (*b*) Differentiate between poisoning from strychnine and arsenic.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF SOUTH DAKOTA.

July 14 and 15, 1909.

ANATOMY.

1. *A typical cell* is the ultimate element of structure; it enters into the formation of all tissues. It consists of a tiny mass of protoplasm, and contains a nucleus and an attraction sphere, but as a rule no cell wall. Cells vary in shape and size (from about 1-3000 to 1-300 of an inch in diameter), and are characterized by power of movement, assimilation, growth, excretion, and reproduction. *Properties of cells:* (1) Irritability, or power of responding to a stimulus; (2) power of movement; (3) power of assimilation; (4) power of growth; (5) power of excretion, and (6) power of reproduction. Cells may be *classified* as: (1) Epithelial; (2) connective tissue; (3) muscle, and (4) nerve cells.

2. *Cartilage* is a form of connective tissue; it is firm and elastic; opaque, and of a bluish color. The varieties are: (1) *Hyaline*, in which the cells are relatively few and are imbedded in a quantity of ground substance. (2) *White fibrocartilage*, in which the ground substance contains bundles or layers of white fibers, between which are encapsulated cells. (3) *Yellow fibrocartilage*, in which the ground substance contains a network of yellow, elastic fibers, and the cartilage cells are in the meshes of this network.

3. *Mulberry mass* is the more or less globular mass of cells, the result of repeated segmentation of the fertilized ovum. *Primitive streak* is a linear marking appearing at the end of the germinal disc, and indicating the first trace of the embryo. *Ectoderm* is the outer layer of the blastoderm. From the *mesoblastic layer* are derived: The skeleton, connective tissues, muscles and bones, heart, blood-vessels, lymphatics, and spleen; the urinary and generative organs.

4. See Cunningham's "Anatomy" (1909), page 1139; or Gray's "Anatomy" (1908), page 1427.

5. PSOAS MAGNUS. *Origin:* Transverse processes of lumbar vertebræ; also from bodies of last thoracic and all lumbar vertebræ, with the intervertebral substance. *Insertion:* Lesser trochanter of femur. SERRATUS MAGNUS. *Origin:* Eight upper ribs and aponeurosis over intercostal muscles. *Insertion:* Vertebral border of costal surface of scapula. TERES MAJOR. *Origin:* Inferior angle of scapula and lower one-third of axillary border of scapula. *Insertion:* Inner edge of bicipital groove of humerus. DELTOID. *Origin:* From the outer third of anterior border and upper surface of the clavicle, from the outer margin and upper surface of the acromion process, and from the lower edge of the spine of the scapula. *Insertion:* Into the deltoid impression on the middle of the outer side of the shaft of the humerus.

6. *Arteries which supply the rectum:* (1) Superior hemorrhoidal (from inferior mesenteric); (2) middle hemorrhoidal (from internal iliac), and (3) inferior hemorrhoidal (from internal pudic). The veins correspond to the arteries, and commence in a plexus around the anus from this plexus vessels ascend between the muscular and mucous coat.

7. See Cunningham's "Anatomy" (1909), page 923; or Gray's "Anatomy" (1908), page 810.

8. In *intracapsular fracture of the femur:* (1) The lower fragment is drawn upward by the glutei, the rectus, the biceps, semimembranosus, and semitendinosus; (2) the limb is everted; this is due to the force of gravity (and external rotators).

9. *Ligaments of the knee-joint:* Anterior, or Ligamentum patellæ; posterior; internal lateral; two external laterals; capsular; external crucial; internal crucial; transverse; coronary; Ligamentum mucosum, and Ligamenta alaria. For a description of these ligaments, see Cunningham's "Anatomy" (1909), page 298; or Gray's "Anatomy" (1908), page 337.

10. A lobule of the liver is about 1-20 to 1-12 inch in diameter. It has a darkish red center and a lighter circumference. The center is occupied by an intralobular vein which collects the blood from the capillaries of the lobule, and flows into the sublobular vein, which latter opens into the hepatic vein. Around the lobules are the interlobular veins; these are branches of the portal system; capillaries passing from the circumference to the center of the lobule connect the interlobular and intralobular veins. Between the network of capillaries in the lobule the hepatic cells are packed.

PHYSIOLOGY.

1. (*a*) *Fibrin* is found in the blood and lymph; (*b*) *mucin*, in saliva and synovial fluid; (*c*) *leucin*, in the pancreas and spleen; (*d*) *chondrin*, in bone and cartilage.

2. The impulse causing ordinary muscular contractions originates in the centers of the brain or spinal cord, and then travels by the nerves going to the particular muscles. As such nerve enters a muscle it breaks up into a number of branches, which are distributed to all parts of the muscle. The terminal ends of the nerve are scattered in great numbers throughout the muscle, and the impulse

carried by the nerve is transmitted by the end plates to the various muscle fibers. Sometimes the muscular contraction may be reflex. (See below, Question 8.)

3. *Stammering* is defined as faltering and interrupted speech, especially hesitancy and interruption in speech from difficulty in enunciating certain letters properly. *Cause:* According to Kirkes, "stammering depends on a want of harmony between the action of the muscles (chiefly abdominal) which expel air through the larynx and that of the muscles which guard the orifice (rima glottidis) by which it escapes, and of those (of tongue, palate, etc.) which modulate the sound to the form of speech. Over either of these groups of muscles, by itself, a stammerer may have as much power as other people, but he cannot harmoniously arrange their conjoint actions."

4. The *blood* is fluid, somewhat viscid, red, specific gravity from 1055 to 1062, alkaline reaction, saltish taste, characteristic odor, variable temperature (average about 100° F.). The *constituents* are plasma and corpuscles. The *plasma* consists of water and solids (proteids, extractives, and inorganic salts). The *red corpuscles* consist of water and solids (hemoglobin, proteins, fat, and inorganic salts). The *white corpuscles* consist of water and solids (protein, leuconuclein, lecithin, histon, etc.). The *red cells* are biconcave discs, about 1-3200 of an inch in diameter; they are nonnucleated, and there are about 4,500,000 or 5,000,000 of them in each cubic millimeter of blood. They are elastic and soft, and their shape is changed by pressure, but is promptly regained on the removal of the pressure. Their color is yellowish. They contain hemoglobin. They carry oxygen from the lungs to the tissues. The white blood cells are spheroidal masses, varying in size, having no cell wall, and containing one or more nuclei; there are about 7,000 to 10,000 of them in each cubic millimeter of blood. They differ much in appearance, and are divided into (1) small mononuclear leucocytes, or lymphocytes; (2) large mononuclear; (3) transitional; (4) polynuclear, or polymorphonuclear, or neutrophile, and (5) eosinophile. They are all more or less granular, particularly the last two varieties named. They are probably formed in the spleen, lymphatic glands, and lymphoid tissues. Their fate is uncertain; it has been asserted that they are converted into red blood cells; they play a part in the formation of fibrin ferment; they are sometimes converted into pus cells. Their functions are (1) to serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma.

There are also *platelets*, which are very small, colorless, irregular shaped bodies; they are about one-fourth the diameter of a red corpuscle. Their function is not determined; it is possible that they take some part in the coagulation of the blood. In number they vary from about 200,000 to more than 500,000 in each cubic millimeter of blood. *Plasma* conveys nutriment to the tissue; it holds in solution the carbon dioxide and water which it receives from the tissues, and takes them to be eliminated by the lungs, kidneys, and skin; it also holds in solution urea and other nitrogenous substances that are taken to and excreted by the liver or kidneys. *Arterial blood* is bright red in color, contains more oxygen, less carbon dioxide, more water, and is slightly warmer; *venous blood* is purple in color, contains less oxygen, more carbon dioxide, less water, and is slightly cooler (except in the hepatic vein).

5. *The functions of the liver* are: (1) The secretion of bile; (2) the formation of glycogen; (3) the formation of urea and uric acid; (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.

6. The rate of circulation in the *arteries* is about twelve inches in one second; in the *capillaries*, about one or two inches a minute; in the *veins*, about nine inches in a second.

7. *Lymph* is an albuminous, straw-colored fluid, containing lymph corpuscles; it is alkaline in reaction, has a specific gravity of about 1015, has a salty taste, and no odor; it clots in the same manner as blood. *Chyle* is much the same, but contains fat; it is opaque and whitish.

8. *Reflex actions* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve. Reflexes are classified as: (1) Superficial, (2) deep, and (3) visceral. *Example:* The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the Ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

9. Human milk contains less proteids and fats and salts then cow's milk, and at the same time contains more sugar and more water.

10. *Secretion* means the process by which some of the constituents of the blood are separated from the blood stream (by the activities of the capillary endothelium, as the blood passes through the capillaries) and elaborated into other material. The products of secretion vary with the gland or membrane where it occurs. Thus: Saliva, tears, milk, bile, gastric juice, synovial fluid, serous fluid, pancreatic juice.

CHEMISTRY.

1. (*a*) *Chemistry* is that branch of science which treats of the composition of bodies, their changes in composition, and the laws governing such changes. (*b*) *Chemical affinity* is the force that binds atoms together to form molecules.

2. (*a*) *Crystalline substances* are solid bodies of a definite geometrical shape, which conduct heat more readily in some directions than in others; when broken, separate in certain directions (called planes of cleavage) more readily than in others, and modify the course of light according to the direction in which the rays pass through it. (*b*) *Conditions under which matter will crystallize:* There must be the possibility of the freest motion of the smallest particles of the matter to be crystallized; hence the substances must be heated (melted) or dissolved in some suitable agent, or must be in the gaseous state. Some substances will never crystallize.

3. An *amorphous* substance is one that is not crystalline. A *polymorphous* substance is one that can crystallize in more than one system. *Isomorphous* substances are different substances which will crystallize in forms identical with each other.

4. (*a*) *Quantivalence* is the combining power of an element or radicle expressed in terms of the number of hydrogen atoms it can unite with or replace. (*b*) *Univalent:* Hydrogen, chlorin, bromin, iodin, sodium, potassium, silver. *Bivalent:* Oxygen, sulphur, calcium, barium, lead, mercury. *Trivalent:* Nitrogen, phosphorus, arsenic, antimony, boron, bismuth. *Quadrivalent:* Carbon, silicon, tin, platinum.

5. If a certain volume of hydrogen weigh twenty grains, a like volume of oxygen will weigh sixteen times as much, namely, three hundred and twenty grains.

6.

	INSPIRED AIR	EXPIRED AIR
Oxygen	21 per cent.	16.6 per cent.
Nitrogen	79 per cent.	79 per cent.
Carbon dioxide...	0.04 per cent.	4.4 per cent.
Other gases.....	Rare.	Often present.
Watery vapor.....	Variable.	Saturated.
Temperature	Variable.	That of body.
Volume	Varies.	Diminished.
Bacteria	Always present.	None.
Dust	Always present.	None.

In inspiration, oxygen is taken in; it then combines with the hemoglobin of the blood, and is carried round to the tissues. The carbon dioxide is given off in the tissues to the plasma of the blood, by which it is carried round to the lungs and given off in expiration.

7. *Bismuth subnitrate* has the chemical composition $BiONO_3$. It is a heavy, white powder, odorless, almost tasteless, slightly acid in reaction; it is decomposed by pure water. They blacken the stools by forming bismuth sulphide with the hydrogen sulphide of the intestine. Its most dangerous impurity is arsenic. This may be detected by the Reinisch test, which is conducted as follows: Make a solution of the bismuth subnitrate, then add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Coil up the copper and put it into a clean, dry glass tube, open at both ends, and apply heat at the part where the copper is. If arsenic is present there will appear in the cold part of the tube a mirror, which will be found on microscopical examination to consist of octahedral crystals of arsenic trioxide.

8. (*a*) Phosphates and albumin. (*b*) Add a little nitric acid; this will dissolve the phosphates, but will not affect the albumin.

9. (*a*) *Fermentation test:* Three Smith's fermentation tubes are used, each containing a little compressed yeast, one filled with the liquid to be tested, the second with pure water, and the third with a dilute solution of glucose, and the three are put in a warm place over night. If gas collects in the first and third tubes, but not in the second, the liquid contains sugar; if gas collects in the third only it does not; under any other circumstances the yeast is at fault.

(*b*) *Fehling's method for the quantitative estimation:* The solution is made as follows: (1) Dissolve cupric sulphate 51.98 gm., in water to 500.00 c.c.; (2) dissolve Rochelle salt, 259.0 gm., in sodium hydroxide soln. sp. gr. 1.12 to 1000 c.c. When required for use, one volume of 1 is to be mixed with two volumes of 2. The copper contained in 10 c.c. of this mixture is precipitated completely, as cuprous oxide, by 0.05 gm. of glucose. "To determine the quantity of sugar, place 10 c.c. of the mixed soln. in a flask of about 250 c.c. capacity; dilute with H_2O to about 30 c.c., and heat to boiling. On the other hand, the urine to be tested is diluted and thoroughly mixed with four volumes of H_2O if it be poor in sugar, or with nine volumes of H_2O if highly saccharine, and a burette filled with the mixture. When the Fehling soln. boils, add a few gtt. NH_4HO and then 5 c.c. of the urine from the burette, boil again, and continue the alternate addition of diluted urine and boiling of the mixture until the blue color is quite faint. Now add the diluted urine in quantities of 1 c.c. at a time, boiling after each addition until the blue color just disappears. Have ready a small filter, and, having filtered through it a few gtt. of the hot mixture, acidulate the filtrate with acetic acid and add to it 1 gtt. soln. of potassium ferrocyanide. If a brownish tinge be produced, add another ½ c.c. of dil. urine to the flask, boil, and test with ferrocyanide as before. Continue this proceeding until no brown tinge is produced. The burette reading, taken at this point, gives the number of c.c. of dilute urine containing 0.05 gm. glucose, and this divided by 5 or 10, according as the urine was diluted with 4 or 9 volumes of H_2O, gives the number of c.c. of urine containing 0.05 gm. sugar. The number of c.c. urine passed in twenty-four hours divided by twenty times the number of c.c. containing 0.5 gm. glucose gives the elimination of glucose in twenty-four hours in grams.

10. The prescription is incompatible. The water will cause the fluid extract to throw down a precipitate.

BACTERIOLOGY.

1. *Ptomains* are the putrefaction products of dead animal tissues or fluids. *Toxins* are the poisonous products of pathogenic bacteria.

2. Bacteria multiply by fission. A bacterium about to divide seems to be larger than normal, and if it is a coccus it becomes more ovoid; changes occur first in the nucleus, and the bacterium just falls in two. Cocci may divide in one, two, or three directions of space; bacilli divide transversely to their long axis, and spirilla divide transversely to their long diameter.

3. A sterile swab is rubbed over any visible membrane on the tonsils or throat, and is then immediately passed over the surface of the serum in a culture tube. The tube of culture, thus inoculated, is placed in an incubator at 37° C. for about twelve hours, when it is ready for examination. A sterile platinum wire is inserted into the culture tube, and a number of colonies of a whitish color are removed by it and placed on a clean cover slip and smeared over its surface. The smear is allowed to dry, is passed two or three times through a flame to fix the bacteria, and is then covered for about five or six minutes with a Loeffler's methylene-blue solution. The cover slip is then rinsed in clean water, dried, and mounted. The bacilli of diphtheria appear as short, thick rods with rounded ends; irregular forms are characteristic of this bacillus, and the staining will appear pronounced in some parts of the bacilli and deficient in other parts. *Methods of culture:* The bacillus of diphtheria grows upon all the ordinary culture media, and can be readily obtained in pure culture. Loeffler's blood serum, particularly with the addition of a little glucose, is an admirable medium for the rapid growth of this bacillus. The medium should be alkaline and not less than 20° C. *Method of staining:* It stains with any aqueous solution of an anilin dye, and quite characteristically with Loeffler's alkaline methylene blue. Neisser's stain is also recognized. The bacilli also stain well by Gram's method.

4. Three conditions essential to bacterial growth: Rest, moisture, neutral or feebly alkaline reaction. *The most common microorganisms of suppuration* are: *Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus, Staphylococcus pyogenes citreus, Streptococcus pyogenes.*

5. The supposed microorganism of cerebrospinal meningitis is the *Diplococcus intracellularis meningitidis.* Lumbar puncture is performed, and about 10 c.c. of the cerebrospinal fluid is withdrawn. About 1 c.c. of this is dropped into sterile test tubes. It is cultivated on agar plates or Loeffler's blood serum mixture, and recoognized with the microscope.

PATHOLOGY.

1. *Active hyperemia* means that there is an excess of arterial blood in a part, and is generally accompanied by an increase in the rate of blood flow. In *passive congestion* there is still an excess of blood, but it is in the veins and capillaries, and the blood flow is retarded.

2. In *arteriosclerosis* it is mainly the innner coat which is affected; this becomes thickened by layers of fibrous tissue owing to the proliferation of the subendothelial connective tissue cells. This thickening is not uniform. The elastic layer becomes granular, and it may be partially destroyed. Where high arterial tension exists the media is affected, and the muscle fibers become hypertrophied; sometimes degeneration occurs here. The vessels increase in length and thickness, becoming tortuous; they also feel resistant and cord-like.

3. *Osteomyelitis* is inflammation of bone and marrow.

4. As the sputum is generally examined for tubercle bacilli, that will be described. The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbol-fuchsin and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

5. "*Ehrlich's side chain theory of immunity* is based on the idea that the toxin destroys a cell by entering into chemical union with it. The molecule of toxin contains at least two groups of atoms, a *toxophore* group, in which the poisonous principle resides, and a *haptophore* group, which brings the toxophore group into touch with the cell and through which chemical combination takes place. Similarly, the cell contains a haptophore group, but the toxophore group of the toxin can only unite with it and destroy it when its haptophore companion has affinity with that of the cell. If that affinity does not exist, the two haptophore groups do not unite, the toxophore group does not come into contact with the cell, and the animal is immune. Such is natural immunity. If there is affinity and the cell can throw off a haptophore group (antitoxin), which in its detached condition unites with the haptophore group of the toxin, the toxophore group has then nothing with which it can unite and the animal is immunized. When the individual has to contend with a bacterium as well as its toxin, the same principle obtains. Immunity is established by the production of a double haptophore group, one for the bacterium, the other for its toxin."—(Stenhouse's *Pathology.*)

6. *Healing by second intention or granulation* occurs when the edges of the wound have not been brought together. "Exudation of plasma and leucocytes occurs, followed by fibroblasts and budding from the capillaries, thus forming granulation tissue. The dead tissues or sloughs are separated, and a red area of granulation is then exposed. The deeper layer of granulation tissue is converted into fibrocicatricial tissue, which contracts, and so the wound gradually lessens in size. In the meantime epithelium spreads in from the edge over the surface, and so the scar is completed."—(*Aids to Surgery.*)

7. *Atrophic cirrhosis of the liver is caused by:* Poisons, alcohol, fatty acids, specific fevers, microorganisms absorbed from the intestine, and syphilis. *Symptoms:* Dyspepsia, furred tongue, high colored urine, hematemesis, ascites. *Pathology:* The liver is shrunken and indurated, rough, and of a pale or yellow color; a growth of new connective tissue is disposed in broad bands which run in various directions, and by their contraction divide the liver into numerous irregular lobes. Many acini may be affected at one time. The capsule may be thickened, or adherent to the diaphragm. Jaundice is slight, and comes on late; ascites is pronounced and may occur early.

8. An *embolus* is a body which plugs up a blood-vessel, and is carried there from some other part of the circulation. A *thrombus* is a clot in a blood-vessel during life.

9. In *urticaria* the wheal is produced by some disturbance to the vasomotor nervous apparatus. It is circumscribed, and consists of an edema of the epidermis. There may be dilatation of the cutaneous vessels, with exudation of serum and white blood cells. This exudation may cause a pressure anemia, which produces the white appearance of the skin; around this is a red areola, due to the engagement of the peripheral vessels.

10. (1) *Normoblast,* same size as normal red blood cell; (2) *microblast,* which is smaller; (3) *megaloblast,* which is larger than the normal red cell.

PRACTICE AND THERAPEUTICS.

1. (1) Simple, and (2) cholera infantum.

2. *Varicella* is chickenpox; *variola* is smallpox. (1) Very young children are attacked with varicella, whereas variola usually shows itself in adults. (2) Vaccinated children readily take varicella; not so variola, even in the modified form. (3) Children who have had varicella may contract variola, even soon afterward; or the two diseases may co-exist. (4) Varicella is not inoculable, whereas variola is notoriously so. (5) The eruption of varicella appears in twenty-four hours; that of variola not till the third day. (6) The febrile symptoms continue after the eruption appears in varicella; those of variola subside. (7) In varicella the spots come out in successive crops; this is never seen in variola. (8) The spots in varicella are unilocular, and collapse on being punctured; the spots in variola are multilocular, and do not collapse on being punctured. (9) In varicella the eruption is very irregular, and appears over the body generally; in variola it appears in groups of threes and fives, and is always seen on the limbs. (10) The papule in varicella is soft, and disappears on stretching the skin; in variola it is hard and shotty, and does not disappear on stretching the skin.

3. See French's "Practice of Medicine" (1907), pages 508 and 510; or Osler's "Practice of Medicine" (1909), pages 724 and 726. Idiopathic anemia and progressive pernicious anemia are one and the same disease.

4. See French's "Practice of Medicine" (1907), page 1117; or Osler's "Practice of Medicine" (1909), page 1045.

5. Neurosis of the bladder is the name which includes a number of conditions, such as: Hyperesthesia, neuralgia, atony, paralysis, and hysteria of the bladder; also incontinence of urine. Cystitis is inflammation of the bladder. See Rose and Carlers' "Surgery" (1908), pages 1192, 1201; or De Costa's "Surgery" (1908), pages 1130, 1135.

6. ASCITES. *Symptoms, etc.:* Generally of gradual onset; abdominal distention, sense of weight and fulness; dyspnea; gastrointestinal disturbances; lineæ albicantes, presence of fluid may be detected by palpation, percussion or aspiration. If due to heart or lung disease, ascites will occur elsewhere, and the legs are generally affected first; in hepatic disorders the abdominal distention is marked and appears early; in renal disease, the abdominal fluid is generally small in amount. *Treatment:* Tapping, drainage, incision, and administration of cathartics have all been recommended. Ovarian tumor, pregnancy, distended bladder, pancreatic cyst, and echinococcus cyst may be mistaken for it.

7. *Bronchopneumonia* is an acute inflammation of the terminal bronchi, air cells, and interstitial tissue of isolated lobules of the lungs, or groups of globules. *Lobar pneumonia* is an acute infectious disease of the lungs, with inflammation and consolidation of one or more lobes of the lung.

LOBAR PNEUMONIA	BRONCHOPNEUMONIA
Generally a primary disease.	Generally secondary (to bronchitis or an infectious disease).
Age has little influence.	Generally found in very young or very old.
Sudden onset.	Gradual onset.
Fever is high and regular.	Fever is not so high, and is irregular.
Ends by crisis between sixth and tenth day.	Ends by lysis, at no particular date.
Generally only one lung affected.	Generally both lungs affected.
The physical signs are distinct, and there is a large area of consolidation.	Physical signs indistinct, and the evidences of consolidation are indefinite.
Sputum is rusty.	Sputum is rather streaked with blood.

8. (*a*) By mouth, inhalation, skin, rectum, vagina, hypodermic, and in veins. (*b*) Chloral hydrate is used as an antiseptic, counterirritant, hypnotic, and to alleviate whooping cough, tetanus, and strychnine poisoning. It is contraindicated in diseases of heart, lungs, stomach, and bowels.

9.

STRANGULATION.	INTUSSUSCEPTION.	TWISTS (VOLVULUS).
Subjective Symptoms.	*Subjective Symptoms.*	*Subjective Symptoms.*
1. Generally occurs after age of 20.	1. Most frequent in childhood.	1. Most frequent after age of 30.
2. Pain localized, rapid collapse.	2. Constant tenesmus.	2. Pain diffuse.
3. Pain intense, paroxysmal in character.	3. Pain develops suddenly and is continuous.	3. Pain paroxysmal; recurs less often than in strangulation.
4. Constipation complete.	4. Frequent diarrhea, passage of bloody mucus.	4. Constipation complete.
Objective Symptoms.	*Objective Symptoms.*	*Objective Symptoms.*
1. Temperature often subnormal.	1. Temperature normal or subnormal.	1. Temperature slightly elevated.
2. Pulse very weak.	2. Same as in strangulation.	2. Same as in strangulation.
3. Stercoraceous vomiting comes on early.	3. Same as in strangulation.	3. Same as in strangulation.
4. Location in small intestine.	4. Localization in small intestine; bowel frequently protrudes at rectum.	4. Location, small intestine; abdomen often protrudes, in certain areas, giving dullness on percussion.

10. Digitalis is indicated in diseases of the heart: (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in nonvalvular cardiac affections; (4) in irritable heart, due to nerve exhaustion. Digitalis is contraindicated in diseases of the heart: (1) in aortic lesions when uncombined with mitral lesions; (2) when the heart action is strong, and arterial tension high. Digitalis is also a diuretic; and it is also used in some forms of nephritis, exophthalmic goiter, pneumonia, chronic bronchitis, etc. In *poisoning* there are: Nausea and vomiting, sometimes colic and diarrhea, slow pulse, dyspnea, cold extremities, headache, vertigo, somnolence, and syncope; death may occur.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), page 83; or Hirst's "Obstetrics" (1909), page 61.

2. See Williams' "Obstetrics" (1909), pages 180 and 190; or Hirst's "Obstetrics" (1909), pages 189 and 204.

3. *Indications for the use of forceps* are: (1) *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. (2) *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. (3) *Passenger at fault:* A. Dystocia due to (*a*) occipito-posterior; (*b*) mentoanterior face; (*c*) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). (4) *Accidental complications:* Hemorrhage; prolapse funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both. *Contraindications:* Mechanical obstruction in the parturient canal; incomplete dilatation of the os; nonrupture of membranes; non-engagement of the presenting part; the fetal head being too large or too small; distended bladder or rectum.

4. See Williams' "Obstetrics" (1909), pages 289 and 805; or Hirst's "Obstetrics" (1909), page 583.

5. See Williams' "Obstetrics" (1909), pages 865 and 898; or Hirst's "Obstetrics" (1909), page 761.

6. See Williams' "Obstetrics" (1909), pages 316, 317, and 325; or Hirst's "Obstetrics" (1909), pages 333 and 607.

7. Position is L.Scap.A. The head of the fetus is in the left iliac fossa, back anterior, extremities, on right side in upper part of abdomen. Do not replace the arm; version: if impaction is present, decapitation or cesarean section.

8. See Williams' "Obstetrics" (1909), page 226; or Hirst's "Obstetrics" (1909), page 320.

9. See Williams' "Obstetrics" (1909), page 914; or Hirst's "Obstetrics" (1909), page 708.
10. See Williams' "Obstetrics" (1909), page 340; or Hirst's "Obstetrics" (1909), page 364.

DISEASES OF WOMEN.

1. See Gray's "Anatomy" (1908), pages 1440 and 1495.
2. It may become polypoid, and project from the os uteri; it should then be removed, and if possible the pedicle should be first twisted. If large, the fibroid may have to be removed piecemeal, and the hemorrhage can be stopped by pressure and packing, or by a clamp forceps. If the tumor is entirely within the uterine cavity, the cervix must be dilated and the fibroid then removed, care being taken not to perforate the wall of the uterus. The patient should be in the lithotomy position, and proper antiseptic and aseptic precautions must be observed.
3. *Symptoms:* Pain, or a feeling of weight and fullness in the pelvis, constipation or discomfort during defecation, tubes and ovaries are dragged upon and the latter may be prolapsed, dyspareunia, dysmenorrhea, possibly sterility, metrorrhagia, leucorrhea, and reflex disturbances. *Treatment:* (*a*) Replace the uterus with fingers, or sound; keep it in place with pessary or tampons (adhesions if present must have been broken up); (*b*) shorten round ligament, or perform hysteropexy. See Rose and Carless' "Surgery" (1908), page 1278.
4. *Etiology:* Relaxation of vaginal walls; generally due to partruition, and torn perineum; lax uterine supports; subinvolution of uterus; prolapse of uterus. *Treatment:* Mend perineum, replace uterus, shorten round ligament if latter are too lax, colponhaphy.

SURGERY.

1. The knee is the joint most frequently affected. See Rose and Carless' "Surgery" (1908), page 642; or Da Costa's "Surgery" (1908), page 546.
2. See Rose and Carless' "Surgery" (1908), page 76; or Da Costa's "Surgery" (1908), page 203. It often accompanies a wound or abrasion.
3. See Rose and Carless' "Surgery" (1908), page 350; or Da Costa's "Surgery" (1908), page 351.
4. See Rose and Carless' "Surgery" (1908), page 448; or Da Costa's "Surgery" (1908), page 472.
5. See Rose and Carless' "Surgery" (1908), page 461; or Da Costa's "Surgery" (1908), page 664.
6. See Rose and Carless' "Surgery" (1908), page 1081; or Da Costa's "Surgery" (1908), page 978.
7. See Rose and Carless' "Surgery" (1908), page 1159; or Da Costa's "Surgery" (1908), page 1101.
8. See Rose and Carless' "Surgery" (1908), page 1132; or Da Costa's "Surgery" (1908), page 1008.
9. The subcoracoid is the most common. See Rose and Carless' "Surgery" (1908), page 622; or Da Costa's "Surgery" (1908), page 590.
10. See Rose and Carless' "Surgery" (1908), page 1267; or Da Costa's "Surgery" (1908), page 1202.

EYE AND EAR.

1. (*a*)

ACUTE IRITIS.	ACUTE CONJUNCTIVITIS.	ACUTE GLAUCOMA.
1. Pupil: small, sluggish, irregular after atropine.	Normal.	Dilated, oval, fixed.
2. Iris: swollen, dirty, lymph on surface.	Clean and bright.	Swollen and discolored.
3. Anterior chamber: normal (or deeper, with turbid contents).	Normal.	Shallow.
4. Cornea: clear (or with deposits on back).	Clear.	Steamy; *anesthetic.*
5. Ciliary region: injected.	Not injected.	Injected.
6. Conjunctiva: usually some injection.	Red, opaque, perhaps swollen.	Great congestion, perhaps chemosis.
7. Discharge: tears only.	Muco-pus.	Tears only.
8. Palpation: tension normal (occasionally + 1); tender in ciliary region.	Tension normal, not tender.	Tension + 2 to 3, very tender.
9. Pain: over forehead and nose, worse at night.	Sand or grit in eyes.	Intense neuralgia in and about eyes, nausea, vomiting.
10. Vision: clouded.	Scarcely affected.	Rapidly lost; field extremely limited; "rainbow rings" seen.
11. Disc: if seen, normal.	Normal.	If seen, cupped, and arterial pulsation.

(*b*) (1) *Trachoma* is a chronic disease of the conjunctiva, marked by granulation of the eyelids, later by atrophy, and cicatricial contraction. *Treatment:* Astringents, expression, or excision. (2) *Glaucoma* a condition characterized by increased ocular tension, dilatation of pupil, diminution of sight, and atrophy of the optic disc. *Treatment:* Iridectomy. (3) *Ophthalmia neonatorum* is an infectious, purulent inflammation of the conjunctiva in the newborn, due to the gonococcus or other pyogenic germ; produced by contact of the eye with the vaginal secretion of the mother during labor, or infected fingers, or instruments, etc. *Treatment:* Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a 2 per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt. (4) and (5) *Iritis* and *Conjunctivitis:* See above, Q. 1 (*a*). *Treatment of iritis* is causal, abstraction of blood from temples, atropine, diaphoresis, shielding the eye from light. *Treatment of conjunctivitis:* If there is much swelling and scanty secretion, compresses (iced or hot), instillation of boric acid or bichloride solution; in profuse secretion with relaxed conjunctiva, silver nitrate solution; in phlyctenular conjunctivitis, calomel or ointment of yellow oxide of mercury; or alum or tannic acid solutions.
2. (*a*) Frontal, ethmoid, sphenoid, lachrymal, malar, palate, superior maxillary. (*b*) Frontal ethmoid, sphenoid.
3. *Hypopyon* is a collection of pus in the bottom of the anterior chamber of the eye. *Argyll-Robertson pupil* is a condition in which the pupil accommodates for distance but not for light. *Mydriasis* is dilatation of the pupil. *Presbyopia* is loss of accommodative power of the eye, occurring normally in advanced life. *Ptosis* is drooping of the upper eyelid.
4. In the nasopharynx. Adenoids may be the cause; they may cause deafness, they may occlude the Eustachian tube, or excite a catarrhal inflammation which may spread through the tube to the ear, or infection may spread by the same route, causing otitis or other troubles.
5. (1) *Impacted cerumen.* Disintegrate it with hydrogen peroxide, which is left in the ear a few minutes, and followed by an irrigation of warm water. (2) *Furuncle.* Hot applications; cleansing with hydrogen peroxide; morphine, and calcium sulphide internally; incision. (3) *Foreign bodies:* First see that there is a foreign body. Insects may be removed by warm water or chloroform oil. Careful syringing may remove other bodies. (4) *Rupture of membrane* from explosion of guns, or sudden condensation of air: Rest, cleanse the meatus, gentle irrigation with warm bichloride solution (1:10 000). (5) *Stricture of Eustachian tube:* Application of bougie, and inflation with superheated air may promote absorption of the new tissue.

JURISPRUDENCE.

1. *Ante-mortem* wounds generally show hemorrhage, coagulated blood, eversion of the edges and retraction of the sides; pus, gangrene, or beginning cicatrization also indicate that the wound was inflicted during life. *Post-mortem wounds*, the reverse of all this.
2. The location of the wound, the presence or absence of weapons, character of wound, the burning or charring of skin or clothing.
3. If cause of death is unknown or suspicious (possibility of either homicide, or suicide, or other crime), it is the duty to discover the *cause of death* (it is no part of his business to discover the individual who caused it). He

calls a jury to view the body and establish its identity; an inquest is held, witnesses are examined, possibly an autopsy is performed, and the jury renders a verdict.

4. *Abortion* is expulsion of the fetus before the term of gestation is complete. *Infanticide* is destruction of life of a newborn child. *Dementia* is a condition of mental enfeeblement, gradually progressing to mental decay. *Poison* is a substance which on being in solution in the blood will cause death or serious bodily harm. *Syncope* is suspended animation, due to sudden failure of the action of the heart. *Catalepsy* is a condition in which there is abolition of sensation and motion, with rigidity of muscles and slow pulse.

5. For *opium poisoning:* Wash into the stomach with a dilute solution of potassium permanganate, leaving about 500 c.c. in the stomach. Maintain respiration. Keep the patient moving. Strong coffee may be given. The urine should be drawn off by catheter. In *poisoning by strychnine:* Sense of suffocation, twitchings of muscles, followed by tetanic convulsions and opisthonotos. Mental faculties unaffected, face congested and anxious; eyes staring, lips livid; much thirst. In *poisoning by arsenic:* Faintness, nausea, incessant vomiting, epigastric pain, headache, diarrhea, tightness and heat of throat and fauces, thirst, catching in the breath, restlessness, debility, cramp in the legs, and convulsive twitchings. The skin becomes cold and clammy. In some cases the symptoms are those of collapse, with but little pain, vomiting, or diarrhea.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	June —
Arizona*	Ancil Martin, Phoenix	Phoenix	April 4
Arkansas	F. T. Murphy, Brinkley	Little Rock	May 10
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	April 5
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	April 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Mar. 8
Delaware	J. H. Wilson, Dover	Dover	June 21
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	April 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	April 4
Georgia	E. R. Anthony, Griffin	Atlanta	April —
Idaho*	W. F. Howard, Pocatello		April 5
Illinois	J. A. Egan, Springfield	Chicago	Jan. —
Indiana	W. T. Gott, Crawfordsville	Indianapolis	May 24
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	F. P. Hatfield, Olathe	Topeka	Feb. 8
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 17
Maine	F. W. Searle, Portland	Portland	Mar. 8
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 7
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Mar. 8
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 14
Minnesota	W. S. Fullerton, St. Paul	St. Paul	May 10
Mississippi	S. H. McLean, Jackson	Jackson	May 10
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	June 13
Montana*	Wm. C. Riddell, Helena	Helena	April 5
Nebraska	C. A. Carr, Lincoln	Lincoln	Feb. 2
Nevada	S. L. Lee, Carson City	Carson City	May 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	July 6
New Jersey	H. G. Norton, Trenton	Trenton	June 21
New Mexico	J. A. Massie, Santa Fe	Santa Fe	April 11
New York	C.F.Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb. 1
N. Carolina	B. K. Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	April 5
Ohio	Geo. H. Matson, Columbus	Columbus	June 14
Oklahoma*	F. P. Davis, Enid	Guthrie	April 12
Oregon	B. E. Miller, Portland	Portland	July 5
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	June —
Rhode Island*	G. T. Swarts, Providence	Providence	April 7
S. Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown	July 13
Tennessee	C. A. Abernathy, Pulaski	Memphis, Nashville, Knoxville	May —
Texas	M E. Daniel, Honey Grove	Austin	June 28
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	April 4
Vermont	W. Scott Nay, Underhill	Burlington	July 12
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	T. C. McFadden, Seattle	Spokane	July 5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	April 12
Wisconsin	J. M. Beffel, Milwaukee	Madison	July 12
Wyoming	S. B. Miller, Laramie	Cheyenne	Feb. 16

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

California.—In the future twelve questions are to be given on each paper, and the candidate is to select ten of these. Those who fail need not be reexamined in any subject in which they gained 80 per cent., provided they make up their deficiencies within a year.

Idaho.—At the recent examination there were 42 applicants, and of these 27 were successful.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of January 8, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	503	177
Diphtheria	339	45
Measles	925	17
Scarlet Fever	525	36
Smallpox	—	—
Varicella	160	—
Typhoid Fever	57	13
Whooping Cough	34	5
Cerebrospinal Meningitis	5	4
Malarial Fever	—	—
Totals	2,548	297

Histological Modification by Tuberculous Poisons of the Medulla of the Bones.—Ernesto Patrone studied the action on the medulla of the bones of tuberculous poisons by injecting them subcutaneously in eight rabbits, which were killed some weeks later and the microscopical examination of the medulla of the bones made. The results showed that the tuberculous poisons in moderate doses cause an active hyperfunction of the medulla, independent of other factors. There was an increase of mononuclears and of myelocytes in the medulla.—*Annali dell' Instituto Maragliano.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 7, 1910:

			CASES.	DEATHS.
CHOLERA.				
Germany, Heydekrug	Dec. 19–22		1	.
Niederung	Nov. 16–22		1	..
India, Bombay	Nov. 24–30		..	5
Calcutta	Nov. 14–20		..	26
Rangoon	Nov. 14–20		..	5
Philippine Islands, Manila	Nov. 7–20		19	20
Provinces:				
Albay	Nov. 7–20		6	6
Bataan	Nov. 7–20		115	73
Bohol	Nov. 7–20		25	14
Bulacan	Nov. 7–20		24	19
Camarines	Nov. 7–20		5	5
Cavite	Nov. 7–20		61	48
Cebu	Nov. 7–20		207	156
Oriental Negros	Nov. 7–20		10	5
Pampanga	Nov. 7–20		8	5
Rizal	Nov. 7–13		4	3
Tarlac	Nov. 7–13		9	5
Russia, general	Nov. 21–27		81	35
Baku, government	Aug. 21–27		4	3
Baku	Nov. 21–27		10	7
Ekaterinislav	Nov. 21–27		4	1
Jaroslav	Nov. 21–27		..	1
Kostroma	Nov. 21–27		3	4
Koursk	Nov. 21–27		3	..
Kovna	Nov. 21–27		8	3
Pskov	Nov. 21–27		10	..
St. Petersburg, governm't.	Nov. 21–27		9	6
St. Petersburg	Nov. 21–27		14	6
Tauride	Nov. 21–27		14	4
Vitebsk	Nov. 21–27		2	.
YELLOW FEVER.				
Brazil, Manaos	Nov. 21–Dec. 4		..	2
Para	Nov. 28–Dec. 11		4	4
PLAGUE.				
Brazil, Para	Nov. 28–Dec. 11		7	5
Pernambuco	Oct. 15–31		..	3
Rio de Janeiro	Nov. 2–21		7	1
China, Hongkong	Nov. 21–27		1	1
Egypt, Alexandria	Nov. 19–29		4	4
Provinces—				
Assiout	Sept. 29–Dec. 7		7	2
Menouf	Nov. 28–Dec. 5		14	4
India, Bombay Pres. and Sind	Nov. 7–13		993	647
Madras Presidency	Nov. 7–13		112	91
Bengal	Nov. 7–13		282	202
United provinces	Nov. 7–13		1,323	1,122
Punjab	Nov. 1–13		633	460
Burma	Nov. 7–13		26	22
Central provinces, inc. Berar	Nov. 7–13		789	677
Mysore State	Nov. 7–13		199	145
Hyderabad State	Nov. 7–13		27	21
Central India	Nov. 7–13		177	141
Rajputana and Ajmer-Merwara	Nov. 7–13		429	362
Kashmir	Nov. 7–13		12	11
Grand total			5,002	3,901
Japan, Kobe	Nov. 28–Dec. 4		6	5
Russia, Libau	Dec. 3–9		1	1
Turkey, Alexandretta	Dec. 1		..	3
Beirut	Nov. 27–28		2	..

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Original Articles.

THE RECOGNITION AND TREATMENT OF ECTOPIC GESTATION.

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THE common saying that "A disease known is half cured," has no where greater significance than when applied to extrauterine pregnancy. The word picture of this pathological condition, that will lead to its clinical recognition, has not been painted. It is not that there is a lack of literature upon the subject, nor that valuable descriptions are wanting, but rather the difficulty of reproducing from didactic study a clinical picture which has such typical manifestations on the one hand and such wide and numerous variations on the other.

That the diagnosis is not made is shown by the fact that a large percentage of my cases have been previously treated as cases of abortion and further by Heineck in his study of cases at Cook County Hospital, in which hospital the cases if diagnosed go to the service of surgical obstetrics. He shows that in a series of thirty-two cases, twenty-five cases were operated in the general surgical service and seven cases in the service of surgical obstetrics.

It is with no thought of producing a more perfect picture, but rather to view the question from the angle of personal experience with a background of authenticity and, if possible, to stimulate the members of this society to a more ready recognition of the condition, that this paper is presented. That phase of the treatment which has been emphasized of late, namely, the nonoperative treatment when the patient is in collapse following rupture, also deserves careful analysis at the hands of this and every other body of medical men.

No exhaustive discussion of the etiology and pathology may be attempted at this time, and yet no study of the diagnosis and treatment is comprehensive that does not have a pathological foundation, and this again takes us back to pathological conditions existing before the pregnancy—the etiology. Tait and Schroeder and other early observers thought that extrauterine pregnancy had to be accounted for by some condition which allowed the spermatozoa to travel up the tube. They taught that the spermatozoa were carried to the uterine mouth of the tube by the upward wave of the cilia of the epithelium of the uterus, and that the ovum was brought to this point by the downward wave of the cilia of the epithelium of the tube. Hofmeier, Mandl, and others have shown that the current is downward from the outer end of the tube to the cervix and that the spermatozoa have to and do travel against this current from the cervix upward into the tube where pregnancy takes place. Our theories of etiology, then, do not have to account for the impregnation of the occasional ovum outside the uterus. Every pregnancy is to be looked upon as extrauterine in the beginning and we might justly question why so many ever reach the uterus. While the spermatozoa have motility and travel against the current created by the cilia, yet the current and tubal peristalsis are looked upon by most authors as having an important bearing in the migration of the ovum. The etiological factors, then, must be such conditions as will prevent or retard migration of the impregnated ovum, or such conditions as will furnish a more ready implantation of the ovum, or both.

We may have the migration of the ovum retarded or prevented by (1) absence or diminution of the cilial wave; (2) absence or diminution of peristalsis; (3) tortuosity; (4) constrictions, kinkings, and narrowing of the lumen; (5) blind pockets; (6) transmigration of the ovum; (7) tumors in the wall of the tube and polypi in the lumen of the tube.

Abel, Kreisch, Runge, von Franqué, and Garkish, and later Höhne, have laid stress upon congenital hypoplasia as an important factor in bringing about the above conditions. Dührssen attaches some importance to puerperal hyperinvolution as a factor in narrowing the tube and lessening peristalsis. Evidence is abundant, however, to show that infections of the tube and especially gonorrheal infections, with their resulting inflammatory reactions, are the frequent cause of the above conditions. Virchow, Schroeder, and Tait first pointed out the importance of this and their views were corroborated by a long list of able observers among whom may be mentioned Martin, Küstner, Olshausen, etc. Sixty-eight and seven-tenths per cent. of Dührssen's cases and sixty-six per cent. of Mandl and Schmidt's cases had had gonorrhea. Ott and Petersen's cases all gave history of inflammation. It is doubtful if the cilia are ever as agile in a tube once involved with gonorrheal infection, peristalsis is crippled, tortuosity is marked, constrictions, kinkings, narrowing of the lumen, and pathological pockets are marked features. There has been in my cases no etiological factor so prominent as previous pelvic disease and that previous pelvic disease in about seventy-five per cent. of cases was presumably gonorrhea. Mrs. H. developed an acute gonorrheal infection a few days after marriage. Severe tubal infection, with extensive reaction, more marked on left side. Two years later tubal pregnancy on right side with marked evidence of old inflammation. Large pus tube with outer end closed on left side. Mrs. S. prostitute—5½ month fetus, living. Extensive pelvic adhesions on both sides. Mrs. H. examined one year before extrauterine pregnancy occurred. Uterus retrodisplaced, tubes and ovaries

enlarged and matted together. Had had a previous operation. Feared extrauterine pregnancy and developed it one year later. Mrs. R. gave birth to a child seven months previous to development of extrauterine. Birth of child followed by acute pelvic inflammation on the right side, tubal pregnancy on same side. Mrs. F.'s first pregnancy was tubal on right side. At operation evidence of old adhesions was found on right and left side. Four years later operated for extrauterine on left side, etc., etc. Many women who have had gonorrhea are sterile because of closure of the tube or because the ovum fails to find lodgment, but of those cases in which the impregnated ovum finds attachment the percentage of extrauterine pregnancies far exceeds the percentage in women who have not had an infection.

It may be urged as a reason for extrauterine pregnancy in these cases that these tubes furnish a more ready lodgment than do normal tubes. But against this theory is the fact that a normal uterus furnishes a more ready lodgment for the ovum than the diseased uterus. It is not consistent to believe that the inflammatory process, which unfits the uterus for implantation of the ovum, will better prepare the tube to act the part of host. We are forced to the belief, then, that tubal inflammations play an important part in laying the foundation for a tubal pregnancy but that it does so by interfering with migration rather than furnishing a more ready field for implantation by reason of the inflammation.

Place of Implantation.—Tubal Implantation may occur at any point from the intrauterine portion of the tube to the extreme limits of the fimbria. It assumes a greater gravity as the attachment approaches the uterus. This led Dr. Joseph Price to give us the epigram. "Those implanted in the outer half of the tube belong to the surgeon, those in the inner half to the undertaker." It was once thought that all extrauterine pregnancies were primarily tubal but abundant evidence proves the contrary. Webster, who denied the possibility of an ovarian pregnancy, urged that implantation could only take place on Mullerian structures. Later, when convinced of the possibility of ovarian pregnancy, he explained it upon the grounds of inclusion of Mullerian structure in the ovary. A decidual reaction has been counted necessary for implantation by Webster and others, but upon this not all are agreed. That implantation does not take place more frequently in the tube, Webster explains upon the theory that the upper part of the Mullerian duct (the tube) as it has been differentiated into an egg transmitting portion, has lost its capacity for normal decidual reaction, and therefore its capacity for receiving the ovum, and that a decidual reaction in the tube is a result of reversion to an earlier type in which the whole Mullerian tract was used for the implantation of multiple ova. Sipple is of the opinion that a certain time is required for a decidual reaction to take place and that during this time the fertilized ovum has usually reached the uterus, but that in case of external migration the fertilized ovum may reach the tube when sufficient reaction has taken place as to allow of implantation. Again Hitschmann and Lindenthal are of the opinion that the ovum implants itself only at a certain stage of its development at which time it has usually reached the uterus but that an unusual delay finds it in the tube at the time ripe for implantation. The experimental work of Tainturier and others, upon rabbits, in which the tubes and horns of the uterus are tied indicates that in rabbits at least some other factor than mechanical obstruction is necessary for the development of the ovum in the Fallopian tube, and this they were inclined to ascribe to the lack of decidual reaction. These views are based upon the idea that decidual reaction is a preparation for, and necessary to implantation. This would imply that the maternal tissues are a willing host, anticipating the needs of its parasite, and this would imply a mutual benefit.

More recent investigations make possible the following statements: (1) Implantation of the ovum has taken place where Mullerian tissue does not normally exist. (2) Decidual reaction in the tubes, and to a less extent in the uterus, is a variable quantity—a well-developed decidual reaction having been observed in some cases and no decidual reaction having been discovered in other cases of extrauterine pregnancy. (3) Cells morphologically similar or identical to decidual cells have been observed in the uterus, in the tube, in the ovary, upon the peritonium at some distance from the tube, without pregnancy having existed. (4) The method of implantation of the ovum in the uterus and in the tube and the process of development indicate that the ovum is a parasite working at the expense and to the destruction of the maternal structures. (5) The decidual reaction is by many observers considered a connective tissue reaction of maternal structures not to receive the ovum but to withstand the destructive and corroding influence of the trophoblastic cells of the latter. (6) These observers consider that the greater damage done in the tube, over that done in the uterus, is due to its lack of ability to develop a protective tissue reaction.

Heinsius says that the decidua is a tissue consisting of a dense layer of enlarged connective tissue cells with large nuclei, a tissue the functions of which are to afford protection both to mother and ovum. Krömer has observed that the muscular fibers and the interstitial connective tissue cells swell in a decidual manner, and show large clear vesicular characters, when in contact with masses of syncytium. Langhans found a completely developed decidua only at the placental site. Williams coincides with Peters in the belief that the ovum penetrates the surface epithelium and burrows into the subjacent tissue. Heinsius again says that in what will be the placental site the muscle is destroyed and looks as if it had been eaten out. Füth remarks that the ovum undoubtedly enters the tissues by its own activity. Vassmer and Raschkes are authority for the statement that the fetal cells destroy or cause atrophy of the muscle—the presence of muscle in the capsule showing the deep implantation in the tube wall. Andrews says "all observers except Veit, Krömer, and Fellner are agreed that the maternal tissues are destroyed by the trophoblast. As proof of this destructive action in the case reported, the trophoblast had grown through the capsularis and attacked the tube wall on the other side of the lumen." Again he remarks, "The bulk of evidence is in favor of the view that the fetal cells act in a malignant or pseudomalignant manner toward the maternal tissues. Hitschmann has observed the trophoblast actively invading the blood-vessel walls. Veit refuses to admit this and thinks these findings only in veins and due to deportation, but Andrews quotes numerous authors who are of the opinion that the deportation is secondary to destruction of the vessel walls by the trophoblast. Williams, after quoting numerous observers, says, "It is apparent that while a decidual reaction may occur in the tubes, in tubal pregnancy it is not universal and never

develops to the same extent as in the uterus. This fact is of interest not only from a scientific point of view, but also has a distinctly practical bearing, as it would seem to offer a satisfactory explanation for the invasion and destruction of the tube wall by the fetal elements. In uterine pregnancy such an invasion is noted only in the rare instances in which there is imperfect development of the decidua, and it would therefore appear that one of the main purposes of the latter is to protect the underlying maternal tissues against the invading and corrosive action of the fetal elements." Werth, as long ago as 1887, looked upon extrauterine pregnancy as a malignant growth but says that the ovum in "making its bed digs its own grave." Haultain says, "A tubal pregnancy must be considered in the light of a malignant growth and a continued menace to life as long as it is present." Were it necessary quotations could be multiplied in support of the view that the ovum is a parasite in the tube doing harm not alone by the failure of the tubes to keep pace with its growth, but by the destruction of maternal tissues as well. Almost every observer must have noted cases in which the perforation has a distinct punched-out appearance as though the ovum has literally eaten its way through the tube walls.

Tubal Pathology.—Beginning with such pathology as exists at the time of fertilization such as changes in the epithelium, thickening of the tube wall, partial closure of its mouth, tumors in its wall or projecting into its lumen, congenital or acquired narrowing, tortuosity, blind pockets, kinkings, etc., or almost no pathology at all, we have a series of characteristic changes due to the ovum imbedding itself at the expense of the maternal tissues and then corroding its way out of this bed at the further expense of its surrounding sac, many times opening up such blood vessels that hemorrhage results in the death of the host.

Werth and others are of the opinion that the ovum may become implanted upon a fold of the tube or between two folds, and designates the implantation columnar or intercolumnar accordingly. In either case the ovum penetrates the lining of the tube and burrows beneath the mucous membrane as is shown by the experimental work of Graf Spee upon implantation in the guinea pig, and the observations of Peters in an early pregnancy. A well-marked pseudoreflexa has been observed separating the tubal pregnancy from the lumen of the tube. The trophoblastic cells invade the surrounding maternal tissues, according to Williams, and many others. In the uterus this invasion is met by a well-marked decidual reaction and hypertrophy and hyperplasia of muscle cells, but the tubal tissues having little capacity for such reaction are overcome and suffer degenerative changes.

Peters, von Franqué and Garkisch, Heinsius, Hitschmann, Andrews, Williams, and many others believe in this destructive action of trophoblastic cells of the ovum and the inability of the tube to withstand it. Williams writes, "The trophoblastic cells not only possess markedly invasive properties in virtue of their rapid proliferation, but also exert an erosive action upon the surrounding maternal tissue. As a consequence, many of the muscle cells are destroyed and undergo fibrinous degeneration, while the blood-vessels in the vicinity are opened up to the invading trophoblast and by the escape of their contents give rise to a large number of spaces of varying size, filled with blood, which lie entirely within the trophoblast or between it and the surrounding maternal tissue." The action of the trophoblast may invade the maternal blood-vessels to such an extent that the resulting hemorrhage may partially or entirely separate the ovum from its attachment, resulting in death of the ovum even at an early date. Numerous cases are observed in which section of the tubal contents shows the mass to be made up of concentric rings of partially organized blood clot with possibly the dead and compressed ovum in the center—a tubal mole. In the progress of a living ovum, or the enlargement of the tubal mole by repeated hemorrhage, the tubal wall becomes thinned, degenerated, and eroded, when it gives way and the ovum is carried outside the tube, or from its sac into the tube lumen. The hemorrhage into the sac, thereby increasing the pressure, as well as the above-described degeneration of the sac, is considered to have an important bearing upon final rupture. An ovum implanted near the adominal end of the tube is much more likely to rupture through the pseudoreflexa into the tube lumen where it may continue for awhile, when it may be aborted into the abdominal cavity. The tube wall may give way upon its peritoneal surface or at its broad ligament site. With the onset of pregnancy the entire blood supply of the pelvic organs is increased. In tubal pregnancy the vascularity of the tissues is marked so that erosion and rupture result in extensive and oftentimes dangerous hemorrhage, depending upon the degree of vascularity, the coagulability of the blood, and the surrounding adhesions. It frequently happens that an inflammatory reaction has preceded the rupture so that a wall of adhesions confines the blood and limits the amount of hemorrhage. Occasionally, the tube has shown such capacity for hyperplasia and hypertrophy of its musculature and connective tissues that it has continued unruptured to full-term pregnancy, but this is the rare and unexpected exception. The future of the tube has been of much interest. Added to the previous pathology of the tube, we have the more or less ragged cul-de-sac or perforation, oftentimes hypertrophy and hyperplasia, some degeneration, edema, and inflammatory thickening, adhesions at times and the remains of portions of the ovum, to make a future pathological tube. Occasionally, however, repair takes place to the extent that a fairly healthy tube is left.

The Fate of the Ovum.—It is not unlikely as indicated by the experimental work of Schmidt, Tainturier, and Mandl upon rabbits that many fertilized ova failing to find their way into the uterus, also fail to become imbedded and die. In a few cases the ovum becomes implanted but its destructive action causes hemorrhage which detaches it, and it remains in the tube for a time, causing only a moderate disturbance, and finally becomes absorbed. A large number die sooner or later from hemorrhage around them, but rupture through their capsule into the lumen of the tube or through the wall of the tube into the broad ligament or into the peritoneal cavity. The live ovum or the tubal mole, if situated near the abdominal end of the tube, may be aborted from the end of the tube with the primary rupture or later after finding temporary lodgment in the tube lumen. If the pregnancy is situated in the uterine end of the tube, abortion of the dead or live ovum may occur into the uterine cavity. The live ovum may retain enough of its original attachments to continue circulation and new attachments may be formed in the uterus, or failing in its attachments, the ovum will die. A live ovum rupturing into the broad ligament,

or into the peritoneal cavity, or one aborting into the peritoneal cavity may at once die from lack of circulation or may continue to live until a subsequent rupture or series of ruptures severs it from its blood supply sufficiently to cause death. In a few cases the ovum continues to term after rupture, and cases have been known to continue to term without rupture. The products of an early pregnancy may, if the patient lives, become absorbed or encysted or suppuration may take place. Later the death of the ovum may be followed by suppuration, mummification, or calcification, or be transformed into a fatty degenerated mass. The remains of full-term retained fetus has been removed in many instances recorded by Leinzell, Keozer, Albers, Kuchenmeister, Fales, and others. It has proven the source of dystocia in a future pregnancy, leading to cesarean section, induction of premature labor, or craniotomy in the hands of Hugenberger, Schauta, Sänger, Hennigsen, Debot, Stein, and others. A retained fetus may find its way into the bladder, bowel, rectum, vagina, or through the abdominal wall months or years after death of the fetus. In a considerable number of cases the living fetus has been removed by surgical measures.

Williams has shown in a series of thirty-five collected cases of what he terms, positive, highly probable, or probable ovarian pregnancies, eleven cases went to full term. As pointed out by this author, this would indicate a greater degree of tolerance on the part of the ovary than is shown in the tube. However, in ovarian pregnancy rupture must be the expected outcome as shown by the same series of cases. The ovum is subject to the same diseases that are found in uterine pregnancy, hydatiform mole, (Recklinghausen, Otto) Hydramnios (Teuffel, Webster) and deciduoma malignum (Ahlfeld, Marchand). The patient, too, has been known to suffer from the toxemia of pregnancy resulting in eclampsia. The prognosis of the fetus is so unfavorable that taken with the extreme risk to the mother, our treatment should not brook delay in the interest of a nonviable child. The probable fate of the mother could well be discussed but this is so influenced by treatment at the present time that it will be discussed under that subhead.

The Recognition. The diagnosis of extrauterine pregnancy is made most readily by having in mind a typical picture with exceptions and a clear-cut clinical picture of those things which simulate it. A wide clinical experience in this and diseases simulating it is the best possible preparation, but it is not for this person we are writing upon the subject. I would lay great stress upon a carefully taken history. A history taken by a careful observer, an observer alive to the possibilities of extrauterine pregnancy and conditions which simulate it. A carelessly taken history by one not having the possibilities in mind, may not give even a suggestion of the trouble to the careful reader of the history. Many patients have to be questioned closely and cross questioned in order that truth be revealed. One magnifies and another minimizes the pain.

Usually the presence of pregnancy is suspected, the clinical course of which is modified by the pathology which develops by reason of the implantation taking place in the tube, the resulting rupture furnishing a strong diagnostic feature as well as introducing a great element of danger. The typical picture is presented by (1) a woman of childbearing age, the age of greatest frequency corresponding to the age of greatest frequency of pregnancy; (2) marital relations—this history is sometimes withheld; (3) a history of previous sterility—many exceptions; (4) a history of previous pelvic disease—few exceptions; (5) a history of probable pregnancy —some exceptions; (6) the course of the pregnancy modified or apparently interrupted; frequently more pain, pelvic distress, nausea, etc., before rupture takes place; (7) sudden outset of severe pain with hemorrhage and collapse, variable in degree; (8) the above frequently a mistaken history of abortion —a large number of my cases had been previously curetted; (9) symptoms keeping up or returning after a supposed abortion or curettage; (10) a boggy pelvic mass—occasional exceptions; (11) a distinct tubal enlargement without a surrounding boggy mass, if seen before rupture, in a few cases when seen after a history of rupture; and (12) a normal, subnormal, or only slightly elevated temperature. With this history, an extrauterine pregnancy is to be taken into consideration. The patient is now closely questioned as to the last regular flow and the fact of regularity or irregularity for several months back established and any abnormalities carefully noted. The date of onset of pain and hemorrhage also noted. A flow followed by pain is not typical. A sudden severe pain, followed by moderate external hemorrhage, is typical, but may be met in abortion or pelvic inflammation. The patient frequently evidences greater shock and anemia than is suggested by the external hemorrhage. A sudden onset of pain not followed by hemorrhage to a slight or moderate extent is not indicative of extrauterine pregnancy. With a history of recent pelvic pain simulating that accompanying rupture of extrauterine pregnancy, and with a mass found in the pelvis, but in which no red blood or prune juice or tarry discharge had been discovered, I would make a probable diagnosis of some other condition than tubal pregnancy; but this might, if the evidence of extrauterine pregnancy was strong, be ovarian pregnancy in which the hemorrhage is not so marked. Patients' interpretation and memory of pain is so variable that it is well worth while asking (1) "What were you doing when you noticed the first pain?" and then, in order to reveal the severity and length of the pain, (2) "What did you do after you noticed the pain—did you continue with your work—did you keep about or did you have to go to bed, and did you send for a doctor, etc.?" The patient is then carefully accompanied over the whole course of her trouble, day by day, and every occurrence noted. We have found in the study of the pathology that the destructive action of the trophoblast upon the tubal wall and upon the blood vessels, the resulting hemorrhage causing increased pressure, and distension of the tube from growth of the ovum, all played a part in the rupture. The answers I have received to question one indicate that efforts on the part of the patient play no small part in the final rupture. One patient was straining at stool, two were hanging up clothes, one was reaching up from a step-ladder, one was sweeping, and one stooped to go under a barbed-wire fence, fell, overcome with pain, and had to be carried to the house (Dr. Peterson's case). On the other hand, some were lying quietly in bed or sitting without exertion. In most cases the onset of pain was so marked as to cause the patient to leave her work but to this there was exceptions. One continued hanging up clothes until through, one lay down for a few minutes and then resumed work about the house for the day. Many writers have tried to lay stress upon some one thing that would

clinch the diagnosis of extrauterine pregnancy and to this end have laid much stress upon the finding of decidua. Rossi Doria, Schmauch, Hitschmann, and Adler, and others point out that there is no distinctive decidual cell. A decidual reaction is found in the uterus in uterine pregnancy, may be slight or marked in extrauterine pregnancy and has been described by Griffiths and Dakin and others with no pregnancy, so that the findings of a decidual tissue is little more than suggestive and the absence of decidual findings of very little negative importance. In case of a probable pregnancy, with uterine hemorrhage, pelvic pain, and a pelvic mass, in which the question lies between abortion and extrauterine pregnancy, a decidua with chorionic villi would indicate a uterine pregnancy while a decidua without chorionic villi would suggest an extrauterine, although the first might be due to a tubal abortion into the uterus. In undertaking to differentiate between abortion and extrauterine pregnancy, the sudden, severe, lancinating, or tearing pain accompanied by collapse and hemorrhage or followed by hemorrhage with an anemia in excess of external flow, the pain not being of a spasmodic nature, speaks for extrauterine, especially with uterine shreds with no evidence of an ovum. Here one should bear in mind, too, the possibility of a combined intra- and extrauterine pregnancy. Practically every case of supposed abortion should have a careful pelvic examination to discover the presence or absence of complicating conditions. The observer should not be thrown off his guard in cases giving a history of attempted abortion. The coroner's records instance a case in which an abortion was attempted, which resulted in infection from which the patient died. The coroner's physician found an extrauterine, but no intrauterine pregnancy. The operator is now serving a term in prison. A woman entering my service at Cook County Hosiptal, who died shortly after her arrival, gave the history of pregnancy and attempted abortion with emmenagogues and supposed that she was aborting. The interne found her in severe collapse with anemia out of proportion to evidences or history of external bleeding and diagnosed extrauterine pregnancy but too late for operation. The coroner's physician found rupture of the right tube with the abdomen full of free blood. An interesting medicolegal case is recorded in which a pregnant woman on a journey to a remote part of the country was injured by a railroad accident while yet in civilization. Her injury resulted in supposed abortion, but complication led to the necessity of a colotomy, at which time an extrauterine pregnancy was discovered. The interested parties sought to recover damages from the railroad, but the jury rendered a verdict for the defendant on the ground that had the woman gone to an isolated territory, where only unskilled aid was at hand, the extrauterine pregnancy would no doubt have resulted in her death.

The most severe cases in which the physician is called during the attack are frequently not difficult to diagnose. A woman of childbearing age, with or without history of sterility, with or without a history of previous pelvic disease, with or without a history of presumable pregnancy, who is taken with sudden severe pain and collapse with evidences of intraabdominal hemorrhage, has in all probability an extrauterine pregnancy with complete or partial rupture, or tubal abortion, and in a large proportion of these severe cases will lose her life unless prompt operative treatment is instituted. A number of these cases will be met in which no pelvic mass is discoverable to verify the diagnosis. A condition which very closely simulates the feel of a ruptured extrauterine mass is a retrodisplaced pregnant uterus, but the mass is more distinctly continuous with the cervix, more central and symmetrical, is not accompanied with uterine hemorrhage unless abortion is threatening, gives a history of gradually developing pelvic distress, more and more difficulty in obtaining bowel movements, and gives, usually, if seen when incarceration is beginning, or continuing, a very definite history of bladder symptoms. There is usually absence of history of sudden severe pain and collapse. In extrauterine pregnancy we seldom get marked bladder symptoms or retention of urine as in incarceration. The two pictures are sufficiently unlike to be readily distinguished by the initiated.

Torsion of the pedicle of an ovarian cyst or a fibroid or the omentum may stimulate extrauterine pregnancy, but these would usually lack the sudden collapse and evidences of loss of blood characteristic of extrauterine pregnancy, and the hemorrhage from the uterus would be wanting in most cases.

Appendicitis and extrauterine pregnancy are not infrequently confused. In the latter the greatest tenderness is elicited usually by bimanual examination, while pressure over McBurney's point reveals the tenderness in appendicitis. In appendicitis, too, we lack the collapse which goes with an equally severe attack of extrauterine pregnancy; anemia is not so marked; a rise of temperature is a marked feature; a more marked leucocytosis is soon found in appendicitis, and there is absence of hemorrhage from the uterus, unless a mere coincidence when the onset of the pain usually bears no definite relation to the onset of the hemorrhage. Early uterine pregnancy, accompanied with ovarian growth, or tubal enlargements, should be kept in mind. In advanced cases we should remember the possibility of an abdominal pregnancy and intrauterine pregnancy, or large ovarian growth, a fibroid tumor or ascitis, etc. A number of cases are recorded of combined intra- and extrauterine pregnancy both going to term.

Many times, after taking all diagnostic points into consideration, the observer is still in doubt as to the presence or absence of extrauterine pregnancy. In order to determine whether a given pelvic mass is a pregnancy or otherwise, a vaginal puncture or aspiration is sometimes carried out. This is to be condemned in the face of evidence that it has resulted in death in a number of cases, and is permissible, if at all, only when the operator is prepared for an immediate laparotomy, and even then an abdominal incision discovers more and offers greater opportunity for checking any severe hemorrhage which may follow interference with the sac. The use of the *x*-ray may be useful to discover the fetal skeleton in some doubtful cases.

Early observers consider pelvic hematocele unrelated to extrauterine pregnancy of frequent occurrence, but the work of Veit, Tait, and others demonstrated that it usually had its beginning in the form of pregnancy. Bovée and others now point out that the pendulum has swung too far in considering all pelvic blood collections a result of extrauterine pregnancy, whether in the tube, ovary, broad ligament, or lower peritoneal cavity. The question arises as to what establishes the fact of

extrauterine pregnancy when the abdomen is opened or in examination of specimens removed; certainly not the presence of blood, whether circumscribed or free, nor the presence of decidua, but rather the finding of undoubted macroscopical evidences of the ovum or the microscopical finding of chorionic villi or some other portion of the ovum. The presence of free or circumscribed blood with a rupture of the tube or ovary is strong presumptive evidence, without the ovum being discovered, but the prsence of chorionic villi, observed microscopically, establishes the diagnosis.

Treatment.—In many of the abnormalities of pregnancy the life of the fetus as well as that of the mother has to be considered. So nearly certain is the ovum to commit suicide in extrauterine pregnancy, however, that only the mother's health and safety have to be considered in any but the exceptional case. As one of the reasons for inducing abortion, an aspirant for one of our large hospital services gave in competitive examination this answer: "In cases of maternal syphilis, abortion should be induced in the interest of the child." The prognosis is so bad for the ovum in extrauterine pregnancy that we could almost apply a similar form of treatment in the interest of the fetus. The mortality of the fetus is 100 per cent. without operative measures, most cases resulting in death of the fetus in the early months. In those few cases in which the ovum continues to term, the interest of the child and mother are one, that is separation. We have abundance of pathological and clinical evidence to show that, with the imbedding process of an extrauterine pregnancy, begins the work of a parasitic growth likened to a malignant growth, destructive to the maternal tissues, and at all times unfriendly to its host until it is not only dead, but removed. The tendency of the growth is suicidal, but in accomplishing its self destructive work it is matricidal in its tendency.

We have then but to consider the best interest of the mother, and to decide what may be expected if the condition is left to its own undoing; what may be expected of the measures which undertake to kill the ovum; what may be expected of surgical measures, and when may surgical measures be expected to accomplish most.

Extrauterine pregnancy is not in any sense a medical disease. No drug treatment or rest or manipulation or Christian science may be expected to postpone indefinitely the almost inevitable rupture, or prepare the patient so as to make the rupture safe. Not all cases will die from rupture, but we have few or no facilities for determining which ones will prove fatal. If the hemorrhage following rupture takes place in the broad ligament or is circumscribed by adhesions, the danger is lessened, but that cannot be prophesied before rupture, and very frequently cannot be discovered afterward without operation, and even if properly diagnosed a secondary rupture may take place later. An ice bag or "absent treatment" is a very poor substitute for a ligature in intraabdominal hemorrhage. Any delay after a diagnosis of extrauterine pregnancy is made makes possible further rupture, greater hemorrhage, the introduction of bacteria, and the formation of attachments which may prevent immediate hemorrhage, but lead to a more complicated operation later. Extrauterine pregnancy is distinctly a surgical condition. Efforts have been made to destroy the life of the ovum by puncture, removal of amniotic fluid, injection of irritants or poisons, the use of electricity, and later the *x*-ray. These are uncertain as to causing death of the ovum and unreliable as to harm which they may do. Then, too, we have an abundance of evidence that the dead ovum is only slightly less harmful, if at all, than the living. The enlargement of the ovum from actual growth is only one of the causes of rupture. Degeneration of the sac and hemorrhage within the sac are quite as important factors to be considered. These uncertain forms of treatment cannot in any sense displace surgery, and the results to be attained preliminary to an operation do not compensate for the risk assumed in the delay of operative work. We have before rupture an active destructive growth which should be removed; we have after rupture hemorrhage, with blood vessels to be tied; we have material foreign to the peritoneal cavity to be removed; we have in some cases sepsis, for which should be furnished an exit. This is but following the most simple and yet the most important principles of surgery. Most fatal cases die from hemorrhage. The patient is sometimes seen in collapse, but this is due to hemorrhage and not the shock of trauma. In crushing injuries amputation after reaction from shock is thought best, but this delay is advised when hemorrhage is controlled. In intraabdominal bleeding the shock is due to blood loss, and we have no certainty that it is checked. Schauta collected 123 cases operated upon with a mortality of 5.7 per cent., and 121 cases treated palliatively with a mortality of 86.89 per cent. The statistics of A. Martin show a mortality of 63.1 per cent. out of 265 cases treated palliatively, and a mortality of only 23.7 per cent. of 515 cases treated operatively. The same author claims a mortality of 83.1 per cent. for patients with internal hemorrhage. Costun reports a maternal mortality of 85.5 per cent. Parry reports 174 cases of rupture in which none recovered. Chogan reports 84.4 per cent. recovered in cases operated upon, and Newell, 81.4 per cent. in 69 cases. Tinsteur's statistics treat of 133 cases as follows: 107 cases treated by laparotomy with 2 deaths; 22 cases treated vaginally with 3 deaths; 4 cases treated by the combined methods. Fifty of these cases were tubal abortions with 1 death and 23 ruptures with only 2 deaths, notwithstanding the fact that 5 of the cases of rupture were operated upon in collapse without anesthesia. Gobiet reports 18 cases of extra- and intrauterine pregnancy combined, of which 8 mothers recovered and 10 died; of the 10 which died only 2 were operated upon. Jacobs reports a series of 802 cases with intraperitoneal hemorrhage, 615 of which were operated upon during the first hours of accident with the result of 580 recoveries and 27 deaths; 142 cases were operated upon from several hours to one or two days after rupture, with 130 recoveries and 12 deaths; 45 cases were not operated upon, of which 20 lived and 25 died. My clinical experience is in accord with these figures and entirely in favor of early operative procedure. Out of a limited experience of 12 cases, 11 cases operated upon recovered, 1 case died after entering the hospital before operation could be performed; an early diagnosis and prompt treatment would undoubtedly have saved this one. I have quoted authors at some length because recently there was spread through the literature views, based upon animal experiments, at variance with clinical evidences, which clinical evidences are entirely in accord with the pathology

of the morbid process. The evidence is strongly in favor of not only operation but early operation as well. Robb discredits the clinical evidence, ignores the pathology, overrules the sound surgical law that bleeding vessels should be tied, because a series of dogs lived in spite of severed vessels. It is not my wish to minimize the value of animal experimentation or discredit the observer in this line, but conclusions must not be too readily drawn, and when the experience of the world for generations is that women do die from hemorrhage following the rupture of an extrauterine pregnancy, one must not be too hasty in abandoning immediate operation upon the grounds that hemorrhage will cease before sufficient amount of blood is lost to cause death. To quote Robb, "In none of these cases did the dog succumb to the hemorrhage, although we probably subjected our animals to as great a risk of bleeding to death as is incurred from a ruptured tubal pregnancy." The fact that a postmortem reveals a smaller percentage of blood per body weight than an animal is capable of losing and therefore less than is sufficient to cause the death of the woman has little weight against the fact that she is dead, and the further fact that great numbers die. The very fact that all of the dogs lived disproves the statement that they were subjected to as great risk of death from hemorrhage as is incurred by the average woman with ruptured extrauterine pregnancy. It is admitted that dogs can lose a greater percentage of blood. The great number of deaths following the slipping of a ligature in early work upon the pelvic organs proves, when compared with these experiments, the greater tendency of the ovarian and uterine arteries to bleed in women. The vascularity of the tissues and the size of the blood vessels are markedly increased during pregnancy, and these experiments were nearly all on nonpregnant dogs. But had greater pains been taken to have similar conditions obtain; and had pregnant dogs all stood the test, we would still have the undisputable fact to face that patients do die and are dying from ruptured extrauterine pregnancy and the way to save them is by early recognition and the application of a ligature. Robb's experiments led him to lay great stress upon the hemoglobin reading as a means of determining the time of formation of clot with the cessation of hemorrhage, and concludes as follows: "I believe that the hemoglobin readings will be found very useful in cases of intraabdominal hemorrhage from a ruptured ectopic pregnancy, and that when we see that the hemoglobin remains stationary, we can feel confident that we are doing the best for the patient in not operating at once." Crile's animal experiments showed a lack of such uniform results as could be turned to a practical purpose by estimating the amount of blood that could be lost. The mortality of extrauterine pregnancy is furnished largely by hemorrhage, and that percentage is large. Every fatal case passes through the condition in which Robb and others recommend nonoperative treatment on the grounds that hemorrhage will cease before death occurs. These authors look forward to an operation, but in just those cases in which a ligature is most needed operation is postponed because the patient is not strong enough to stand an operation. The patient is in shock because of loss of blood, and the essentially important step is to check the flow of blood before the fatal amount is lost. Practically every fatal case of extrauterine pregnancy has a period between rupture or partial rupture and death in which a life-saving operation can be performed. Every case faces the chances of a fatal hemorrhage. The pathology is such that no case with extrauterine pregnancy can be said to be safe. Some conditions are less dangerous than others, but it baffles diagnostic skill to say which ones are to be the fatal ones. No one can say when an unruptured case is going to rupture, or where it will rupture, or how fatal that rupture will be. No one can say in all cases, after rupture, whether that rupture is partial or complete, where the rupture has taken place, how liable it is to prove fatal, or when another rupture will follow, resulting in a further loss of blood, although the primary hemorrhage has been checked. Whether or not the primary hemorrhage has been checked is difficult to say. Rupture into the broad ligament is considered less dangerous because circumscribed, but the wall may at any time give way. This limiting wall and contained clot may be all that is preventing a fatal hemorrhage. Only in old cases and resulting pelvic abscesses should such a condition be attacked through the vagina, where we are practically helpless in the presence of hemorrhage.

The treatment of extrauterine pregnancy does not have to consider the ovum in the least until advanced pregnancy, and then the interest of the mother is the interest of the child. The fate of the mother is so precarious from the time of implantation of the ovum until its removal that immediate or early removal is the only rational treatment for extrauterine pregnancy, when a probable diagnosis has been made. The more marked the collapse the more urgent is immediate operation. Some will say this encourages emergency operating by unskilled operators, with improper surroundings, to which I would answer that this not a paper upon what to do with unskilled operators. Incidentally, we fear that were Oliver Wendell Holmes alive at the present time he would revise his statement to include these operators, "that if all drugs—with a few exceptions—were cast into the sea it would be better for man but worse for the fishes." We sometimes find it difficult enough to decide what to do when we have an operator and proper surroundings, and it is the business of all to make skill and surroundings fit the needs of patients as nearly as possible.

In combined intra- and extrauterine pregnancy the extrauterine ovum should be removed in the interest of the mother and the intrauterine embryo. Cases have been observed in which both came to term and were delivered alive, but the fetal and maternal mortality is necessarily high. Hanna Christer Nilsson, after a study of 68 cases of combined pregnancy, observes that interruption of the intrauterine pregnancy has little effect upon the extrauterine ovum, but that early removal of the extrauterine favorably influences the possibility of the uterine ovum going to term. Gobiet recommends that in case each has gone to term laparotomy should be performed after the delivery of the intrauterine child.

Martin, Dührssen, and others have recommended attacking the ruptured or unruptured extrauterine pregnancy through the vagina, but when we consider that the danger of lighting up new hemorrhage during an operation is great, with which we are unable to cope through the vaginal route, we find that anatomy, pathology, clinical evidence, and the surgical preference of a large number of men are

against this method of attack. My experience with the vaginal route has been slight, but had I early known, as I do now, how utterly helpless we were in the face of hemorrhage, my experience with the vaginal route would be less. It is highly undesirable in the newly ruptured cases, and in old cases the toilet of the pelvis can be made more perfect by the abdominal route except in the cases of sepsis or accumulated pus.

A. Martin, Prochownik, Ries, and others have advocated saving the affected tube, but this seems of doubtful utility. An occasional extrauterine pregnancy recurs on the opposite side, but not with sufficient frequency to warrant removal of an apparently healthy tube. Frequently a hydrosalpinx or a pus tube is found and should usually be removed. In two of my cases retrodisplacements were corrected at the time.

In conclusion, I would say: 1. In a study of implantation and the growth of the ovum there are grounds for the conception that the ovum is a parasite living at the expense of its host.

2. Previous pelvic disease, frequently of gonorrheal origin, seems to play an important part as an etiological factor.

3. A study of the pathology indicates that in the case of extrauterine pregnancy the parasitic growth develops malignant tendencies due to the incapacity of the maternal tissues to cope with it.

4. The extrauterine ovum is suicidal and matricidal in its tendencies.

5. The risk to the mother is largely though not entirely that of hemorrhage.

6. Less frequent causes of death or morbidity are, sepsis, obstruction of bowels, embolism, fistulæ, etc.

7. The prognosis for the ovum is so uniformly bad that it should receive no consideration except in cases of a viable embryo, when early removal should be urged in the interests of both mother and child.

8. The menace of extrauterine pregnancy to the life and health of the host is so great that an early diagnosis and prompt removal of the ovum is of prime importance.

9. An extrauterine pregnancy should be thought of when a woman of childbearing age gives the history of sudden, severe pain in the region of the ovary with a "show" or hemorrhage from the uterus, accompanied by collapse, and evidences of concealed hemorrhage, a pelvic mass helps to confirm the diagnosis.

10. The more urgent the sumptoms, the greater the need of operation as the collapse is due to hemorrhage and vessels may still be bleeding or hemorrhage may be resumed.

11. The clinical evidence is that patients do die of hemorrhage, experiments upon dogs to the contrary notwithstanding.

12. Pathology indicates, and clinical evidence teaches, that prompt surgical measures will decidedly lower the mortality.

13. Suprapubic instead of vaginal incision should be chosen in all unruptured cases, and in most old cases unless contraindicated by sepsis or pus accumulation.

14. No vaginal puncture or exploration should be undertaken for diagnostic or therapeutic purposes unless preparations have been made for immediate laparotomy.

100 State Street.

A SIMPLE AND INEXPENSIVE PORTABLE POLYGRAPH.*

By WILLIAM N. BERKELEY, M.D.,

NEW YORK.

ATTENDING PHYSICIAN AT THE GOOD SAMARITAN DISPENSARY.

James Mackenzie's now classical studies of the venous pulse have thrown so much new light upon the theory of cardiac irregularities that no serious student of the subject nowadays can afford to be without a polygraphic apparatus of some kind. I have no words of aught but admiration and praise for the mechanical ingenuity and accuracy of the instruments now in use—such as Jaquet's, Uskoff's, Mackenzie's, and Gibson's. They are, however, of complicated construction, and when the import duty is paid the prices in this country run from $70 to $250.

I have therefore tried to devise something more simple and less expensive, and the machine shown to-night meets, I believe, both these requirements. While not adapted to exact laboratory researches, it seems to supply almost all clinical needs, is readily repaired, and costs at the outset only a tithe of the

Fig. 1.—Berkeley's Multiple Pulse Recorder, with parts assembled.

cheapest portable polygraph now in use that I know of.†

My machine will write the apex-beat or the carotid pulse or the jugular pulse or the respiratory curve, separately, or any two of these simultaneously. With a funnel of suitable shape it will also write hepatic pulses when these are present. Such a funnel adds much to the bulk of the apparatus, however, and inasmuch as there is no practical clinical question touching the hepatic pulse that cannot be answered by a jugular sphygmogram, a liver-funnel is not furnished except on special order. With large, flat wrists the radial pulses are also written with considerable clearness, but ordinarily the carotid and jugular pulses are the essential ones to be known, and it is these which my instrument is specially meant for.

The photograph explains most of the details. It shows the instrument with parts assembled. In the center in front are the two receiving funnels. They are covered with air-tight diaphragms of thin rubber dam. Across the center of one diaphragm is cemented a small half-cylinder of wood. This is laid lengthwise along the left carotid in the upper part

*Shown at the meeting of the Medical Section, New York Academy of Medicine, November 16, 1909.

†For sale by James T. Dougherty, 409 West Fifty-ninth street, New York.

of the neck, while the funnel is held steady by buckling the button-holed strap around the neck over the thyroid cartilages. The adjustment should

Fig. 2.—Healthy adult; carotid above, respiratory curve below.

be firm, but not tight enough to give the patient a sense of strangulation. If the apex is to be written, the same funnel is held with the fingers so as to

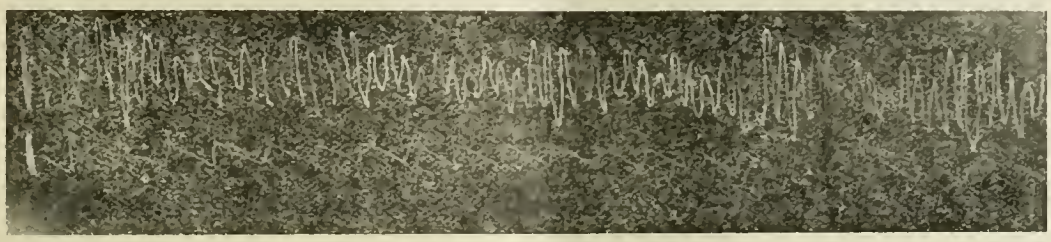

Fig. 3.—Anemic young man; carotid below, jugular above; jugular waves very large, and varying with respiratory movements.

bring the pad just over the pulsating apex of the left ventricle, the long axis of the pad lying in the proper costal interspace, parallel with the adjacent ribs.

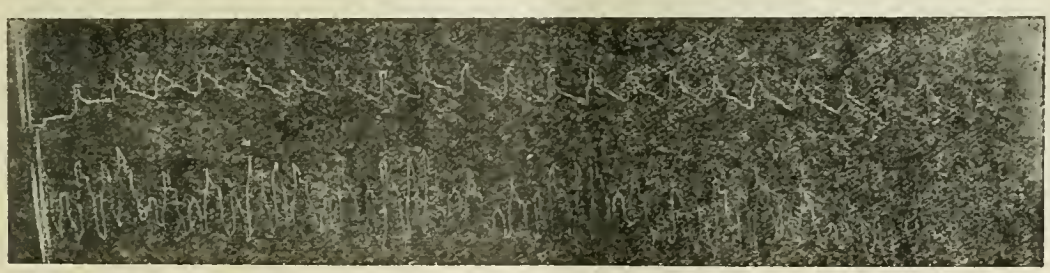

Fig. 4.—Anemic boy of 19 years; recently operated on for piles; carotid above, jugular below.

The other receiving funnel is designed for the jugular vein, or for respiratory curves. It has no pad. For the jugular pulse it is held with the fingers, just

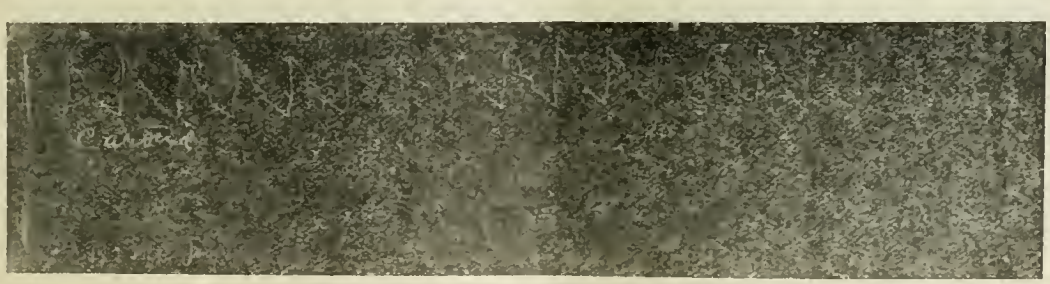

Fig. 5.—Youth of 22 years, healthy; jugular shows very large carotid wave and marked respiratory curve.

above the inner end of the right clavicle, and external to the sternal insertion of the sternomastoid muscle. As a usual thing the patient reclines upon a soft support, and he should relax his cervical muscles as much as possible, and breathe very lightly. For the respiratory movements the same funnel is to be held over the pit of the stomach. An assistant is helpful, but I have found that the patient himself makes a very good assistant, if he is intelligent and is interested in the success of the procedure.

From six months' experience with my instrument, I should say that about 75 per cent. of all patients examined give a good jugular tracing with this funnel, and this percentage compares favorably with that of the high-priced machines.

Clamped in the little bench-vise at the left are the two recording funnels. They are connected with the receiving funnels by rubber tubes one and two-thirds meters (five feet) long. The connections must be air-tight. The tubes are made to slip upon the metal stems of the funnels by applying a little talcum powder. Each recording funnel is covered with a rubber diaphragm, upon one radius of which is cemented a small socket. Into this socket the recording lever fits, and into the recording lever the recording point is inserted, as shown. Socket and lever are made of very light imported straws. The recording points are made of two small, flat bits of

kiln-dried pine-wood, united by a wide hinge of rubber dam, as shown in the illustration.* The proximal bit of wood fits into the outer end of the recording lever. The distal piece carries a wire recording point. Levers and points are detachable from one another and from the sockets to facilitate packing; and to prevent their being crushed by heavier objects around, they are separately stored in the smaller of the two containing boxes.

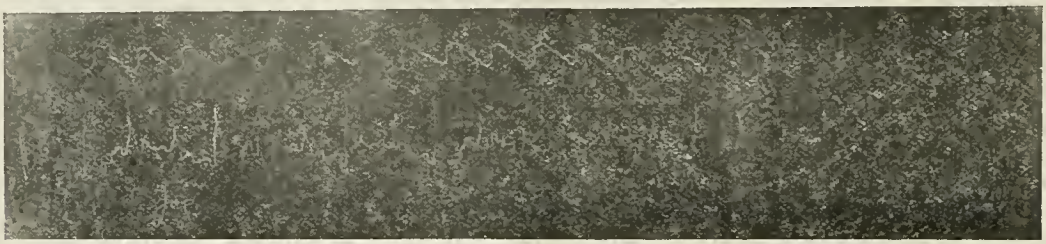

Fig. 6.—A woman with nervous palpitation; jugular shows very high auricular wave, and a respiratory curve.

Fig. 7.—A woman of 33 years with nervous palpitation; carotid above, jugular below.

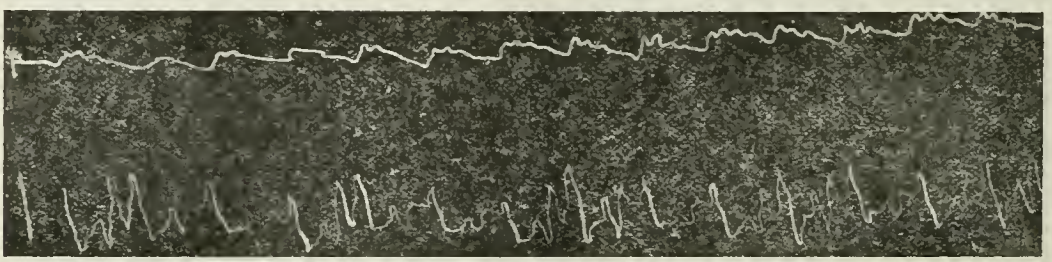

Fig. 8.—Anemic man of 50 years; dropsy to knees; albumin; heart negative, except for bradycardia; carotid is a bisferiens; jugular below shows an auricular type of pulse with four crests and sometimes a slight carotid undulation besides, extra wave probably a "diastolic" or *h* wave of English writers.

The drum mechanism on the right consists of a clock laid on its face, and a wooden cylinder. The clockwork is made to move at three times its regular rate, and the arbor of the minute wheel is produced through the back of the case, and there fits into a metallic socket on the bottom of the cylinder. The cylinder has three pins placed vertically along one line of its convex surface, and to these pins the slip of smoked paper is fixed. The cylinder is packed separately, being easily detached from its shaft. It is 20 cm. in circumference, and makes a complete revolution in twenty seconds, so that on the slip one centimeter is equal to one second, and one millimeter is equal to one-tenth of a second. The cylinder turns for ten hours without stopping, when the clock is fully wound up. The movement seems to be remarkably uniform as far as I have been able to judge of it by ordinary standards. It is set going and stopped simply by touching the top with the finger.

The box is of wood, about half the size of a shoe-box. With its contents it weighs 2¾ pounds and packs readily into a small handbag.

A small, flat pasteboard box, shown in front of the larger box, not only protects the fragile levers and points, as stated, but also carries the supply of paper slips. These may be of any kind of smooth well-finished white paper and should measure 5 x 21 cm. or thereabouts. I smoke them just before using, and I find a bit of cheap plumber's candle perfectly

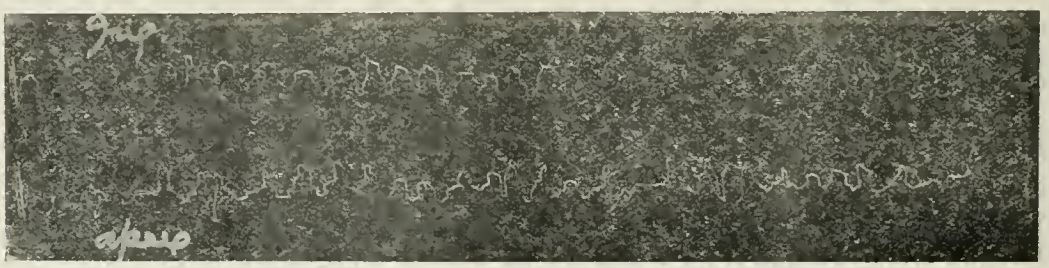

Fig. 9.—Man of 42 years, advanced valvular disease; nodal rhythm; jugular above, apex bent below.

*This arrangement I had devised for myself before I found it described in Dr. E. W. Scripture's interesting work on Speech Curves.

satisfactory. It takes three or four minutes to smoke half a dozen papers. Each slip should be allowed to cool now and then, and then be again

Fig. 10.—Man of 37 years; mitral regurgitation; extrasystoles; venous pulse (below) very imperfect.

applied to the flame. When the tracing is completed the slip is run through a little pan or saucer of alcoholic shellac solution and laid on blotting paper to

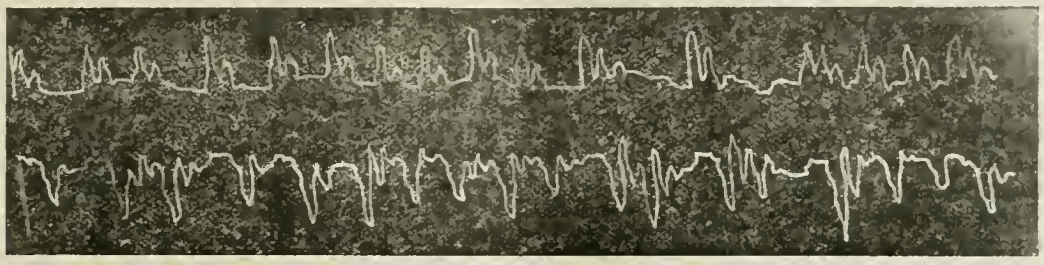

Fig. 11.—Man of 35 years; advanced complicated rheumatic valve-lesion; nodal rhythm; venous pulse (below) shows at right two waves not appearing in carotid (above).

dry. White shellac is much better than yellow.

The vise may be made large enough to hold three or four recording funnels, but the increased difficulties would not be counterbalanced by the relatively small advantages.

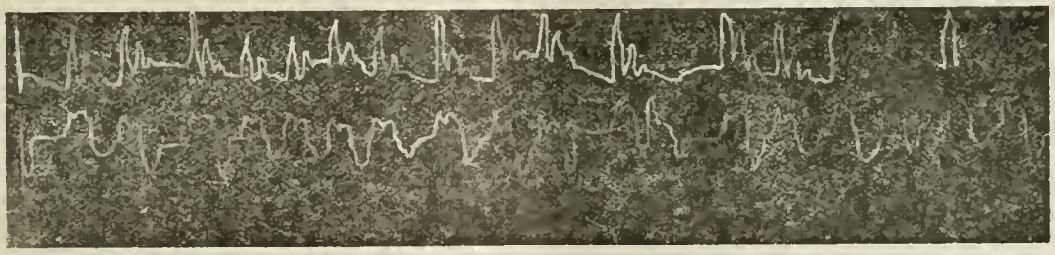

Fig. 12.—Same patient another day; same phenomenon.

Fairly representative tracings made by my instrument are shown in the accompanying figures. Each is explained in the subscribed legend and requires no further comment.

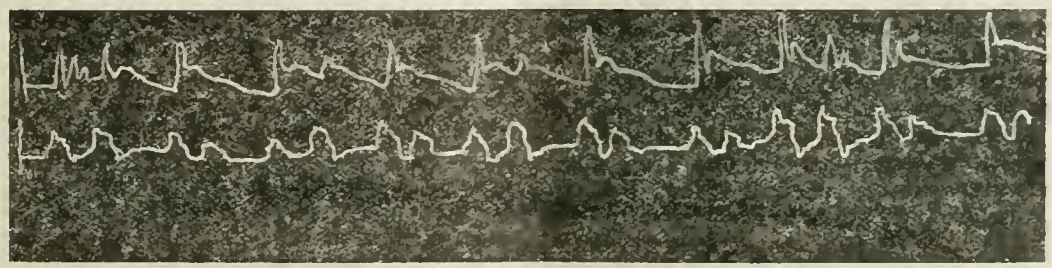

Fig. 13.—Same patient a month later after thorough treatment with digitalis; greatly improved general condition, ventricular bigeminy in the cardiogram (below) not appearing in the carotid (above).

To operate the machine, the patient is placed on a table or bed on his back. If it is wished to take a simultaneous tracing of the carotid artery and jugular vein, for example, the carotid funnel is strapped to the left side of the neck as described and the jugular funnel is held steadily over the right internal jugular vein. The receiving funnels are screwed vertically, side by side, one diaphragm one or two centimeters higher than the other, in the vise, the vise being made to fit any ordinary table or desk-flap. By compressing the rubber tubes the levers and points are adjusted so that the axis of each lever is horizontal, and by twisting the funnels and telescoping the straws the writing points are disposed so that their tips are exactly in one vertical line. The drum is approached to the writing points so that they impinge lightly upon the smoked paper. The clock may rest on a block of wood, or a book, if not high enough otherwise. When the levers have moved a few times upon the motionless drum, so as to indicate the alignment exactly, the drum is set in motion and allowed to run till one revolution has been completed. It is then quickly moved away, and the slip is taken off and dipped in shellac. The tracing is inverted, but this is no disadvantage, as the slip needs only to be turned around to make the readings intelligible.

36 East Fifty-third Street.

THE CARE AND COMMITMENT OF INSANE PERSONS BY HEALTH OFFICERS.*

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A PROPOSAL to bring mental diseases within the field of work of the health officer may strike some as novel and possibly not altogether appropriate. The sphere of the health officer is, however, being steadily enlarged so as to embrace more and more of whatever relates to the public health. Why not, therefore, mental diseases? The conditions included under the general term "insanity" are now recognized to be of a character which must receive the attention of physicians, and the cases are regarded as proper subjects for medical care and treatment. These conditions resemble infectious diseases to the extent of requiring official action for the public good and isolation of the cases. They are, too, in a great many instances, the outcome of avoidable causes, some of which are in the nature of infections. The prevalence of mental disease in a community and the public care and commitment of the cases is fundamentally not a question of poverty nor of crime. It is a health question.

The medical view of insanity was not always so generally accepted as it is to-day, and the history of the care of the insane is a story of a long, hard struggle for its application in the practical methods of dealing with the cases. The struggle has been carried on by comparatively few physicians and philanthropists, arrayed against whom have been the forces of superstition, ignorance, and selfishness, and the inertia of generally accepted views and customs. An epoch in the struggle in this State is marked by the passage of the State Care Act in 1890. This act provides that all poor and indigent insane persons in need of institutional care shall be cared for in State institutions, that private institutions for the insane shall be conducted only under State license, and that the execution of the laws relating to the care of the insane shall be under the direction of a State Commission in Lunacy. One of the most important features of the system of State care which has thus been established is the extent to which the medical view of insanity prevails in its organization and administration. The Commission in Lunacy is presided over by a physician, the superintendents of the State hospitals, and those in charge of the licensed private institutions are physicians. Nurses and sometimes physycians are sent to the various communities to bring the cases to the hospitals, and medical administration prevails throughout the system. More than three hundred physicians are engaged in this work, about two hundred of which are employed by the State. The number of patients attended to annually is about 38,000. State care of the insane is the most extensive organized medical work that the State is engaged in, and as such is something in which the medical profession may feel a just pride and interest.

The State system is, however, organized almost entirely with reference to institutional care and to the larger State questions relating to insanity. The problem of dealing with mental disease in the community and of attending to questions relating to the commitment of individuals remains with the local authorities, and is not attended to according to any uniform system nor always with regard to the medical view of insanity. Notwithstanding its important bearing on intelligent effective treatment of the cases, and on questions relating to prevention, this problem was evidently not fully worked out by the extremely able and farseeing framers of the State Care Act. It should be remembered, however, that State care of the insane is of comparatively recent development in this country. Previous to 1850 only twenty State hospitals were in existence, and the care of the insane was, in most places, a purely local question. At that time large numbers of insane persons were confined in jails and lockups, in crude receptacles connected with almshouses, or, in various degrees of degradation and misery, were kept at home or allowed to roam at large. Eventually, in the more populous communities, the insane were segregated in special institutions connected with almshouses, or, in some instances, under separate medical management; and finally, in 1896, six years after the State Care Act was passed, in this State, the State assumed the full responsibility. Under the earlier methods, the insane person in the community had been a subject for the constable and the poormaster, and the organizers of the system established under the State Care Act were unable to change this entirely. In 1891, the Commission in Lunacy recommended in its annual report to the Legislature that the statute be amended so as to provide for special local officers who should have preliminary charge of insane persons, and to take from the poor authorities the duties of determining the questions which relate to commitment. No change was, however, made. Briefly stated, the statutory duties of the poor authorities relating to the insane are: (1) to see "that all poor and indigent insane persons within their respective municipalities are timely granted the necessary relief conferred by" the statute, (2) to see that those who have sufficient means to support them are "properly and suitably cared for and maintained" by their relatives or guardians, or if not, that they are committed to institutions, and (3) to "take proper measures for the determination of the question of the insanity" of any person apparently insane, who may be arrested by a peace officer for "conducting himself in a manner which in a sane person would be disorderly." These duties relate practically entirely to care and treatment, to the determination of insanity, and to commitment. The problems involved are as purely medical as the care and treatment of the insane in institutions, which by common consent the world over have been entrusted to physicians. In the Borough of Manhattan the duties are attended to by the Trustees of Bellevue and Allied Hospitals, and there and in Brooklyn the work has been fairly well organized under medical management. Elsewhere, throughout the various towns and cities of the State the superintendents and overseers of the poor attend to it. In Albany and in Rochester an effort has been made to provide for temporary hospital care for the cases previous to their commitment, and to have the work attended to under medical management. As a rule, however, the methods employed and the facilities provided, differ little from those of twenty years ago, when the distressing condition of so many insane persons cared for by the poor authorities led to the agitation which resulted in the adoption of State care. The local poor authorities, I am sure, attend to their duties conscientiously and to the best of their ability. They are, however, laboring under

*Read at the ninth annual conference of the Sanitary Officers of the State of New York, November 12, 1909.

the burden of the views and methods which prevailed so long under the old system, of lack of insight into the conditions from which the cases with which they are dealing suffer, and of the economy in expenditures incidental to their principal work, which is the relief of poverty. The medical needs of the cases are consequently frequently ignored, and in emergencies the only resource thought of apparently, for men and women alike, is the constable and the lockup. To those who see the cases after their admission to the institutions, the extent to which police methods have been employed in dealing with them in the communities seems quite unnecessary and often extremely injurious. This question is discussed in two special reports issued by the Commission in Lunacy, which were the result of an investigation made by a committee which was appointed at a conference of representatives of the State hospitals with the commission. These reports show that even in the Borough of Manhattan in New York City, where the work is in most respects managed well, fifty-five per cent. of the cases obtain hospital care only through police channels. In the Borough of Brooklyn in the same city, on the contrary, where nurses employed by the poor authorities are sent to the homes for many of the cases, the possibility of eliminating the police to a great extent is clearly demonstrated. In the rest of the State it was found that nearly twenty per cent. of the cases received at the State hospitals were found by the nurses who were sent for them, in jails, lockups, and other places intended only for criminals. The conditions to which some of these cases were subjected are described in the reports referred to, and cannot be justified except on the ground that they were the inevitable outcome of an inefficient system for which no remedy had yet been found. The cases were, in most instances, brought to the hospital without much difficulty by one or at most two nurses, and their behavior after admission did not indicate that the severe measures employed were unavoidable. The investigation showed also that a considerable proportion of the cases received directly from homes had there been subjected to gross neglect or illtreatment, often for long periods, sometimes years. Altogether, in the whole State, exclusive of Greater New York, about 35 per cent. of the cases admitted to the State hospitals in a year, or about 1000 insane persons, had, previous to their admission, been confined in jails or lockups, or subjected to gross neglect or illtreatment at home. Looked at with reference to disease and its proper treatment, a system that fails to protect such a large proportion of the cases from injurious experiences can hardly be considered free from defects.

With a view to remedying these defects it is proposed now to take a step toward placing mental disease in the community on the same footing as other diseases which require official action, and to transfer from the poor authorities to the health officers the statutory duties which have been briefly outlined. These duties are practically of a medical character and will be better attended to by physicians. In New York City the work is already so well organized under hospital auspices that no change is contemplated there. In other parts of the State the health officers are the only medical officials available, and to utilize them seems more feasible than to attempt to establish a new position as was recommended by the Commission in Lunacy in 1891. In Rochester, and possibly in other cities where the Health Bureau attends to the needs of the sick poor, the health officers already frequently look after insane cases. If the duties and responsibilities relating to the care and commitment of insane persons are transferred to the health officers, it will, I believe, assist in establishing in the minds of people in general that the cases are suffering from illnesses which require the attention of physicians and nurses, and which are likely to be aggravated by the methods of the constable and the poormaster. The tendency of the friends of an insane person is to look to physicans and to medical officials for aid rather than to the poor authorities. Recently in one of the large cities a number of citizens appealed to the health department on account of the presence of several insane persons in a house in the neighborhood, and the health officer took the matter up and dealt with it as he would have with any other health question. In another city a letter was received by the board of managers of the State hospital located there, from the local health officer, who asked their cooperation to secure better facilities for the temporary care of insane persons in the city. The health officer would, when consulted, be more likely than the overseer of the poor to appreciate the nature of the case and to act promptly. In the care and management of the cases he would be more likely to employ nurses and attendants than the police. This would doubtless result in earlier treatment, and conditions which lead now to severe measures in some instances would often be anticipated. Advantage would probably be more frequently taken of the provisions made by statute for admission to the State hospitals by means of the emergency commitment and by voluntary application. Consultations with the hospital physicians and the employment of State hospital nurses when necessary could no doubt be arranged for under proper conditions. I can promise for the department that an earnest effort to be helpful would be made.

Better cooperation between State and local authorities with special reference to the medical needs of the cases would do much to overcome the present difficulties. Local hospital provision is also essential. This would no doubt be more keenly realized by medical officials than it is by the poor authorities and a strong effort would likely be made to obtain it. In this the aid of the local medical profession could be counted on. A splendid example of what can be accomplished was shown in Albany when, ten years ago, according to Dr. Mosher, seven physicians succeeded in securing from the county board of supervisors the establishment of the psychopathic ward at the Albany hospital. The Commission in Lunacy could also be confidently expected to aid in any way in its power, and it may be possible to obtain legislation that will enable the Commission to be even more helpful than it can be at present. Better hospital provision for mental cases in the communities is much needed, not only for the better care of cases whose commitment to the State hospitals is contemplated, but also for the better treatment of the psychoneuroses, of intoxications, of infection deliria, and of other conditions out of which insanity may develop. The problem of insanity is by no means solved by the segregation of the cases in large State institutions. A more widespread intelligent interest is needed. Those who deal with the cases in the earlier stages need to have a better insight into the nature of their disorders and into the conditions from which they arise than is at present the case. This would be a step toward more

efficient treatment and cure, and should eventually assist in increasing activity and interest in preventive measures. Not less than 40 per cent. of the male admissions to the institutions for the insane are due directly to alcohol, drugs, syphilis, and the acute infectious diseases, and the better understanding of the nature of the conditions from which the cases suffer, which has been made possible by the advance in clinical psychiatry, is opening up the way toward preventive measures more and more clearly. State care has already done much for clinical psychiatry. The proposed plan for extending the application of the medical view of insanity to the official methods of dealing with insane persons in the communities is in a measure an extension of State care. The health officers are to some extent State officials. They are, more or less, organized under the leadership of the State Commissioner of Health. The foundation is thus provided for building up on a medical basis, under State auspices, a system of dealing with the whole problem of mental diseases in a more efficient way than has ever been undertaken before. An opportunity for an extremely useful and promising field of work is offered to the health officers.

A bill has been prepared to provide for the legislation needed. In this bill ample provision has been made for compensating the health officers for the extra work and responsibility required of them, and the wish of those interested in the bill is to act in harmony with the State Commissioner of Health in safeguarding the interests of all concerned and of the other important work which the health officers are engaged in.

ADULT SYPHILIS OF THE LUNG:

WITH A CASE REPORT.

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It seems quite probable that syphilitic lesions of the lung in adults occur much more frequently than they are diagnosticated, the chief reason why such processes are not demonstrated during life being the resemblance of their physical signs to those of certain types of pulmonary tuberculosis.

Bériel[1] states that acquired lues of the adult lung is common, but the specific nature of the affection must be deduced from its occurrence with syphilitic lesions elsewhere in the body. He considers that two types may be described. (1) Catarrhal pneumonia or the desquamative bronchopneumonia of Homolle. This is characterized by the presence in the alveolus of a considerable amount of large cellular elements, more or less changed. The liquid exudate, which is at times present, gives to these lesions, on macroscopic examination, a peculiar appearance which Hiller has termed gelatinous pneumonia. (2) The so-called interstitial pneumonia, of which the principal feature is the increase in thickness of the interstitial framework of the lung with infiltration of its whole tissue. Of these two types the second, with its varieties, seems to be more directly due to syphilitic infection, and it represents the true syphilitic pneumonia.

Such pneumonic processes as the above may result in a cicatricial sclerosis which may occur in bands, *en bloc*, or at the nucleus of gummata (these, according to Virchow, result from connective tissue proliferation) simulating at first, in their growth, granulation tissue. The later development of gummatous tumors may take place in one of two ways. Either the cellular formation prevails, the intercellular substance rapidly softening and becoming gelatinous, mucoid, or fluid, and the tumor degenerates, becomes puriform, opens outward, and ulcerates, or, on the other hand, the cellular elements being not very abundant, the intercellular substance increases, the cells preserving the fusiform or star-shaped character of connective tissue cells or assuming the round shape of those of granulation tissue. Later the cells become fatty and the dry, yellow node of visceral syphilis is formed.

Keyes[2] describes the lesions of pulmonary lues in adults as being either soft or hard, according to

Fig. 1.—Showing the dilated veins in the chest and abdomen.

their density; this density depending upon the age of the process and upon the transformation of the exudate into organized tissue. This sclerosis is the usual lesion of acquired syphilis of the lung. It is likely to be of irregular distribution and is more common in the lower than in the upper lobes and in the right than in the left lung. The sclerotic tissue is hard, grayish white, or blackish, and very retractile; it may occur in bands radiating from a central point or in nodular masses which are often beneath the pleura; fibrous peribronchitis may be present. With the luetic interstitial changes there are usually bronchiectatic cavities of various shapes and sizes. Often such a cavity is the chief lesion and may be of considerable size; it may contain pus or its walls may be necrotic and gangrenous, like those of tuberculous cavities. Keyes also states

that, while mixed infection with the bacillus tuberculosis is said to be common, it is likely that many of the classical instances of pulmonary syphilis are merely irregular tuberculous processes and that the frequency of the coexistence of the two affections has been overestimated although a few authentic

Fig. 2.—Skiagram of the thorax of T. B.

cases have been recorded. He quotes Tripier and Bériel as holding that most instances of bronchiectasis are due to unsuspected syphilis of the lung.

With regard to the existence of simple connective tissue hypertrophy of the pulmonary framework Virchow maintains[3] that there may occur simple irritative affections of the lungs of luetic origin which never become gummatous, and he is inclined to regard certain fibrous forms of pleuritis, of pneumonia, and of peribronchitis as analogous to the chronic syphilitic inflammations of the liver and other viscera.

Rollet[4] has demonstrated that pulmonary syphiloma may appear not only in nodular masses of irregular size and differing shape, but also as a diffuse infiltration, which, alone or in connection with nodules, may extend over a pulmonary lobe.

Schnitzler[5] describes diffuse syphilitic disease of the lungs in which the organ is generally of firmer consistency, of greater weight, and of more uniform surface. The infiltration extends over one or both lungs or over only a part of them. The infiltrated parts are, as a rule, entirely airless, grayish red or grayish yellow, smooth, homogeneous, with a scanty turbid juice. The bronchi are usually of normal caliber and are filled with much purulent mucous and little air. The pathology of this type of pulmonary syphilis seems to coincide with the condition in the case reported subsequently as evidenced by the physical signs and radiographic picture.

With regard to the presence of the *Spirocheta pallida* in the lesions of acquired syphilis of the lung Levaditi and Roche state that, in contradistinction to the lesions of hereditary syphilis, the spirocheta is rarely found in the lesions of acquired lues. It has been found, in specific aortitis, in the wall of the aorta, in the suprarenal capsules, and possibly in hepatic gummata.

Concerning the association of syphilis and tuberculosis of the lung Mauriac (see Bériel[1]) considers that in the lungs, as elsewhere, the two affections remain independent and do not affect one another in any marked degree despite the analogy and strong resemblance of their lesions. Neither do they combine to form hybrid products endowed with power to transmit themselves. Their combined presence is merely juxtaposition and does not create mixed forms of tuberculosyphilitic pneumopathy. Their association occurs in various types: (1) With manifest and extensive syphilitic lesions there may be histologic changes referable to tuberculosis, but the lesions and symptoms are not modified by the association. (2) Inversely, in tuberculous patients who are also syphilitic there may be, in the neighborhood of the bacillary lesions, histologic features of luetic nature. (3) In apposition to the preceding types, which are frequent, is the type in which marked tuberculous and syphilitic lesions coexist. Here the clinical aspect is such that the diagnosis is almost impossible; the luetic affection is not recognized and the tuberculous process alone is diagnosticated.

Fournier[5] views the association of tuberculosis and syphilis from three clinical aspects: (1) When syphilis is engrafted upon a proved case of tuberculosis the course of the latter becomes more rapid and severe. (2) When the tuberculous infection appears during the early stages of lues. Here also the prognosis is grave and the course of the tuberculous infection is almost always rapid (Jacquinet). (3) When tuberculosis is engrafted upon an old syphilitic process (Landouzy) the disease assumes a form of fibrosis of tardy, sluggish, afebrile evolution. The bacillus appears to live as a parasite upon the surface of the syphilitic cavities in the lung without causing ulceration. The patient may sur-

Fig. 3.—Fundus of the eye of T. B., showing disseminated syphilitic choroiditis.

vive for a considerable period and may appear to be doing well.

With regard to the differentiation of tuberculosis and syphilis of the lung the same author gives the following points: (1) Absence of tubercle bacilli in the sputum is a negative point of great importance. Repeated examination is an essential as also

are continued negative results. Syphilis is probable in the persistent absence of bacilli, cancer cells, or evidence of hydatid disease. (2) Character of the local lesion. Syphilis is unilateral, circumscribed, and has no predilection for the apices of the lungs. It must be remembered, in this connection, that tuberculosis also may begin in one lung only and that it is possible for lues to affect both lungs simultaneously. Pulmonary syphilis is usually circumscribed while tuberculosis is more likely to be disseminated. Tuberculosis usually begins at an apex. Syphilis is less discriminating; it may occur in the lower, middle, or upper lobe. Its preference is for the middle of the organ in the neighborhood of the hilum. (3) General symptoms: tuberculosis affects the constitutional condition and causes the well-known train of symptoms; emaciation, weakness, anorexia, dyspepsia, diarrhea, rise of temperature, etc. Syphilis does not influence the appetite or the nutrition, as a rule; if the general health is impaired such impairment is of slow and gradual evolution. (4) The course of tuberculosis is likely to be rapid while that of syphilis is tardy.

According to Bériel, for the diagnosis of pulmonary syphilis are necessary: (1) Assurance of a previous leutic infection. (2) Presence of other visceral lesions of evident specific character. (3) The certainty that the lesions are not due to infection of other type—especially tuberculosis.

To discuss these three considerations in order: the history, if negative, is of little importance. Syphilitic subjects may present lesions of diverse nature and characteristic manifestations may be absent in patients plainly luetic. A denial of specific disease should never be considered to exclude pulmonary syphilis.

The presence of other specific lesions in various viscera, such as hepatic gummata, laryngeal changes (which are frequent in pulmonary syphilis) aids in the diagnosis. The existence of parasyphilitic alterations, such as spinal tabes, specific aortitis, aneurysm, etc., is also of assistance. Still these lesions and signs of infection may be absent in true lues of the lungs and present in tuberculosis.

Laboratory and other clinical tests made with a view to the elimination of tuberculosis are also insufficient criteria by themselves and likewise have the great disadvantage that, like all negative proofs, they are inconclusive. Absence of bacilli in exudates or sections is no proof of syphilis; negative inoculations do not rule out tuberculosis, and even in positive reports the hypothesis of specific disease cannot be excluded. The presence of the tubercle bacillus is a criterion in favor of tuberculosis but it does not exclude the possible coexistence of syphilis. Successful inoculations also afford an unsatisfactory affirmation for the same reason. Such tests are useful only in that they, when positive, prove the presence of tuberculosis. As stated previously the *Spirocheta pallida* is most unlikely to be found in the lesions of adult syphilis of the lung and the presence or absence of the Wassermann reaction is as unconfirmatory as are the laboratory and other tests for tuberculosis.

Case Report.—T. B., an intelligent man, 46 years of age, a cook by trade, came under the writer's notice in September, 1908. He was first seen at the tuberculosis dispensary of Bellevue Hospital and was immediately admitted to the ward.

Family History.—Negative as regards syphilis and tuberculosis.

Previous History.—Measles and whooping cough in childhood; chancre fourteen years ago, followed by the usual secondaries on skin and mucous membranes; irregular treatment for two years. Gonorrhea nine years ago. Served in the Spanish war and had malaria and (probably) typhoid fever during his service. About seven years ago he noticed a swollen vein on the right side of the neck and a feeling of dizziness on stooping. This swelling disappeared and a dilatation of the veins showed itself just inside the front of the right shoulder; soon the veins of the right arm became swollen down as far as the elbow and the superficial veins of the chest and abdomen began to enlarge on the right side. Three years ago the veins of the left arm and of the left side of the chest and abdomen also became swollen and prominent. About one year ago he suffered from what was apparently an attack of acute nephritis but recovered. He had been accustomed to indulge in alcohol to a considerable degree.

Present History: About four years ago the patient began to lose flesh and strength and developed a cough which has persisted ever since. Three months later he expectorated some blood. Blood has appeared in his sputum (which has been profuse and mucopurulent) from time to time ever since. There has been up to this time no sudden expectoration of a considerable amount of matter followed by a diminuation of the cough and expectoration. He has had no night sweats, feverish, or chilly feelings. He has been treated at intervals for tuberculosis of the lungs, but says that his physicians have never been sure of the diagnosis. In November, 1907, he entered a sanatorium in Texas where he remained for six months. While there he received numerous hypodermatic injections of tuberculin for the purpose of diagnosis, but says there was never any positive reaction. His sputum has been examined many times but tubercle bacilli have never been found. While at the sanatorium he improved, but began to suffer from pain in the left upper jaw in the region of the canine tooth. This pain later spread so as to affect the entire left side of his face and head and is still present. The pain is severe, deep, and boring in character with occasional sharp, shooting pains in the left eye and ear. About a month ago he noticed that he could not move the left eye outward. He complains chiefly of cough, with thick, yellowish, mucopurulent sputum which is sometimes bloody, general weakness, pain in the left side of head, and poor eyesight.

Physical Examination: The patient is poorly nourished (weight 114 lbs.), his face is red and congested and is somewhat more full on the left side. There is slight left exophthalmos and paralysis of the external rectus of the left eye. The pupils are normal; there is marked clubbing of the fingers. The superficial veins of the arms are dilated. The radial arteries are moderately thickened. The thorax is symmetrical, elongated and barrel-shaped; the costal margins are everted. The superficial veins are enlarged, tortuous, and distended, more especially on the right side. (See Fig. 1.) Heart: The apex impulse is not definitely localized; the cardiac dullness is obscured; the apex beat is heard loudest over the sternum just above the ensiform cartilage. The heart action is regular, there are no murmurs; the aortic second sound is accentuated. Lungs: There is diminished expansion of the right lung; the vocal

fremitus over the entire right lung is increased except at the base behind, where it is normal. The note upon percussion is dull in front as far as the third rib, it is flat below this point; behind the note is dull to the midscapular region and flat below this point. The breathing over back and front is bronchovesicular; the voice is bronchial, especially so over the lower lobe. On admission there were numerous fine rales over both back and front; later these disappeared. The left lung gives the usual signs of compensatory emphysema with the addition of slight dulness at the apex and a few fine rales here and at the base behind. An *x*-ray photograph of the thorax was taken (see Fig. 2.) The abdomen is scaphoid in shape; the superficial veins are dilated and tortuous. The liver is palpable about one inch below the costal margin. The reflexes are normal. Laryngoscopic examination reveals no abnormality. Ophthalmoscopic examination shows the presence of a choroiditis and retinitis of evident syphilitic nature. (See Fig. 3.)

The patient's sputum was carefully examined for the presence of the tubercle bacillus, always with a negative result. Inoculation tests were also made, the inoculated guinea-pig remaining alive and healthy after six weeks had elapsed. The opthalmic test (0.025 cc. of ½ per cent. tuberculin) was employed and gave a doubtful positive reaction. This measure was taken before the choroiditis has been demonstrated, otherwise it probably would not have been used. It caused only a slight reddening of the conjunctiva. The cutaneous reaction (50 per cent. tuberculin) produced a moderately positive result. Injections of 1.5 mg. and 4.5 mg. of tuberculin caused no diagnostic reaction, but following an injection of 9 mg. the patient's temperature rose to 101.5 deg. Fahr.; there were, however, no marked constitutional symptoms. Exploration of the pleural cavity did not reveal the presence of fluid.

The Wassermann reaction was not employed because it seemed unnecessary. Had it been positive nothing would have been proven concerning the pulmonary condition, and had it been negative one would have hesitated to rule out syphilis on account of the history, the characteristic ophthalmic lesion, and the prompt improvement of the patient when put upon antiluetic treatment.

During the twenty-six days that the patient remained in the hospital his temperature was never above 99.5 deg. Fahr., except following the injection of tuberculin mentioned previously, and for the most part it was slightly below normal. The weight rapidly increased to 132 lbs. and the patient gained markedly in strength. Under massive doses of potassium iodide and small doses of mercury bichloride the pain in the face disappeared and the visual disorder became greatly ameliorated.

The patient was discharged at his own request since he wished to resume work. He was seen a few days later at the Presbyterian Hospital Out Patient Department, where the accompanying *x*-ray photograph was taken; at this time he felt in good condition, complaining only of cough with occasional bloody expectoration. The physical signs were practically as when first seen except that the rales at the apex of the left lung had disappeared. He was advised to continue taking potassium iodide. Since this time he has not been heard from, his work having taken him out of the city.

I have recently learned that the patient spent several weeks at the N. Y. Health Department's Sanatorium for Tuberculosis at Otisville, N. Y., in the summer of 1909. During this time his sputum was examined three times for tubercle bacilli with negative results, and Dr. E. S. McSweeny, the physician in charge of the institution, has informed me that he considered the case an instance of pulmonary syphilis.

It would seem to the writer that this is, very probably, an instance of acquired syphilis of the lung; whether there has, rather recently, been engrafted upon the luetic process an infection with tuberculosis is debatable. The positive reaction to the tuberculin injection appears to point toward that possibility. At any rate a consideration of the case, if it will show nothing else, will demonstrate the difficulties with which the diagnosis of pulmonary lues *intra vitam* is fraught.

The writer wishes to express his thanks to Drs. F. J. Parker, A. M. Pappenheimer, and I. O. Woodruff, who have materially assisted him in the preparation of this report.

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345 West Eighty-fifth Street.

ETIOLOGY AND UNDERLYING CAUSES OF PULMONARY TUBERCULOSIS.*

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I HAVE selected this topic because in the last few years there has been a vast overrating of one side of the question to the exclusion of other sides quite as important in my opinion. I refer to the popular belief that all one has to do to contract tuberculosis is to inhale a few tubercle bacilli. That as the bacilli are thrown off in the sputa, each consumptive is a source of danger to others and should therefore be shunned. This idea of the contagiousness of pulmonary tuberculosis has been instilled into the public mind, in season and out of season, during the last four or five years to such an extent that phthisiophobia has become a common disease, not only with laymen, but with many physicians. In consequence, in many communities the consumptive has become a pariah, shunned like a pestilence. The United States Government refuses admission to consumptive immigrants. Colorado and Texas, I believe, refuse to admit consumptives from other states. Oklahoma refuses to admit them and has put a ban on consumptive physicians.

At the meeting of the Homeopathic Medical Society of the State of New York in September, one of the members reported that it was very difficult for a known consumptive to obtain lodgings or food in Texas. He had just returned from a tour of the state with a patient affected with tuberculosis. Another physician told the pathetic story of a nine-year-old girl in his village whose father had tuberculosis. None of the other children of the

*Read before the Homeopathic Medical Society of Connecticut, October 19, 1909.

place would associate with her. They were afraid of her, although the child herself was perfectly well.

Such things are wrong, all wrong. It is a blot on our civilization that they should be. Many of the present inhabitants of Texas and Colorado and Oklahoma are persons who went there to live in the beginning because they were consumptives, and who have been cured by the health-giving air of those places. A list of the best known workers in tuberculosis, I mean physicians who have become famous as experts in the study and cure of the disease, men with whose names you are all familiar, have been many of them tuberculous. I, myself, while secretary of this society, was taken ill with tuberculosis and sent west to die of it in 1896.

It is estimated that one-seventh of the deaths in the civilized world are due to tuberculosis. It is also estimated that in one-third of all bodies examined post mortem there are found tuberculosis lesions in the lungs. In other words, three out of every twenty-one deaths are due to tuberculosis, whereas seven bodies out of twenty-one show tuberculous lesions. We know that tubercle bacilli are coughed out in the sputa of persons ill with tuberculosis and disseminated through the atmosphere. The germs must therefore be omnipresent, they must exist everywhere. If simply breathing them in was all that was necessary to produce the disease, one hundred per cent. of the population would have tuberculosis and all would die of it. We know that seeds scattered broadcast will not grow unless they fall in congenial soil. Disease germs are no exception to this rule. Tubercle bacilli will not grow in every lung. This is shown by the fact that two-thirds of all lungs examined show no evidence of their presence though they must have been breathed in by the million. It is shown still more strongly by the fact that in four out of seven cases attacked the lung has been able to throw them off. Evidently tubercle bacilli require congenial soil in order to flourish.

The fact that the lung is the seat of the lesion led to the belief, once the tubercle bacillus was discovered, that breathing in of the germ caused the disease. Robert Koch is the leader of those who advocate this view. Experiments conducted by many experimenters in recent years, however, show that pulmonary tuberculosis can result from the ingestion of the bacillus. Schroeder and Cotter, of the Agricultural Department at Washington, in 1906 produced pulmonary tuberculosis in animals by feeding them on germ-laden food. Many other experimenters in this country and abroad have shown the same thing. The bacillus in these cases passes from the intestinal tract into the lymphatics and through them into the lung. A number of students of the disease, among whom may be mentioned Calmette, Landouzy, and Ravenal, now believe that this is the ordinary method of infection. They do not deny the possibility of respiratory infection, but believe it to be comparatively rare.

In 1903 von Behring went still further. He insisted that the tubercle bacillus was ingested in the milk during infancy, that it remained dormant in the body for months or years, as the case might be, and then from some cause developed tuberculosis in the victim. His theory did not admit of respiratory infection at all; and it did not admit of ingestion infection later in life, because the large intestine becomes impervious to the transmission of bacilli later in life. Coming from a man of von Behring's standing this theory had a respectful hearing and is not lacking supporters. It has one advantage from a practical standpoint, namely, each and all of us either did or did not imbibe the bacillus in infancy. If we did imbide it then sooner or later tuberculosis may claim us; if we did not, tuberculosis cannot claim us no matter what we do now.

I have mentioned some of the theories as to the mode of entrance of the tubercle bacillus into the body. I wish now to consider the tubercle bacillus itself. The tubercle bacillus is a short rod-like structure that appears in the discharges of a tuberculous subject. It has been found in the urine and the feces as well as in the sputum. Boiling kills it. A heat of 140° Fahr. will kill it after twenty minutes (Rosenau, Schroeder, Smith, and others). Cold has no effect on it. Direct sunlight kills the bacillus in a few hours, diffused light usually in a few days; in one or two cases virulence was retained several months (Koch, Rosenau, Annett, Twitchell, Weinzirl, and many others). Its virulence lasts longer in a dark moist atmosphere than elsewhere. The experiments showing the length of life of the bacillus under varying conditions consisted first of selecting particularly virulent sputa; second, of inoculations into guinea pigs which are extremely susceptible to tuberculosis. Under ordinary conditions bacilli expectorated into the street soon lose their vitality, and probably risk of respiratory infection is slight. In dark rooms the bacilli live longer, but ordinary cleanliness—discharging the bacilli into sputum cups containing antiseptics, or into something that can be immediately destroyed—should prevent the distribution of the germs.

Whatever the mode of infection of tuberculosis may be, whether by inhalation or by ingestion, if all discharged bacilli were properly cared for and promptly destroyed, there would be no danger of infection. But complete destruction of all bacilli is impossible. It is probable that all of us inhale and ingest many millions of them every day. Yet all of us are not sick. Why? Because we are not in condition to develop tuberculosis.

This brings us to the subject of soil. What is it that makes some persons susceptible and others not? This is not known exactly, but a mass of material has been collected regarding supposed predisposing causes.

Neither sex is exempt. In England (Kidd) in 1851-1860, the rate of mortality from tuberculosis was higher among females; in 1901-1905 among males. Hutchings reports that among the insane hospitals in New York State during the past eighteen years there have been 28,106 deaths. Among women 20 per cent. of the deaths were from tuberculosis; among the men 9.5 per cent. Moreover, Hutchings says this preponderance of deaths from this disease among women holds true in insane hospitals throughout the United States. In the State at large 10 per cent. of the total number of deaths are due to tuberculosis.

At the Phipps Institute for the Treatment of Tuberculosis in Philadelphia, of 3,733 cases 58 per cent. were men, 42 per cent. women. At the Tuberculosis Infirmary of the Metropolitan Hospital in New York, figures collated by me show that of 16,122 cases 82 per cent. were men and only 18 per cent. were women.

No age is exempt. Of 9,903 cases at the Tuberculosis Infirmary classified by ten-year periods,

there were under 10 years of age, 20; 11-20 years, 869; 21-30 years, 2,222; 31-40 years, 2,513; 41-50 years, 2,027; 51-60 years, 1,269; 67-70 years, 616; 71-80 years, 345; 81-90 years, 20; 91-100 years, 2. The youngest baby girl was three weeks old, the oldest woman 97 years. The youngest baby boy was eleven months old, the oldest man 92 years. Of the 9,503 cases tabulated 6,762, or 68.3 per cent. were between 21 and 50 years of age, the most strenuous and active period of life. Of 600 women patients 494, or 82 per cent., were between the ages of 16 and 45 years, the child-bearing period.

These figures show that whatever may be the exact mode of infection, the greatest ravages of the disease occur during the time when all the mental and physical energies of the individual are being used to their utmost in the struggle for existence and in the perpetuation of the race. These figures do not mean that tuberculosis is contracted at this time of life, they simply mean that patients break down at this time of life.

This is also the period of greatest social and industrial activity, and occupation seems to have some influence as a predisposing cause. At the Tuberculosis Infirmary of the Metropolitan Hospital, where the patients are charity patients, I found that of the one hundred and thirty different occupations represented by the 16,000 patients, unskilled labor headed the list. There were 2,131 laborers; next in number were 1,140 domestic servants and cooks; third on the list were 601 hotel help and waiters; fourth, 459 tailors and sewing machine operators; fifth, 433 drivers; sixth, 194 clerks. It is probable that long hours, hard work, and bad living conditions had much to do with the physical downfall of these patients. I would like to call special attention to the fact that 1,140 of the total number of patients, more than 7 per cent., were domestic servants. As most of these were women, and as only 18 per cent. of the total number of patients were women, it will be seen that domestic service seems to be one of the important predisposing causes.

At the International Congress of Tuberculosis in 1908, Mr. Frederick L. Hoffman, statistician of the Prudential Insurance Company, presented an interesting series of charts showing the relative mortality from consumption in different dusty trades, according to Prudential experience. In all of the following occupations the mortality from tuberculosis was found to be much above the average rate: namely, grinders, polishers, brass workers, tool makers, jewellers, engravers, printers, compositors, stone workers, marble workers, glass blowers, glass cutters, potters, plasterers, spinners, weavers, furriers and taxidermists, hatters, woolen-mill employees, carpet and rug makers, silk-mill employees, upholsterers, millers, bakers, button makers, leather workers, street cleaners, drivers, letter carriers, motormen. The mortality was greatest among those subject to the more or less continuous inhalation of metallic and mineral dust. Most of these trades pay living wages, some pay very good wages. Moreover, the fact that all were insured showed a high degree of thrift. It is fair to assume, therefore, that the exposure to dust inhalation of itself must by irritating the lining membrane of the air passages be a predisposing influence in the development of tuberculosis.

In 1901 Denison of Colorado stated that we must have something beside the germ to produce tuberculosis, we must have a proper soil. He put forth the theory that breathing devitalized air was an important predisposing factor. Improperly ventilated living and working rooms were responsible for the devitalized air. Unquestionably this is true, and bad air is of importance.

Other predisposing causes are various diseases. Tuberculosis will sometimes graft itself on an unresolved pneumonia. Many of the cases at the Tuberculosis Infirmary have had pneumonia within a few months or years. Kidd, in Allbutt's System of Medicine, says tuberculosis following pneumonia is "infinitely rare." My experience does not agree with his. Measles, grippe, and other infectious diseases have been, and still are, recognized as predisposing to tuberculosis. There is some merit, however, in the contention of E. P. Copeland, of Washington, that as nearly every one at some time or other suffers from these diseases, the role they play in predisposing towards tuberculosis is not of much importance.

Traumatism is said sometimes to be the beginning of tuberculosis. I have met with but one case that seemed indisputable. A woman at the Tuberculosis Infirmary dated the beginning of her illness from a kick in the chest which was followed by pulmonary hemorrhage.

Some years ago Rokitansky advanced the theory that certain valvular lesions of the heart, by producing a stasis of blood in the lungs, inhibited the development of tuberculosis. Other observers have not found the facts to be quite like that. Many cases of valvular lesion and of tuberculosis exist in the same patient. A search in one of my wards on a given day showed seven cases of mitral disease, one of aortic disease, and four abnormal cases that were doubtful as to the exact pathological condition, a total of twelve out of forty-five. This represents a morbidity of 26 per cent. In these cases the diagnosis was clinical. It was certain in eight cases, or 17 per cent. The third annual report of Phipps Institute gives a record of 19 per cent. of valvular lesions from two hundred autopsies. The fourth annual report gives a record of 6 per cent. valvular lesions out of a subsequent series of sixty cases examined post mortem.

Among women, many date their illness from pregnancy and childbirth. From my observation I believe that pregnancy is a dangerous condition for a tuberculous woman. It seems to hasten the progress of the disease.

There is one more factor to be considered—heredity. A few years ago tuberculosis was supposed to be hereditary. With the advent of the germ theory, heredity has dropped into the background. The tubercle bacillus has been demonstrated in the spermatic fluid of the male (Rosenberger, Walker, and others); it has been demonstrated in the placenta (Warthin and others). It is without doubt, therefore, that in certain rare cases it may be passed direct from parents to offspring. Those who still believe in hereditary influence believe that the organism inherits a weakened resistance, rather than that the disease itself is directly transmitted. Of late years it has been claimed that children of tuberculous parents exhibit a greater resistance to the disease than others. This is explained on the theory of immunization through the parent (Flick, King).

If cases occur in the same household it is just as probably due to living under the same adverse conditions, as to either infection or heredity. The whole subject requires much further investigation.

Tuberculosis is found clinically and at the postmortem in so large a percentage of children, and healed tuberculous lesions are found so often postmortem in older subjects, that the belief is becoming prevalent that the majority of cases become infected very early in life; that the disease remains latent a longer or shorter time, only to develop under some adverse conditions. Any cause which tends to lower the vitality tends to make the individual more susceptible to the development of tuberculosis. The presence of healed lesions in older subjects proves that the disease can be thrown off.

The way to prevent tuberculosis is to throw every possible protecting influence around the infant to prevent possible infection and to keep the vitality at its highest state of efficiency at all times.

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SITUS VISCERUM INVERSUS TOTALIS

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The very interesting condition of situs viscerum inversus has always excited a great amount of interest, both from the standpoint of its rarity and the problems it offers to the embryologist.

The first case in literature was reported by Petrus Servius in 1643, Grueber, in a collection of 78 cases published in 1863, analyzed them as follows: Of 78 cases of situs viscerum inversus 70 were complete, of these 49 occurred in males, 19 in females, 10 were not noted; up to 1895 there were collected by A. Pic. 195 cases. Since that time we find that there have been published 128 articles upon this condition, from the reports that were accessible we find in a collection of 78 cases the following facts:

Sex: Males 44, females 11, 15 not reported.

Age: Under one year, 11 cases; 1 to 10 years, 5 cases; 10 to 30 years, 25 cases; 30 to 60 years, 16 cases; over 60 years, 3 cases; 10 not reported.

Fifty-six cases were diagnosed ante mortem; in 14 the diagnosis was made post mortem. A postmortem examination made in 22 cases.

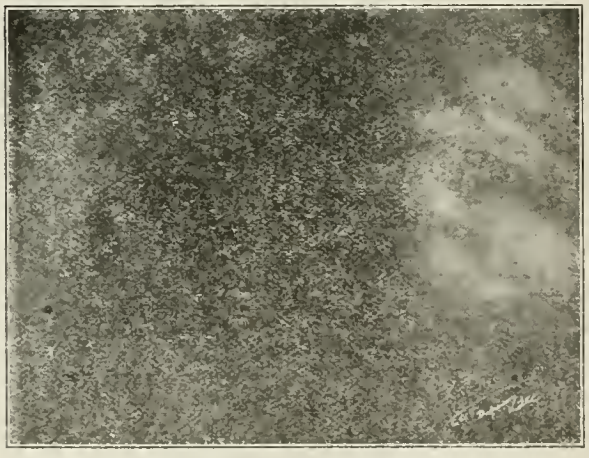

Fig. 1.—Skiagram of the thorax taken from in front, showing the shadow of the heart on the right side.

The case we wish to report occurred in a woman age 44, admitted to this institution suffering from dementia paralytica. A diagnosis of situs viscerum inversus was made by Dr. Clara Dunn, who kindly referred to case to us.

The examination at the time of admission shows a woman in good physical condition.

Chest. Inspection: Chest is large and oval with bulging over the left side, symmetrical thoracic respiration of moderate excursion.

Lungs. Right is bounded anteriorly at its lower

Fig. 2.—Viscera in situ: RL, right lung; LL, left lung, Pc, pericardium; G, gall-bladder; CC, caput coli; B, bladder.

border by the third rib at the midclavicular line; the lower lobe is interrupted by an area of dullness corresponding to the heart outline below. Left extends to the upper border of the sixth rib anteriorly, posteriorly both lungs extend to the level of the second dorsal vertebra. There are no areas of dullness in either lung. Auscultation is negative.

Heart. The right border extends in a line from a point cutting the third rib at the midclavicular line to the apex one finger outside of the right nipple. The left border corresponds to the mid-sternal line. The apex is in the fifth interspace one finger outside the right nipple. Sounds clear with no murmurs.

Abdomen. Palpation shows the lower border of the liver to be two fingers below the costal margin on the left side. Spleen not palpable. The left kidney is felt floating three fingers below the costal margin and freely movable. Percussion shows the liver extending from the sixth rib above to two fingers below the costal margin on the left side. There is an obliteration of tympany over the usual side of Traube's semilunar space with a corresponding area of tympany over the right side. Neurological examination shows dementia paralytica.

The patient died of sinus thrombosis on March 23, 1909. The postmortem findings were as follows:

Lungs. Are transposed in position, the right has two lobes, the left three. The right bronchus is longer, lower and of smaller caliber than the left. The right pulmonary artery is above the right bronchus, crossing it anteriorly before it enters the

lung; the left pulmonary artery lies below the left bronchus.

Heart. Position: The base is directed upward, backward, and to the left. The apex downward, forward, and to the right. The right border extends from the third right costal cartilage, one inch from

FIG. 3.—Thoracic viscera: RL, right lung; LL, left lung; X, apex of heart; PA, pulmonary artery; A, aorta; 1, right subclavian; 2, right common carotid artery; 3, Innominate artery; 3′, left common carotid; 3″, left subclavian.

the sternum, descending obliquely, with its convexity to the right, to the apex. The left border lies behind the third to sixth rib on the left. The chambers are transposed completely; the right auricle receiving the pulmonary veins, the left auricle receiving the superior and inferior vena cava; the right ventricle having a thicker wall, forming the posterior portion of the apex, giving off the aorta; and the left ventricle, forming the anterior portion of the apex, lying on the diaphragm, being thin walled, and giving off the pulmonary artery. The tricuspid valve is on the left and the mitral on the right side.

Vessels. The aorta commences at the base of the right ventricle, ascends with an inclination to the left to the level of the second costal cartilage, then extends backward to the right side of the fourth dorsal vertebra. Of the three branches of the arch of the aorta, the innominate arises from its convexity near its left extremity, the right common carotid from the arch, the right subclavian from the arch, the left common carotid from the innominate, the left subclavian from the innominate. The pulmonary artery arises from the anterior and right angle of the base of the left ventricle runs upward and backward toward the concavity of the aorta.

Liver. The main mass lies in the left hypochondriac region, the left lobe is the larger of the two, and is in relation on its inferior surface with the hepatic flexure at the junction of the ascending and transverse colon. The right is larger than is usually the case with the left lobe normally, and is in relation on its inferior surface with the stomach. The quadrate lobe is to the right of the gall-bladder, the Spigelian lobe is to the right of the caval fissure, the fossa of the gall-bladder is to the left separating the quadrate from the left lobe, the fossa of the inferior vena cava separates the Spigelian from the left lobe, the umbilical fissure lies between the right and quadrate lobes, the fissure of the ductus venosis lies between the Spigelian and right lobes. The gall-bladder lies on inferior surface of the liver, the body running backward upward and to the right. The portal vein and the hepatic artery pass to the liver in front of the foramen of Winslow, accompanied by the hepatic duct; the artery to the right, the duct to the left, the vein behind both.

Stomach. The cardia is at the right, the pylorus at the left, the greater curvature's convexity is to the right. The position of the intestines is reversed, the cecum being on the left, the ascending colon and sigmoid flexure on the right side. The mesentery is attached from right to left. The spleen is on the right. The left kidney is lower than the right. The left renal artery passes behind the inferior vena cava. The right ovarian vein empties into the right renal vein. The pancreas is transposed in position likewise, the head being to the left, the tail in the right. The aorta lies to the right of the vertebral column, the inferior vena cava to the left.

Since 1895 most of the cases have been recognized

FIG. 4.—Abdominal viscera: TC, transverse colon; Sp., spleen; A, abdominal aorta; Vc., inferior vena cava; S, sigmoid; R, rectum; B, bladder; CC, caput coli; IC, ileocecal valve.

ante mortem. The greater prevalence of the condition in men is probably due to the greater number of males admitted into hospitals, the larger number of cases in persons from 10 to 30 years is probably explained along similar lines.

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THE DELINQUENT CHILD IN ENGLAND.

THOSE in authority in Great Britain have become impressed, not only with the necessity of checking infantile mortality, but also with the vast importance of bringing up the young in a healthy manner, so that they may be mentally and physically fitted to be of service to and not a burden upon the State. Considerably more than two-thirds of the population of England reside in cities and towns, and a large proportion of the population is reared under disadvantageous conditions from physical, mental, and moral health aspects. Child life in the slums of large cities has little chance of developing properly, and unless steps are taken to better conditions, the human output of many urban districts will prove a canker rather than a fruitful blossom on the body social and politic. It is recognized everywhere now, and America was among the first countries to appreciate the fact and to act upon it, that children must be cared for if a nation is to prosper. Children brought up in bad surroundings cannot be expected to be of benefit to the community, and if their parents are unable or unwilling to show them the right way by example and precept, in self defence others must take this charge upon themselves. Neither nations, states, nor municipalities can afford to witness the wasting of the human raw material without putting out a hand to prevent this eventuality.

Dr. Walter Lindley was commissioned in the early part of last year by the Government of California to visit England in order to observe the manner in which delinquent children are treated in that country. His report has been published recently in pamphlet form. On the whole, Dr. Lindley was favorably struck with what he saw in England, and is of the opinion that rapid advance in the right direction is being made in the training of the English rising generation of the poorer class. The Children's Act of 1908 has already had an excellent effect. Before this act came into force mothers of the laboring class were in the habit of taking their young children and children in arms into saloons, where they drank themselves and frequently gave their children drink. The Children's Act prevents this abominable custom, and protects young children as far as is possible by law in several other ways from contracting vicious habits by dint of example and environment. The public school system of England is progressive, that is to say, after the school course proper is over, facilities are provided for learning a trade, or in the case of defective children assistance is given their parents to put such in the way of earning a livelihood. It is recognized, too, that insufficient nourishment and ill health are potent causes of so-called delinquency in childhood. Therefore, in some districts children are given free meals, and outdoor schools have been established with the object of counteracting these causes to some extent.

For the care of children who have been actually declared to be delinquent, three classes of schools have been founded. The Day Industrial School, The Industrial School, and the Reformatory. The first two schools are for delinquent children under fourteen, while to the reformatory school are committed those between fourteen and sixteen. At the day industrial school the child spends the entire day from between 6 and 7 A. M. to 6 P. M., is given baths, three good meals, and in addition to the ordinary school branches of training, if a boy, is taught a trade; and if a girl, sewing and cooking. The residential industrial school is very similar to the State industrial schools of this country, except that no children are admitted over fourteen. Juvenile reformatories are similar to the industrial in their equipment and routine of work, the chief difference being the age admittance. As has been pointed out previously in the MEDICAL RECORD, the industrial school and reformatory system is based on that of this country, and those responsible for the innovation in England have no hesitation in acknowledging their debt in this connection to the United States. However, in one respect, they differ wholly, none of the English reformatories is government or municipal. They have all been established and controlled by philanthropic voluntary organizations. Toward their upkeep, the national government and the municipalities contribute a sum averaging $2 a child per week.

The flocking of the British people to large centers of population and the consequent overcrowding of these places have brought about poverty, have bred and fostered vice and disease, and have rendered necessary the establishment of means and institutions whereby and in which the young may be given the opportunity of living under healthy conditions and of being taught to become useful citizens. Whether large institutions supply the most efficacious opportunities for achieving this object is a debatable point. Dr. Lindley in his pamphlet notes that France follows a totally different system with the same end in view. The Government of France sends her delinquent children to an agricultural family, pays a stated sum per week, and pays for the child's clothing and doctor's bill. The child must be sent to a public school. The cost of this procedure is stated to be far less than of maintaining a child in an institution, and it is further asserted that such children usually remain on the soil and become independent citizens. The Barnado Homes in England follow the placing-out system in

the country with a large proportion of their waifs and strays with much success. The problem of how to care for the urban child population is insistent in all civilized countries. In England it is present in its most accentuated form. It is satisfactory to record that the question there is being grappled with intelligently and vigorously, and that in the words of Lindley, "the strong, independent, self-assertion of England is being turned towards the redemption and uplifting of her own."

TUBERCLE BACILLI IN THE BLOOD.

A YEAR has now elapsed since Rosenberger read his paper before the Pathological Society of Philadelphia describing a simple method by which he was able to demonstrate tubercle bacilli in the blood in practically all cases of tuberculosis, including not only the advanced cases, but also those in the most incipient stages of the disease. Few contributions in recent years have aroused such interest among the students of tuberculosis as this article of Rosenberger's, as it not only made necessary a revision of some of the well-established ideas on the subject of the disease, but also gave promise of furnishing the profession with a simple, harmless, and sure method of diagnosing the condition in the stage in which there is the greatest chance of recovery. The result was that immediately, in nearly every American, and many of the European institutions for the study or treatment of the disease, investigators set to work in an effort to confirm the findings. The results were from the first discouraging, as, with but one or two exceptions, all of the workers reported either absolutely negative results or results positive in such a very small percentage of the cases as completely to destroy the value of the test for diagnostic purposes.

The latest report upon the subject appears in the January number of the *American Journal of the Medical Sciences*, in which Burville-Holmes of the Phipps Institute in Philadelphia reviews the literature and reports his own studies. In his paper the author not only shows by the work of himself and many others that the percentages of outspoken cases of tuberculosis in which acid-fast organisms could be found in the blood was extremely small, but also that it was no larger than in a considerable number of control cases in which there was no suspicion of the disease. At the same time Rosenberger has continued his studies and has increased his statistics from fifty-six to three hundred cases, in which he has found acid-fast bacilli in every instance. Such discrepancies between the findings of the different observers were at first hard to explain, and remained a decided mystery until Burnham and Lyon, and more recently Brem, showed that in their own cases at least the distilled water used for solutions and stains showed, when the smears were made by the addition of a trace of albumin, the presence of acid-fast bacteria in every case. This finding is also confirmed by Burville-Holmes in that all but one of his positive findings were reported from the Bryn Mawr Hospital, where the water was found to be contaminated, while the cases from the Phipps Institute, in which the water was pure, the blood findings were as uniformly negative. The general consensus of opinion among students of tuberculosis appears to be that Rosenberger's results, which at first appeared to be so brilliant and promised to be of such great value in the diagnosis of phthisis, were in fact the result of a very simple error in technique, and that, though it is possible to demonstrate the tubercle bacillus in the blood in rare instances, these are so extremely infrequent as to give the test practically no value from the point of view of the clinician.

This whole subject of the differentiation of the acid-fast bacilli is one that calls for more thorough investigation by bacteriologists. There are so many organisms, some, like the grass or hay bacilli, almost universally present, which are with difficulty decolorized by acids, that this characteristic in itself is of little importance. In addition to the grass bacillus we find the smegma bacillus, Lustgarten's bacillus, the bacillus of leprosy, the tubercle bacillus, and other microorganisms which have this peculiarity in common, and he would be rash indeed who would pronounce any given bacillus that of tuberculosis or of leprosy, in the absence of corroborative clinical symptoms or culture tests, merely because it was acid-fast. Unfortunately for diagnostic precision, the acid-fast characteristic can be regarded as suggestive only and not by itself as conclusive.

THE TREATMENT OF CONGENITAL DISLOCATION OF THE HIP DURING INFANCY.

THE date of election for the reduction of a congenital dislocation of the hip joint has been a subject of some discussion among orthopedic surgeons, the main arguments being concerning the upper age limit at which the operation may be performed with a reasonable hope of success. Lorenz first gave five years as the upper limit for bilateral dislocations and six years for unilateral ones. With improved technique, however, this has been raised, and children even as old as twelve years have been treated successfully. As to the youngest age at which the reduction should be done, there has been more unity of opinion. Practically all have agreed that it should be as early in life as possible; that is, as soon as the child has learned to control his excretory functions and has ceased soiling his clothes and the bed. This limit has been accepted on account of the extreme difficulty in keeping the plaster bandage clean, and preventing soiling and consequent inflammation of the skin at an earlier age. In the *Berliner klinische Wochenschrift* for December 13, 1909, however, Joachimsthal of Berlin reports some cases in which the lower age limit has been lowered with excellent results. The patients were infants varying from four to six months of age. The dislocations were reduced by manipulation and the thighs put in the usual position of abduction and marked flexion. Instead of the ordinary circular plaster dressing, the procedure was carried out by placing the child on its face and moulding to the back of the body and thighs a plaster bed, cut wide in the region of the anus. This was protracted by covering it with rubber tissue, and when it had hardened, the child was bandaged to it by means of gauze. By this simple procedure the dressings were kept fresh and clean, the bandages being changed

every two days, while the child lay on its abdomen. The results were striking. The skin remained healthy, and at this tender age the head of the bone showed a much greater inclination to remain in the acetabulum than is usual with older children. The plaster splints were removed in three to four weeks, and the results, as shown by the *x*-ray, as well as by the functional activity of the limbs, appeared to be perfect.

Septicemia Following Submucous Resection of the Nasal Septum.

The December issue of the *Laryngoscope* contains an interesting account by Harold Hays of two cases of septicemia following this now common operation on the nasal septum. One patient recovered and the other died. Such a severe complication seems rather rare according to the literature of the subject and conference with the author's colleagues here in New York. He has found several references to septicemia following septal abscess the result of trauma, but no one has admitted to him the existence of any serious complication following submucous resection. Of the author's two patients, the first died and the second recovered. Both were young Irish girls of about the same age and build, and both had had marked nasal symptoms for two years. Both were unusually bright and well educated, and both were stenographers. In Case 1 symptoms came on two days after operation, and death on the eighth day after. Careful examination was made for a focus of suppuration, but none was found. The symptoms were typical of septicemia. In Case 2 the symptoms came on two days after operation; on the sixth day the patient was placed under chloroform anesthesia and a very careful examination was made. This resulted in the location of a pus pocket well up above the middle turbinate. About half a dram of thick, ropy pus was evacuated. An immediate recovery took place. The author says that an examination under general anesthesia might possibly have located a suppurating focus in Case 1. He finds in the venous anastomosis of the upper nasal site a reason for the recurrence of cavernous sinus thrombosis following septal abscess. The note of caution he utters is a most timely one.

News of the Week.

Suggested Reforms in the American Medical Association.—The following resolutions were adopted by the Chicago Medical Society at a meeting held January 11, 1910: *Whereas,* the Chicago Medical Society is an integral part of a constituent society of the American Medical Association, and therefore vitally interested in the welfare of that great organization, and *Whereas,* certain conditions exist which menace the best interests of the members of the American Medical Association, and of the profession at large; *Therefore, be it Resolved,* That the Chicago Medical Society, in council assembled, recommends the following changes in the policies and management of the American Medical Association:

1. The laws should be so amended that no one person will be permitted to hold, at the same time, more than one executive or honorary office in the Association.

2. The office of General Secretary and the positions of Editor and Manager should be separated, and no person should be permitted to fill more than one of these places at one time.

3. The offices of Editor and Secretary should be filled only by men educated in regular scientific medicine and of unimpeachable professional records.

4. The number of Trustees should be increased.

5. All officers and employes whose duties involve financial responsibility should be bonded.

6. The laws governing admission to membership in the American Medical Association should be so amended as to make it mandatory upon the Secretary to enroll applicants who have complied with the provisions of the by-laws governing the same.

7. Space should be set apart in the *Journal* for free and courteous discussion of the policies and methods of the Association, or for any other matters which may appeal to the membership at large as bearing upon the interests of the Association.

8. Provision should be made for the initiative and referendum.

9. No member should be expelled from the Association without a fair trial and full hearing.

10. No person who is a general officer or member of the House of Delegates or Board of Trustees or an employe of the American Medical Association shall be eligible to serve as a general officer or member of the House of Delegates or Council of any constituent Association.

Be it Further Resolved, That the Secretary of the Chicago Medical Society be instructed to publish these resolutions in full in the Bulletin of the Society, and to transmit a copy of the same to the *Journal of the American Medical Association* and to the editors of the various State journals.

The Medical School of Columbia University.—The Trustees of Columbia have made public a plan for the removal of the College of Physicians and Surgeons from its present location on West Fifty-ninth street to a commanding site on Morningside Heights, where the other faculties of the University are now situated. A large part of the necessary land has been obtained through the generosity of William K. Vanderbilt, George J. Gould, Frank A. Munsey, and a fourth anonymous contributor, and it is expected that the remaining portion will also be acquired through gift. On this site, which occupies an entire block, it is intended to establish a medical school, the equipment of which, in the way of lecture rooms, laboratories, a museum, and other buildings, will be the equal of any in the world. The establishment of the College on Morningside will also bring it into more intimate relations with the University, for, as the Trustees state in their announcement of their plan: "Medical students, not only at Columbia but generally elsewhere, are outside of the associations and attractions of academic residence and of academic opportunity. The proposed rebuilding will bring both teachers and students of medicine into intimate relationships with teachers and students in other parts of the university."

Hospital Bureau of Standards and Supplies.—Representatives of the larger hospitals of New York City met at the Roosevelt Hospital recently and organized the Hospital Bureau of Standards and Supplies. The bureau will establish immediately a purchasing agency and put in charge of it a trained buyer. It is estimated by Mr. Thorne, treasurer of the Presbyterian Hospital, who organized the purchasing departments of the Union and Southern Pacific railroads, that a saving of from 10 to 20 per cent. will be effected in the purchase of hospital supplies.

Typhoid Fever in Montreal.—There is what appears to be a somewhat serious epidemic of typhoid fever in Montreal at the present time. According to some accounts, there are 3,000 cases, while some of the lay papers assert that there are as many as 6,000 cases of the disease in the largest city of Canada. It is certain, whatever the exact number of the sufferers from the malady may be, that the hospitals can hold no more, and that a special hospital has been prepared for their accommodation. For many years typhoid fever at certain seasons has been more or less prevalent in Montreal, and its prevalence is attributed to the pollution of the water supply. Montreal derives its water supply from two sources, the city supply and the Montreal Water and Power Company. The city provides about four-fifths of the total supply and the Water and Power Company one-fifth. Both obtain water by pumping from the St. Lawrence River, and in both cases water is delivered direct without any provision whatever for purification. The St. Lawrence and Ottawa rivers receive a large part of the sewage of Ontario, some of the sewage of Quebec, and some of the sewage of New York State, and this is the water that Montreal inhabitants must drink. At the commencement of winter when ice begins to cover the river, typhoid fever generally manifests itself in Montreal. The prevalence of the disease is more widespread this winter than usual, and it appears likely that steps will soon be taken to safeguard the water supply. As in Toronto the sewage will be disposed so as not to menace public health, and a system of water filtration will be introduced.

High Rate of Infantile Mortality in Toronto.—The Section of State Medicine of the Academy of Medicine, Toronto, has presented the following resolution: That this section should direct the attention of the Committee of the Academy of Medicine to the high rate of infantile mortality in the city of Toronto and in the Province of Ontario for 1907 as shown by the thirty-eighth annual report of the Registrar-General just issued, and would respectfully request the Academy to appoint a special committee to consider and report on the same. During 1907 the deaths under one year of age in Toronto were 1,313. Births 6,600. Death rate per 1,000 births, 196. Deaths under one year of age in Ontario, 8,041. Births, 53,584. Death rate per 1,000 births, 150.

Scarlet Fever in Toronto.—Scarlet fever is somewhat rife in Toronto. The isolation fever hospital is full to its capacity of seventy-five, and there are several cases which are awaiting admission.

Milk Famine in Chicago.—Owing to the stalling of trains in the neighborhood of Chicago, caused by the snow storm of January 14, the city suffered from a milk famine. Hospitals reported that patients depending upon milk for subsistence had been deprived of it. Children's homes and asylums in several instances were without their daily supply, and physicians reported the milk famine to have had bad effect in patients needing the nourishment.

Hook Worm in Samoa.—A dispatch from Samoa states that it has been discovered that from 40 to 50 per cent. of the natives of the Samoan Islands suffer from uncinariasis.

"Kissing the Book" Abolished in London.—The time-honored but unsanitary custom of kissing the Bible when being sworn has been abolished in the Lambeth Police Court in London.

Endowment for the Study of Puerperal Sepsis.—The Society of the Lying-in Hospital of New York has received from Mrs. Helen Hartley Jenkins $25,000 to enable the hospital to make a special study of puerperal fever. The fund is to be known as the Emma Hartley Endowment, in memory of her mother.

Charitable Bequest.—By the will of the late Anna Eliza Porter of Philadelphia the sum of $10,000 is bequeathed to the Methodist Episcopal Hospital for a free room to be known as the Porter Memorial, with $200 additional for the equipment of the room, provided that the Trustees of the Hospital keep hanging in the room pictures of the testatrix's father and mother.

D. H. Beeckman Delatour has resigned as Surgeon-in-Chief to the Methodist Episcopal Hospital, Brooklyn. Dr. Delatour was the first interne of the hospital, and during the past twenty-two years has served as assistant attending surgeon, attending surgeon, and surgeon-in-chief.

Dr. George W. Vandegrift of New York City has been apopinted visiting oculist to the Jewish Protectory and Aid Society, Hawthorne, N. Y.

The International American Congress of Medicine and Hygiene will be held May 25 in Buenos Ayres, Argentine Republic, in commemoration of the first centenary of the May revolution of 1810. In order to facilitate the contribution of papers and exhibits from the United States, there has been appointed by the President of the Congress, Dr. Eliseo Cantôn, and the Minister of the Argentine Republic at Washington, a committee of propaganda, of which Dr. Charles H. Frazier of Philadelphia is chairman, and Dr. Alfred Reginald Allen of Philadelphia is secretary. The Congress has been divided into nine sections, each section being represented in the United States by its chairman in this Committee of Propaganda, as follows: I. Biological and Fundamental Matters, Dr. W. H. Howell, Baltimore, Md. II. Medicine and Its Clinics, Dr. George Dock, New Orleans, La. III. Surgery and Its Clinics, Dr. John M. T. Finney, Baltimore, Md. IV. Public Hygiene, Dr. Alexander C. Abbott, Philadelphia, Pa. V. Pharmacy and Chemistry, Dr. David L. Edsall, Philadelphia, Pa. VI. Sanitary Technology, Dr. W. P. Mason, Troy, N. Y. VII. Veterinary Police, Dr. Samuel H. Gilliland, Marietta, Pa. VIII. Dental Pathology, Dr. George V. I. Brown, Milwaukee, Wis. IX. Exhibition of Hygiene, Dr. Alexander C. Abbott, Philadelphia, Pa. It will not be necessary for one contributing a paper or exhibit to the Congress to be present in person. Arrangements will be made to have contributions suitably presented in the absence of the author. The official languages of the Congress will be Spanish and English. Members of the following professions are eligible to present papers or exhibits: Medicine, pharmacy, chemistry, dentistry, veterinary medicine, engineering, and architecture. Papers may be sent direct to the chairman of the particular section for which they are intended, or to Dr. Alfred Reginald Allen, secretary, 111 South Twenty-first street, Philadelphia, Pa.

Far Eastern Association of Tropical Medicine will hold its first biennial meeting at Manila, P. I., March 5 to March 14, 1910. The association was established with the idea of bringing together workers in tropical medicine in that portion of the world for an exchange of ideas and to foster the spirit of scientific investigation which has already brought

forth such excellent results in certain of the eastern countries. The program is as follows: At Manila—Saturday afternoon, March 5, opening session; Monday, March 7, Protozoölogy, Helminthology; Tuesday, March 8, Cholera, Plague, and Leprosy; Wednesday, March 9, Surgery and Obstetrics, Diseases of Children; Thursday, March 10, Fevers in the tropics, including Malaria, Typhoid, etc.; Friday, March 11, Dysenteries, Beriberi; Saturday, March 12, Tuberculosis; Saturday night, en route to Baguio. At Baguio—Monday, March 14, Climate, Hygiene, and Sanitation; Business session.

The New York Academy of Medicine.—The Section on Medicine has issued the following statement: It is now generally agreed that in medical meetings the most instruction and profit is afforded by the practical presentation of patients, of specimens with case records and of apparatus. It is, therefore, considered advisable to increase if possible the clinical features of the program of the meetings of the Section on Medicine and to present papers, only when some work of especial importance is to be reported. In order to obtain a fair presentation of the great wealth of clinical material which the institutions of this city contain, a list of the hospitals, dispensaries, laboratories, and medical schools has been prepared and to each a meeting has been assigned.

A Portrait of Dr. Flexner.—The Permanent Portrait Committee of the Medical Department of the University of Pennsylvania has, during the past few years, almost completed the collection of portraits of former professors in the Medical School. These portraits now hang in the halls and lecture rooms of the new medical laboratories and thus connect historically the new home of the Medical Department with memories and traditions of teachers of the past century and a half. Of the six professors not at present represented in this collection, one is Dr. Simon Flexner, who was Professor of Pathology for the years 1899 to 1903. A special committee has been appointed to procure Dr. Flexner's portrait. This committee, therefore, addresses the former students, associates, and assistants of Dr. Flexner in the hope that they may contribute to the Portrait Fund and thus aid in completing the historical portraiture of professorial succession, so wisely planned by the Permanent Committee. Checks should be made payable to the treasurer, Dr. William Pepper, 1811 Spruce street, Philadelphia, Pa.

The Late Dr. Moskievitz.—At a recent meeting of the Medical Board of the Har Moriah Hospital the following resolution was adopted: *Whereas,* Dr. Max Moskievitz died on the 3d day of January, 1910, in the ripeness of his years, and *Whereas,* Dr. Moskievitz by the kindness of his nature, his integrity and the idealism of his character, the high attainments of his intellect and the conscientiousness and ability with which he served the interests of the Har Moriah Hospital, has endeared himself to the members of the Medical Board; be it *Resolved,* That the Medical Board of the Har Moriah Hospital deplore his untimely death and the loss of his beneficent activities in connection with the hospital, and be it further *Resolved,* That the Medical Board, with expressions of their deepest sympathy transmit to his family a copy of these resolutions and publish them in the medical press of this city. A. V. Moschcowitz, M. D., Leopold Stieglitz, M. D., Committee.

Obituary Notes.—Dr. Alfred H. Hoadley of Northampton, Mass., died December 29, 1909, aged 54 years. Dr. Hoadley was a graduate of the Albany Medical College in 1886, and was a member of the Hampshire County Medical Society, the Massachusetts Medical Society, and the American Medical Association. He was attending surgeon of the Dickenson Hospital.

Dr. William Jackson McHench of Brighton, Mich., died in Bratentown, Fla., January 1, 1910, aged 70 years. He was a graduate of the University of Michigan in 1859.

Dr. Uzziel Ogden of Toronto, Canada, died January 4, 1910, aged 82 years. He was a graduate of the Victoria University in 1849. In 1855 he assumed the chair of midwifery and diseases of women and children in the Toronto School of Medicine. Later he was professor of gynecology in the Medical Faculty of Toronto University. He founded the *Canadian Journal of Medical Science.*

Dr. William Bradley Chase of Lynn, Mass., died at his home January 4, 1910, aged 76 years. He was a graduate of the Jefferson Medical College in 1857.

Dr. G. S. Cleland of Toronto, Canada, died at his home January 3, 1910. He was a graduate of the Toronto School of Medicine in 1882.

Dr. Ellery Denison of New York City died at his home January 14, 1910, aged 83 years. He was a graduate of the New York University Medical College in 1853, and was a member of the New York County Medical Society, the Medical Society of the State of New York and the American Medical Association. For many years Dr. Denison was attending physician to the Northern Dispensary and the Home for Aged and Cripples.

Dr. John H. Ewing of Flemington, N. J., died at his home January 14, 1910. He was a graduate of the Jefferson Medical College in 1877, and was a member of the Hunterdon County Medical Society and the Medical Society of New Jersey.

Dr. Henry Daniel Shonts of Chicago died January 2, 1910. He had practised for many years in Erie, Pa., but had been retired since 1894, and removed to Chicago. Dr. Shonts was 87 years of age.

Dr. L. J. Worley of Washington Court House, Ohio, died January 6, 1910, aged 59 years. He was a graduate of the Eclectic Medical Institute of Cincinnati in 1887.

Dr. Andrew M. Moore, U.S.N., retired, died in Naples, January 13, 1910. He was born in Tennessee on December 25, 1845. He was graduated from the medical department of the University of Pennsylvania in 1869 and was later appointed an Assistant Surgeon in the navy, his first assignment being at the Philadelphia Naval Hospital. He was later transferred to the coast survey steamer *Bibb,* and later assigned to the *Saco* on the European and Asiatic stations. In 1874 he was promoted to Passed Assistant Surgeon, and was called to the New York Naval Hospital, where he served for a year, later serving on the Presidential yacht *Mayflower.* After serving on three of the largest battleships in the navy he was promoted to Surgeon in 1881. While serving as Surgeon of the Mare Island station, in California, Surgeon Moore was retired in 1893.

Dr. P. Brough Montgomery of Chambersburg, Pa., died at Buena Vista, Fla., on January 8, at the age of 48 years. He was graduated from Bellevue Hospital Medical College in the Class of 1886.

Correspondence.

REDUCED TYPHOID MORTALITY.

To the Editor of the Medical Record:

Sir:—The excellent résumé of vital statistics published in the January 8 issue of the Medical Record moves me to call attention to the remarkable reduction of mortality per cent. in typhoid fever which I discovered in the statistics of this disease, furnished me by courtesy of Dr. Cronin of the Health Department, for the purpose of studying the probable influence on its mortality of a better management. The following figures may interest your readers and furnish food for reflection:

Typhoid Fever—Old City of N. Y., Manhattan and Bronx.				Present City, Greater N. Y.			
Year.	Cases.	Deaths.	Mort. % Omitting Fractions.	Year.	Cases.	Deaths.	Mort. % Omitting Fractions.
1890	1100	352	32	1898	2226	676	30
1891	1342	384	21	1899	1950	546	28
1892	1140	400	30	1900	2658	718	27
1893	1008	381	37	1901	2748	727	26
1894	792	326	40	1902	3871	764	18
1895	965	322	33	1903	3671	653	17
1896	1002	297	29	1904	3412	661	16
1897	1004	299	29	1905	4326	649	15
				1906	3467	639	18
				1907	4426	740	16
				1908	3058	536	17

These figures indicate clearly that while there is still much room for betterment there has been a sudden and decided fall in the mortality of typhoid fever in New York City since 1901. It is my purpose to investigate the reasons for this favorable change, to ascertain why the latter has continued so uniform, varying only two degrees in six months before and after 1902, during the high as well as during the lower rate of mortality, and especially to discover if the type of the disease has been changed by more correct management of the case. In the meantime the question arises: What influence on the conduct of cases of typhoid fever by the average doctor has followed the agitation of this subject in our medical societies during the nineties and especially the convincing clinical investigations of W. Gilman Thompson and the late H. P. Loomis published respectively in 1902 and 1903? In his text book on Practice, Thompson stated that the mortality from typhoid fever in the New York and Presbyterian Hospitals had fallen from 16 to 6 per cent. by reason of the systematic use of the Brand bath. Dr. H. P. Loomis stated in a painstaking inquiry about the Brand bath in the New York hospitals, the details of which were presented to the Practitioners' Society and published in the Medical Record of January 10, 1902, that this bath had reduced the mortality 50 per cent. since it began to be used systematically in the hospitals referred to. The Brand bath (fifteen minutes at 70° F. every four hours, with constant friction, when the rectal temperature is above 102.6° F., when the patient is not normally sleeping) is, as I have long maintained, rarely applicable in its strictest sense in civil hospitals, because the patient is rarely admitted during the first days of the disease. The reason of the marvelous results of Brand and Vogl in over 2,000 cases (mortality of less than 3 per cent. by Vogl and 1 per cent. by Brand) may be readily found in the fact that in the military hospitals soldiers are relieved from duty immediately upon evidence of fever and being sent to the hospital are at once bathed on suspicion. That this may readily be done in private practice is indisputable. Since I have adopted this practice ("Theory and Practice of Hydrotherapy," William Wood & Co., 1908, page 331) the cold friction bath has not only facilitated diagnosis but influenced the prognosis in a very satisfactory manner. When the rectal temperature is 103° F., or over, a bath of 90° F. is given in the bathroom for twelve minutes with friction. If the temperature is still 103° or more in four hours a second friction bath of 85° F. is administered. This is repeated every four hours under the same conditions, reducing the temperature of the water five degrees for each successive bath until 70° F. are reached. If one of these baths reduces the rectal temperature two degrees or more, typhoid fever may be excluded. The smaller the temperature reduction in the *rectum* the more probable is the diagnosis of typhoid fever during the first week of the illness. These mild baths are rarely objected to and may thus inure the patient and the sentiments of the family to the cold friction bath, when the diagnosis of typhoid fever demands it.

While the strict Brand bath is the ideal method of managing typhoid fever, I realize that conditions do not always favor its adoption. It is heroic, it appears to be and is severe, and it makes enormous demands upon all concerned. If the physician has the courage of conviction, he will never fail in obtaining consent. If for any reason this is impracticable, I would reiterate what I said before the Philadelphia County Medical Society several years ago. The following scheme of "Dont's" affords a summary of what to do and what to avoid in the application of cold water in febrile diseases:

Don't bathe with cold water to reduce temperature, but to refresh the fever-stricken patient.

Don't permit cyanosis or chattering of the teeth; stop.

Don't stop bathing because the patient complains of chilliness, unless the teeth chatter. Don't raise the bath temperature on the latter account; shorten the bath and increase friction.

Don't neglect friction during every cold procedure; it prevents chilling.

Don't use the Brand bath in a bathroom. Use a tin tub alongside the bed.

Don't give up cold bathing because the ideal Brand bath is not obtainable; other procedures are useful.

Don't use the ice coil to the abdomen; it has no refreshing effect and renders the skin beneath it cyanotic.

Don't lose sight of the fact that the chief aim of all cold procedures is reaction.

In brief there is rarely a case of typhoid fever to which some form of cold water procedure may not be adapted with the result of refreshing the central nervous system and endowing the entire organism with a capacity of resistance against the lethal factors which lie primarily in depreciation of the nervous system and of the circulatory apparatus.

Simon Baruch, M.D.

135 W. Seventy-third Street.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

ROYAL SOCIETY OF MEDICINE, ANNUAL DINNER, REPORT ON PREMISES—LACTIC ACID BACILLI—LYMPHATISM AND DEATH DURING ANESTHESIA—LIVINGSTONE COLLEGE—PATHOLOGIST FOR LOCAL GOVERNMENT BOARD—HEALTH OF LONDON—OATHS' ACT, 1909.

London, December 31, 1909.

The Royal Society of Medicine, in consequence of its success since its formation by the amalgamation of several societies, has begun to find the accommodation of its house rather restricted, and for some little while there have been suggestions that larger premises should be obtained. The question has been considered with great care by a committee, which has recommended a building scheme at a cost of about £50,000. This has been considered at a special meeting and, although supported by the council, was not adopted. There was, however, a manifest opinion that further accommodation was really required and the thanks of the meeting were accorded to the committee for so carefully investigating the matter and especially to Dr. A. Latham, who had been most active in considering it.

The annual dinner of the society was held on the 15th, at which nearly 200 were present. The president of the Royal Society, Sir A. Geikie, was one of the guests and proposed the toast of the evening, congratulating the Fellows on the success of the amalgamation and suggesting that some such scheme might be a good one for the Royal itself. Sir William Church, in replying, said the scientific work of the year had been satisfactory, instancing especially the discussion on heredity. The society, he said, now numbered 2,328 Fellows and 991 members. The library had been visited by 8,564 readers during the year and nearly 8,000 books had been borrowed. The expenses of publication were very great and perhaps the reports might be abbreviated without detriment.

Mr. Butlin and Dr. Moore also spoke, the former expressing a hope that the society might have a home worthy of its position to receive the distinguished persons who would visit them at the International Congress of Medicine.

In the Therapeutical Section there has been a capital debate on the value of the lactic acid bacillus as a remedy. It was begun by Dr. George Herschell, who insisted on the necessity of selecting only suitable cases—a precaution, one might say, equally necessary in every therapeutic investigation—and further on using only active preparations. He had to confess that he had only met with two or three solid prepara-

tions of all those being sold which contained any Bulgarian bacilli. His indications for the remedy were excessive putrefaction of proteins in the alimentary canal and autointoxication from the colon. He had met with success in such cases, but where the symptoms pointed to fermentation of carbohydrates the treatment was useless.

Dr. Goodbody said he had for the most part met with negative results in seeking for chemical evidence. Certainly the aromatic sulphates underwent no appreciable diminution.

Dr. V. Harley had had similar experience. There were no changes in the feces to correspond with the improvement reported in the symptoms. Such improvement was only met with in functional dyspepsias and there was no amendment when organic disease was present. Perhaps the good effects recorded were, after all, psychological.

Dr. Bullock had examined above twenty specimens of tablets sold without meeting any active bacilli, so he considered they should all be rejected as worthless.

Dr. J. W. H. Eyre had had some success in certain infections of the colon with pathogenic bacteria, but he had worked with his own strain of bacilli. Successive cultivations from the feces brought about rapid decrease of the pathogenic microorganisms.

Dr. Robert Hutchison was profoundly skeptical of the results claimed and was strengthened in his doubts by this discussion, which he hoped would check what seemed a mere craze. He would rather trust small doses of calomel to check intestinal putrefaction.

Dr. C. H. Miller had tried the treatment in rheumatoid arthritis. The general health of the patients improved, but not the arthritis.

Dr. Hertz doubted the existence of autointoxication. In a case of streptococcal infection of the bowel he had obtained rapid recovery from soured milk. The streptococci disappeared from the feces when the milk was given and he thought the remedy should be used.

Dr. Langdon Brown had seen indicanuria disappear under this treatment.

What is status lymphaticus? This question has often been put to doctors since the condition was put forward at a coroner's inquest as the cause of a death under an anesthetic. In the section devoted to these agents it is an appropriate subject of investigation, and to that section Drs. Bellamy Gardner and Salisbury Trevor have contributed a careful paper illustrated by photographs of frozen sections to demonstrate the position of the thymus and its relations to the esophagus, trachea, innominate, and aorta at the levels of the sixth cervical, first, third, fourth, and fifth dorsal vertebra, respectively. Further, they related six cases of sudden death in which there was enlarged thymus and general lymphatism. Two of these were aged nine and thirteen months. There were two boys of thirteen and fourteen years, a man of twenty-nine and a woman of thirty.

The woman had tropacocaine, one boy ethyl chloride, the other CE mixture. The infants and the man were not anesthetic cases. Percussion might be of use in diagnosing enlargement of the thymus and other glands, but the *x*-rays would be more decisive as to the relation of status lymphaticus to death under anesthetics. Dr. Buxton remarked on the confusion that exists in the records of these fatalities. Some common dyscrasia might be responsible for the conditions called lymphatism, thymic asthma, or death, and so on. Where there was pressure on the thymus the symptoms would be clear enough to forbid general anesthesia. But lymphatic hyperplasia of different degrees might be present without producing symptoms. Myocardial disease always accompanied status lymphaticus and was perhaps a part of it. Exceptionally weak vapors therefore should only be used and oxygen should also be given in such cases, even if they seemed robust. It was safer to assume a danger that might not exist than to overlook one that might be present without producing definite symptoms.

Dr. Spilsbury said too much had been made of the thymus. He had known it to atrophy in the usual way in childhood and grow again in later life. In 75 per cent. of deaths during anesthesia he had found signs of status lymphaticus.

Dr. Hewitt said an asphyxial factor, so slight as to be overlooked, was often present before sudden death. The heart was not so important if the respiration was absolutely free and the anesthesia not too profound.

Dr. Leonard Williams thought that very often decreased activity of the thyroid gland was present, and the other minor glands enlarged to supply the resulting deficiency.

Livingstone College was founded to enable missionaries to obtain some knowledge of medicine before entering on their work in parts where there were no European doctors. In the annual report just out regret is expressed that the great missionary societies do not make more extensive use of it. Dr. Macalister said at the meeting: "The men who have been trained here have taken their own proper platform as missionaries with a little knowledge of medicine, but not as medical missionaries, and they have done in their lifetime a splendid work." Dr. Stein, the Central Asian explorer, testified that he owed his recovery, if not his life, to an old Livingstone student. There is a deficit of £265 on the year's working, which should soon be liquidated, considering the importance of the training given for the special work of the missionaries. So long as a sufficient number of really medical men are not available to staff all the mission stations, it would seem that the training at Livingstone should be undergone by those who go to places where medical advice is not available.

This morning it is announced that the Local Government Board has appointed Dr. Eastwood, who was one of the pathologists of the Tuberculosis Commission, to be an additional medical inspector of the board, in order that he may undertake pathological investigations. The immediate object is to apply to public health work the results of the Tuberculosis Commission and insure the purity of foods in respect to tubercle. Investigations as to other infectious diseases in relation to public health will be included. Pathological diagnosis as already utilized by sanatoria will be further investigated and it is expected that by interchange of information good work will be encouraged and extended, and that coordination and standardization of bacteriological diagnosis will be secured. I congratulate Dr. Eastwood in having assigned to him a sphere of research wide enough to engage all his energies.

The report of the health committee of the County of London for the year 1908 has appeared. The birth rate and death rate for that year are the lowest that have been recorded since the returns were inaugurated. The London death rate has been declining for forty years. For ten years the decline has been almost regular. The fall in the birth rate has been almost uninterrupted for thirty years. The number of deaths per 1,000 births was the lowest ever recorded. The infant mortality for the last decennium has been lower in London than other large English towns. The death rate from epidemic diseases is also the lowest recorded, except from influenza and scarlet fever, which were above the average.

Last year Parliament conferred powers on sanitary authorities (1) to refuse to register or to remove from their registers the names of dairymen carrying on business in unsuitable premises; (2) to appoint health visitors; (3) to require proper provision for cooking in tenement houses; (4) to enforce certain regulations as to cleanliness, etc., in places where food is prepared.

To-morrow "The Oaths' Act 1909" comes into force. It dispenses with the disagreeable custom of "kissing the book," against which protests have long been made, substituting what is often called the Scotch form, although erroneously, for the lifting of the hand is an extremely ancient mode of swearing. Several references to it are in the Bible, the earliest in Genesis (Ch. 14, v. 22).

Progress of Medical Science.

Boston Medical and Surgical Journal, January 6, 1910.

Obstructive Calculous Anuria.—The conclusions of F. S. Watson are as follows: (1) The urinary secretion of an unobstructed kidney which is normal or but moderately diseased appears in a few instances to be suppressed by the influence of the so-called reno-renal reflex inhibition originating in the irritation and obstruction of the opposite ureter by an impacted calculus. (2) The proportion of bilateral to unilateral cases of renal calculus appears to be about 30 per cent. The relative number of cases in which both ureters are simultaneously blocked in the bilateral ones appears to be much larger than is generally stated, perhaps as high as 20 per cent. (3) The number of cases in which the unobstructed kidney, or perhaps both kidneys, possess a useful amount of functionally capable substance is larger than is generally stated. (4) In the absence of unfavorable symptoms, and

if the period of anuria has been but a short one, the effort should be made to reestablish the urinary secretion by passing ureteral catheters into both ureters and retaining them in position for several hours. This step may be supplemented by the administration of saccharine or physiological saline solution. Combining the latter with venesection probably adds to its efficacy. (5) The employment of oil injections with ureteral catheter above the point of impaction of the calculus should be given a more extended trial in the cases in which it is not known that the calculus is too large to be passed spontaneously. (6) Bilateral simultaneous nephrotomy should be given a further trial in all cases in which calculi exist in both sides, whether the two ureters are simultaneously obstructed or not; also in all unilateral cases in which the first kidney operated on is found to be functionally useless or very extensively diseased.

Non-Obstructive Anuria.—J. Pederson makes the following division of cases: Reflex, toxic, hysteric, anuria due to interference with or changes in the blood supply and changes in the blood itself, and anuria due to injury of the kidney. The paper is mainly occupied with references to the literature of the subject under these headings. Drugs that have been reported as causing anuria are chloroform, ether, calomel, bichloride, cocaine, carbolic acid, oxalic acid, turpentine, lead, sulphuric acid, phosphorus and cantharides. Among the infectious disease causes are scarlet fever, measles, diphtheria, yellow fever, and cholera. In regard to treatment, the various procedures that have proven of service are enumerated. All medical and surgical measures should be tried before operating. The ureteral catheter will often relieve reflex anuria. Radical cure, of course, demands the removal of the cause, be it in kidney, ureter, or cervix. Bevan would limit surgical intervention to cases in which there is increased tension, and holds that a preexisting profound toxemia contraindicates operation. Watson believes that it is important to ascertain whether the anuric kidney possesses sufficient secreting tissue, and says that at times it becomes a question as to which kidney to operate on first. In cases of calculous anuria, both organs should be exposed at the same time. One authority advises the use of sparteine in doses of from one to two grains hypodermically. The dose should be repeated in six hours. If the kidneys are sound, copious drinks and saline infusions may do much good. The presence of anasarca is the main contraindication. As a final resort, nephrotomy or decapsulation may give great relief, but this does not always mean a recovery. Under the head of last resort treatment, measures to ward off uremia are to be included. One authority advises deep anesthesia for the hysterical variety and hypnotic suggestion for the tendency.

New York Medical Journal, January 8, 1910.

Experimental Studies on the Etiology of Acute Poliomyelitis.—An elaborate paper is presented by I. Strauss and F. M. Huntoon. Their conclusions follow: (1) Acute poliomyelitis can be produced in a *Macacus rhesus* by intraperitoneal inoculation of the cord of a fatal human case. (2) Unsuccessful attempts to transfer acute poliomyelitis from one monkey to another by intraperitoneal inoculation have been made twice by Landsteiner and Popper and twice by us, and warrant the assumption that successful subinoculation by this method is an uncertain procedure. (3) The cerebrospinal fluid of acute cases does not contain the virus in an infective state, and the reported bacterial findings in the cerebrospinal fluid are either contaminations, or secondary invaders. (4) When the disease is clinically recognizable, namely, after the onset of the paralysis, the virus is probably no longer present in the blood, or at least cannot be used to produce infection in the monkey by intraperitoneal and intradural inoculation. (5) Histologically, the lesion in poliomyelitis is very similar to that in rabes. Furthermore, there occurs in rabies a type of ascending paralysis which is clinically identical with the ascending paralysis (Landry type) of acute poliomyelitis. The method of inoculation of animals with an emulsion of the cord which is employed in producing experimental rabies is similar to that employed now in causing experimental poliomyelitis. These facts point to possible analogy between the infective agent in both conditions, and to the fact that the virus is probably not of bacterial, but may possibly be of protozoan nature. (6) Acute poliomyelitis must now be classed among the infectious diseases. The character of its clinical symptoms and the facts which have been ascertained from a study of its epidemiology have for some time led to its being regarded as infectious. But the repeatedly successful inoculations of a lower animal has now demonstrated this beyond doubt. The only objection which can be made to this conclusion is that the disease may be of toxic origin. However, the lesions which the central nervous system present both in man and monkey are of an inflammatory rather than of a purely degenerative nature, such as toxins (diphtheria and tetanus) produce. Moreover, were the disease due to a toxemia, it would be difficult to explain the occurrence of a long and variable period of incubation after intraperitoneal inoculation.

Ruptured Triceps Due to Direct Violence.—D. P. Penhallow records one case occurring in a stout man of 35 years who was knocked down by a large box. A marked sulcus was found on the right arm about two inches above the olecranon when the arm was extended. On attempted forcible extension a large mass appeared on the inner and posterior surface of the arm with increase in the width of the sulcus, over which, three hours later and under ether, a vertical incision was made. It was found that the belly of the middle head of the triceps was completely severed and some few of the fibers of the internal head were also destroyed. When the arm was flexed, there was a separation of two inches between the distal and proximal ends, but when the arm was extended the ends approximated easily. The wound was washed out with warm saline solution and the muscle sutured with three rows of continuous catgut sutures No. 2 chromic, one row being placed anteriorly, the second in the middle of the muscle to obliterate the dead space, and the last row approximating the posterior edges. The surfaces came together easily, and there were no projecting muscle fibers. The fascia was closed with continuous chromic catgut No. 2. The skin was closed with interrupted silkworm gut sutures. Dry sterile dressings were applied. A ham splint was applied to keep arm in full extension. Primary union followed, and the sutures were removed on the eighth day. The splint was removed at the end of the third week and passive motion instituted. There were apparently no adhesions between muscles and fascia. Slight muscular thickening existed at the site of injury. The ultimate result was apparently perfect. Operation is advised in all injuries of this kind. In all cases in which the injury is severe the diagnosis should be comparatively easy, as there is marked loss of power of the parts so affected, and, when the muscle is contracted, there is a deep sulcus which is formed by the separation of the destroyed fibers. As the proximal fibers contract, they form a tumor mass which is known as a pseudohernia. This usually can be noticed in the more severe cases at the time of the accident, but may be overlooked in the more obscure forms where only a few fibers are involved. In some few cases which have not been recognized early, the pseudohernia may develop slowly and become evident only after the lapse of a few weeks.

A Duodenal Tube.—In a preliminary communication, M. Gross refers to a stomach tube devised by him in 1893, consisting of a thin rubber tube one-quarter of an inch in diameter and easily collapsible, an olive-shaped end piece, a glass receptacle to collect contents, and an aspirating mouthpiece to which a bulb could be attached. He has now devised a duodenal tube based on the same principles, except that it is longer, measuring 150 cm., being graded in sections of 10 cm. each. Then a number of holes arranged behind the solid body of the olive-shaped end piece through which the fluid contents are expressed. Patients who had the ordinary stomach tube introduced before, possibly only once, swallow the softer tube with ease, and are even able to aspirate the contents themselves while the tube is in place. With a few movements of deglutition the olive-pointed end rapidly reaches the cardia, and passes it. This can easily be controlled by observing that the air blown into the tube no longer escapes at the top, and that the figures marking the sections indicate an insertion of 40 to 45 cm. Up to this stage the tube is never allowed to descend more than 50 cm., a depth at which the olive-shaped end of the tube will hang freely in the cavity of the stomach. The patient is then instructed to turn over on his right side, to desist from swallowing, and simply to allow the tube to glide down, which it will do to a depth of 65 or 70 cm. This being accomplished, the patient is directed to turn over on his back, and in this position the tube is slowly and carefully guided further down, always following the automatic pull of the tube, and without swallowing, until a depth of 80 to 85 cm. is reached. After from five to ten minutes the contents, which in nearly all cases will prove slightly inspissated and of a gold yellow color, are withdrawn. Sometimes there is a more fluid and fluorescent consistency. The substance is not always alkaline, but it always shows characteristic signs of its duo-

denal origin, both macroscopically and chemically. Sometimes the alkaline reaction changes almost instantaneously into acid, especially when there is hyperchlorhydria. Pyloric spasms indicated by inability to obtain any contents at all are overcome either by withdrawing the tube slightly or by a brief wait. In some instances a few deep inspirations will help the flow of the duodenal contents.

The Traumatic Neuroses—a Psychological Mosaic.—The diagnosis of traumatic neurasthenia is made, as Pearce Bailey understands it, when the mental symptoms are those of irritability and fatigue, and when no such neurological symptoms as paralysis, convulsions, anesthesia, and contraction of the visual field are present. He presents this form of neurosis as a disturbance in the mind produced by a single painful experience. Once created, it, like other painful experiences, would naturally tend to fade and lose in influence. But if conditions are such that it is kept ever present in the patient's consciousness, it may bring about painful and disabling mental states. The symptoms brought about by these mental states are similar to those of various functional nervous diseases. But they differ from them in having a definite point of departure; in being formulated and controlled by a characteristic environment, and in that recovery cannot be expected until that environment is broken up. Hypothetical cases are described, and the general environment in which a patient lives after a severe accident is accurately described. The traumatic neurosis is, says the author, a psychological mosaic. The initial accident is the quarry which supplies the stone. But the shaping of the separate pieces, the chiseling of their edges and the compactness with which all are used to form a complete design result from succeeding force. Variations of design can be traced to many causes. As regards the purely subjective symptoms, such, for example, as headache and liability to fatigue, these owe their origin, in part at least, to an abnormal egocentricity, a natural result of the legal systems. The so-called objective symptoms, the anesthesias, the paralyses, and the like, can usually be traced to some suggesting circumstances unavoidable in medicolegal examination. The difference in design observed in different countries reflect the differences in law and in method of procedure, regarding the compensation of injured persons. Our large verdicts call for more dramatic symptoms than the small weekly sums allowed to injured workmen in Germany.

Journal of the American Medical Association, January 8, 1910.

Melanoma.—J. A. Fordyce discusses the etiology and pathology of the type of sarcoma of the skin known as melanoma. He thinks that possibly the importance of congenital pigmented moles in the origin has been overestimated. The majority of people have these, but only a few of them become malignant. They may arise from the unpigmented skin. He reports two cases of melanoma of the foot, which, with the face, is one of the sites of predilection of these tumors, though they may occur elsewhere, even on internal organs. The rule is for the melanomata to form more metastases than any other tumors, dissemination taking place both by the lymph and blood streams, and malignancy arising in a nevus may give the first indication by a metastasis. Microscopically, they show a varying tissue of large or small cells in one part, and spindle or branched and stellate cells in other parts of the same tumor. The pigment is also a varying factor, being very dense in some portions and almost lacking in others. Melanin consists of fine amorphous granules varying from golden brown to inky black. It is soluble in ether, alkalies, and strong acids, and is bleached by chlorin, peroxide of hydrogen, and potassium permanganate. The question whether it originates in the cutis or epidermis, or both, and whether or not it is derived from the blood, has been raised and varying views expressed, but its blood origin is not supported by chemical examination, as it contains sulphur instead of iron. The view that it is due to an accumulation of nuclear substance and its conversion into pigment is held by several authorities. The real causation is still unknown. Most cases begin after the age of thirty, though it may occur earlier. They seem to be more common in the lower animals and not so malignant.

Animal Experimentation.—M. J. Rosenau shows the value of animal experimentation in the diagnosis of disease and cites a number of disorders in which it is essential. First, as regards tuberculosis, in which we have often to resort to animal experimentation in order to establish the early diagnosis which is requisite for successful treatment. The sacrifice of one guinea pig will often save a human life by the recognition of the disease. In typhoid the ultimate recognition of the typhoid bacillus depends on the use of the specific agglutinins. These are usually obtained from the horse or the rabbit, and laboratories now use large quantities of the serum thus derived to enable the physician to make an early diagnosis of the disease. The only positive method of typhoid recognition rests on animal experimentation. With cholera it is the same story. It is impossible to recognize mild cases clinically, and bacilli carriers are common. A single one may infect a whole community, and for successful prevention the specific serum is an absolute necessity. In rabies, the early diagnosis is life saving, and neglect fatal. The more experienced one becomes in the diagnosis of this disorder, the more does he depend on and recognize the value of animal experiments. In plague, the diagnosis of the disease with certainty is constantly being made by this method, and is indispensable. The preventive measures are entirely based on it. In diphtheria and tetanus it is often useful, as there is a whole group of organisms closely resembling the diphtheria bacillus, and their true nature cannot be determined without experiments on animals. The shape and growth of the tetanus bacillus is not sufficiently characteristic to be final. Other diseases mentioned in which this method is often required are septicemia, glanders, anthrax, etc., and a large class of animal parasitic disorders.

Aplasia of the Uterus.—C. L. Patton reports two cases of this defect, one of which is unusual in the following particulars: With a clinical aplasia of the uterus there was entire absence of the cervix, but the tubes or the body of an extremely small didelphic uterus opened directly into the vagina, and the ovaries were apparently normal in size and position. Menstruation was normal in amount and regular, without pain; the patient consulted the physician for a pseudocyesis, and examination revealed the above conditions. He remarks that he finds no such case exactly in the literature at his command.

Arteriosclerosis.—A. G. Brown summarizes the treatment of arteriosclerosis substantially as follows: In the early arterial stage a strict diet, regimen, and antitoxic treatment, consisting in elimination, intestinal disinfection, diaphoresis, and diuresis. When hypertension persists, the nitrites and iodides should be given, the latter in effective doses, and kept up for a given length of time. When the blood pressure has become lowered, the intoxication relieved, the kidneys act normally, and the symptoms of arterial spasm disappear, the patients may be considered cured, though a careful observance of the prophylactic regimen must still be kept up. In the cardioarterial stage, a permanent cure is not to be expected, but much can be done to relieve symptoms and to ward off a grave termination. Relief of symptoms, elimination of intoxicants and stimulation of kidney activity are the chief indications. This is accomplished by catharsis, followed by nitrites, spartein sulphate, etc. With the tension lower and the skin, bowels, and kidneys active, and diet carefully regulated, the use of nitroglycerin, erythrol, tetranitrate, potassium of sodium iodide, thyroid extract, and general medical supervision, the disease may be arrested and the serious accidents forestalled. In the myovalvular and cardiectatic stages, which merge into each other so as to form one continued progress to broken compensation, with dilatation of cardiac cavities and frequently orifices, lowered arterial tension, more or less visceral congestion and edema, and dropsy, are to be treated with the digitalis group, theobromin, interdiction of salt intake, restriction of diet to milk, and careful elimination of fluids. In these cases, often appearing hopeless, much can be done to restore the patient to modified activity, and the subject offers a field for the skill of the best powers of physicians.

Mesoaortitis.—W. T. Longcope says that during the past few years attention has been directed at the Pennsylvania Hospital to the frequent association of a peculiar type of arteriosclerosis, namely, mesoaortitis, with a chronic aortic endocarditis causing aortic insufficiency. For some years mesoaortitis has been recognized by German pathologists as a unique form of arteriosclerosis and its connection with syphilis emphasized. In 930 autopsies at the Pennsylvania Hospital, 21 cases showing this condition of mesoaortitis were observed, and in rather more than half its association with syphilis was proved. In all but three of the subjects there were definite signs of aortic insufficiency during life. While in a few of the cases a history of rheumatic fever was obtained, its absence in the series was rather conspicuous. The cases were compared with 76 cases of chronic aortitis also

found in the 930 autopsies, and the differences are pointed out in detail between the two classes of cases, especially the frequency of the combination of aortic insufficiency and mesoaortitis. This shows that of the 43 cases of true aortic insufficiency giving symptoms, 18, or 41.8 per cent., were associated with mesoaortitis, and of the 22 cases of aortic insufficiency uncombined with lesion of any of the other valves, 81.5 per cent. were associated with mesoaortitis. In his summary, Longcope says that it may be seen that aortic insufficiency unassociated with disease of the other valves is rare after the fifth decade, and that it is seldom associated with the type of arteriosclerosis known as endarteritis deformans. The majority of cases are associated with a characteristic form of sclerosis termed mesoaortitis. The involvement of the valves occurs probably under such circumstances by a direct extension of the process along the aortic wall to the aortic valve. Syphilis is commonly the cause, though it may not be the only cause, of this type of sclerosis.

The Lancet, January 1, 1910.

Postural Albuminuria in a Boy the Subject of Chorea.—This form of albuminuria was named by Stirling, who called attention to the fact that the most constant factor in albumin in the urine in apparently healthy persons is the upright position. After references to the experience of various authorities, J. S. Bury and J. F. Ward relate the history of a boy of twelve years admitted to hospital with chorea. He had previously had diphtheria and grippe. Movements of a choreic nature had begun four months previous to admission. He was placed on the arsenic and iron treatment, and the movements came to an end. He was allowed up, and then it was noted that the urine, before normal, contained albumin. He was put back to bed and kept on a milk diet, when the albumin disappeared. A second attempt at getting up resulted as before. Return to bed caused the albumin again to disappear. Several subsequent attempts at getting him up were always followed by the reappearance of the albumin. While he was still in bed, artificial lordosis was produced by placing a doubled-up pillow under his loins and removing those beneath his head. In ten minutes the urine, before previously free from albumin, contained it. Repeated attempts with the artificial lordosis resulted variously, albumin sometimes following and sometimes not. Treatment was continued with arsenic and iron, and massage and electricity to the legs. The boy left the hospital in about two months, greatly improved in health. His face was still pale, but he was fatter and could walk much better. There were no grounds for suspecting that the association of the chorea and albuminuria was otherwise than accidental. With regard to the possibility of nephritis, the only evidence was the puffy face with the history of diphtheria and influenza. Apart from the albuminuria, the urine was perfectly normal.

Treatment of Wounds in Connection With the Recent Results at St. George's Hospital.—Watson Cheyne says that it is most unfortunate that the idea seems to have grown up that the success or non-success in the treatment of wounds depends to a large extent on the materials used and on the method by which the sterilization of these materials is effected. Hence, when we fail in our methods the blame is assigned to the imperfection of these methods, whereas it is due to the failure of the surgeon to meet the bacteriological requirements of the case. All wounds should be looked on as bacteriological problems and treated accordingly. The attempt to establish strict aseptic methods, so-called, has met with many failures. Surgeons strain at gnats and swallow camels. He refers to the recently published statistics at St. George's Hospital, and shows that at King's College, where the equipment is far inferior to that of the other institution, sepsis occurs only one-quarter as often. In eight years at King's College, 1,028 cases of various nature were operated on and sepsis occurred only nineteen times. Particulars of the nineteen exceptions to the general result are briefly referred to. The author has been particularly free in his work from so-called stitch abscesses. There is still to be learned by some operators that there is a great deal more in the treatment of wounds than simple cleanliness and the avoidance of irritation. Each surgeon should take the view that suppuration in clean wounds is avoidable, and that the way to avoid it is to look on the treatment of a wound as a bacteriological problem and to act accordingly. Asepsis depends somewhat on the personal equation. Some of the author's house surgeons had no sepsis during their term of service.

Some Points in the Clinical History of Pneumonia.—Percy Kidd relates the histories of twenty abnormal cases. They include initial abdominal pain, particularly common in young children; initial symptoms of meningitis, initial hemoptysis, observations on fever and physical signs, abortive type with crisis on the second day, complications, laryngitis, nephritis, anasarca of renal type without albuminuria, etc. Various types of delirium are met with as well as diarrhea, and death from pulmonary embolism during convalescence. Typhoid fever may begin with pneumonia, and the latter disease may be combined with rheumatic fever, both infections being simultaneous. There may be relapsing types, though true relapses are very uncommon. Delayed resolution and subsequent fibrosis are occasionally seen. These latter conditions may be roughly divided into two groups. In the first the disease is febrile, terminating fatally, as a rule, in a few months. In most cases ulcerative cavities in the lungs develop, and the sputa may become foul. In the second group fibrosis occurs insidiously, arising out of what seems to be delayed resolution, without fever or constitutional disturbance, and the patient recovers with a fibroid lung. The cases described by the author variously illustrate the abnormalities enumerated, and furnish very interesting reading. Complications, he says, are mostly the expression of a secondary infection with streptococci and other organisms. True mixed infections, in which the pneumococcus and some other organism invade the system at the same time, are very rare. In other cases pneumonia attacks people already suffering from some other infection, and must be regarded as itself a secondary infection. The *râle redux* is in the author's experience of rare occurrence. Its absence throws doubt on the alveolar origin of crepitations. It seems more likely that it is produced in the small bronchi.

The Mechanism of Infection in Tick Fever.—W. B. Leishman says that he is an advocate of the theory of the protozoal rather than of the bacterial nature of the organism causing this disease. He has succeeded in transmitting the disease to animals by means of ticks sent to him from Africa. He was not at first able to discover spirochetæ in the bodies sent him, but later was able so to do. In some of his examinations he was able to discover clumps of chromatin granules in the malpighian bodies. The probable mode of infection is through the medium of the secretions voided by the tick in the act of gorging on the blood of the victim and not, as usually supposed, by the direct inoculation of spirochetæ in the tick's venenosalivary secretions. Other factors are the temperature at which the ticks have been kept prior to their being allowed to feed. According to the author, this preliminary heating up to blood temperature, as is commonly done, has the effect of inducing certain changes in the granules which may be regarded as heralding their transformation into the spirochetæ form. Two further facts are worthy of note: The author found, in the course of his experiments, that monkeys were comparatively immune. Secondly, he found on two occasions that there were clumps of the granules in the spermatozoa in the oviduct of an infected female. If this is the case, it suggests an interesting possibility as to the method by which the young intraovarian egg becomes infected, while it would not be unreasonable, on the grounds of analogy, to suspect that a similar procedure might occur in the case of the hereditary transmission of the *Treponema pallidum*.

British Medical Journal, January 1, 1910.

The Position of the Patients After Operation on the Abdomen.—S. K. Viner notes the various symptoms complained of by old abdominal cases from abdominal scars. He therefore calls the attention of celiotomists to the "rocking movement" as a postoperative therapeutic measure. Among its advantages are (1) the hustling of fluids which may be lurking in out-of-the-way holes and corners; (2) a discouragement of palsy of the bowel; (3) the hindering of the formation of bands and adhesions; (4) a generally sedative effect. A rolling motion is preferable to a pitching, and excess must be guarded against.

Efflorescence of Urea in Uremia.—J. W. Perevia refers to a man of 56 years who complained of dyspnea without apparent cause. Albumen was found in the urine. Two years later he had a cerebral hemorrhage, and a year later died of kidney disease. After death the skin of the forehead and nose was thickly covered with a coarse, white powder, which was collected and tested. Heated in a test tube, it gave off ammonia. The residue was heated with cupric sulphate and excess of sodium hydrate. It gave a rose color. The patient was under no treatment during the later months of his life, and the skin only exercised its excretory function with regard to urea in articulo mortis.

Presence of Bilharzia Hæmatobia in Egyptian Mummies of the Twentieth Dynasty.—Armand Ruffer has examined microscopically the kidneys of six mummies. The kidneys of two were apparently healthy. The left kidney of another was congenitally atrophied, those of the fourth contained multiple abscesses with well-staining bacteria and other lesions not yet diagnosed, while the fifth and sixth showed bilharzia eggs, and the latter had other lesions as well, which, owing to the shrunken size of the organ, were difficult to define. Although calcified, the eggs are easily recognized and cannot be mistaken for anything else. The lesions of bilharzia are best seen in the bladder and rectum, but, unfortunately, these are just the two organs the author has not been able to obtain thus far from mummies; various lesions as atheroma, pneumonia, renal abscesses, and hepatic cirrhosis are discernible in mummified viscera.

Defective Endocarditis Treated With Antidiphtherial Serum.—W. R. Judd gives the history of a man of 30 years with sweating, forcible pulse, hurried respiration, vomiting, headache, rigors, and fever. Examination of the heart on the third day gave evidence of a systolic murmur over the aortic valve, and on the fourteenth of a systolic murmur over the mitral valve. The urine contained albumin. Suppurative otitis was found in the left ear. By a process of exclusion a diagnosis was made of infective endocarditis. The patient was placed on large doses of quinine and arsenic, but they had no influence on the febrile movement, which reached 104° Fahr. The ear was cleansed, the alimentary and urinary tracts disinfected, etc., but all measures appeared unavailing. As antidiphtheritic serum had proved of utility in cases other than diphtheritic, an injection of 2,000 units was made into the abdominal parietes, and only one rigor, which the patient had been having frequently, took place during the next twenty-four hours. For the next five days there were no rigors and scarcely any fever. On the evening of the fifth day there was another rigor, and the temperature again rose to slightly above its former limit. Another injection, this time of 4,000 units, was given, and he had the same night only a slight rigor and only a little fever. After this the patient improved. He had no more rigors, the temperature kept closely to normal, and the man made an uninterrupted recovery. He remained in bed six weeks and removed to a convalescent home. Examination made some three months after his illness had begun showed that his heart was clear, his anemia much less, and his gain in weight some eight pounds.

The Mechanism of Cardiac Pain.—Three clinical histories are given by O. May. His studies comprise an observation of fifty cases, in thirty-five of which, or 70 per cent., pain was present. The author believes that no mechanical theory explains the severe pain in some of his cases, but says that there is one factor which may be presumed to be present to some degree in all cases of heart disease, viz., some chemical change in the myocardium. The suggestion presents itself that the stimulus to the cardiac nerve endings may be a chemical one, some change or product of the disordered metabolism of the heart muscle. There is a general belief that those heart affections are most characterized by pain in which at autopsy there is most evidence of myocardial degeneration. Paroxysmal pain is in most instances without any corresponding change in the physical signs of the heart. Pain often results from exhausted contractility. In the light of our biochemical knowledge it is impossible to suggest what actual compound or compounds may be invoked as an adequate stimulus to the heart nerves. This conception of the mechanism of cardiac pain tends to bring it into line with other painful conditions, such as the cramp of voluntary muscles and the lightning pains of tabes. Some authorities believe that the latter are caused by the gradual liberation of chemical irritants from the degenerating posterior neurons. The author considers in some detail the distribution of the nerves to the heart muscle, but says there is a defect in our knowledge as to exact details of distribution. It has been shown that the peripheral part of the cut vagus exhibits negative variations corresponding in frequency with the rate of the heart beats—strong presumptive evidence that the vagus transmits afferent impulses even during the normal heart rhythm. Tenderness in the sternomastoid muscle has been looked on as a sign often elicited in patients with failing compensation. It is a clinical manifestation of these afferent cardiac impulses in the vagospinal accessories. This tenderness was present in thirteen of the fifty cases examined. The details of all his series have been published in the Archives of the Middlesex Hospital for October, 1909.

Deutsche medizinische Wochenschrift, December 9 and 16, 1909.

Spinal Anesthesia for Anesthetizing the Body at Large.—Th. Jonnesco describes in minute detail the technique of his method of spinal anesthesia, enumerates the classes of cases upon which it has been used, gives his results, and summarizes his article as follows: (1) My method of spinal anesthesia has two fundamental principles—the preferable location for the spinal puncture and the use of stovain with small amounts of strychnine added to it. (2) The puncture of the arachnoid space is safe in almost any part, and any resulting injury to the spinal cord has no effect. (3) The mediocervical puncture or injection is superfluous and dangerous. The mid-dorsal puncture is also unnecessary and difficult. The upper dorsal and the dorsolumbar punctures and injections are sufficient to produce anesthesia of all parts of the body. (4) The strychnine does not aid the anesthesia, but prevents the paralytic action of the stovain upon the medulla oblongata. To the use of strychnine is due the harmlessness of this method of spinal anesthesia. (5) Stovain seems to be the best anesthetic for the purpose. Other materials require further investigation. The stovain is always used in connection with the aqueous solution of strychnine. The stovain is not sterilized, as by sterilization it loses its activity. (6) One c.c. of the watery stovain-strychnine solution is injected. A syringe and a lumbar puncture needle are used. (7) This spinal anesthesia has no contraindications, and it develops immediately when the anesthetic is injected into the arachnoid space and the dose is sufficiently large. (8) This method of spinal anesthesia has had no fatalities, and causes no discomfort. (9) Chloroform narcosis is inferior to the present method of spinal anesthesia, as the latter may be applied with perfect safety with any patient, makes an assistant unnecessary, immobilizes the head, neck, upper and lower extremities, and the intestines, and is especially favorable for operations in these regions. As a rule, one uses light chloroform anesthesia for operations on the neck, face, and head, and movements of these parts interfere with the surgeon.

The Treatment of Syphilis with Quinine Preparation.—Lenzmann gives a second report on the use of quinine in syphilis. He calls attention to the fact that in certain cases mercury and the iodides cannot be taken. He concludes that, on the grounds of his experience, that as the etiological factor of syphilis sooner or later becomes refractory to the poisons which act upon it, it is necessary in the course of a syphilis cure to use various of the agencies which act upon the exciting cause of the disease. The first means to be used is mercury. Afterward, however, potassium iodide and quinine come into play. The indication for renewal of treatment should not be determined by the presence of subjective or objective symptoms, but by a positive Wassermann reaction.

Potassium Chlorate in the Serodiagnosis of Syphilis.—Brieger and Renz have endeavored to simplify the complement deviation reaction of Wassermann by substituting some pure chemical substance for the amboceptor used by Wassermann, namely, rabbit serum immunized to sheep corpuscles. After various efforts they succeeded by using solutions of potassium chlorate, one part to physiological sodium chloride 150 parts. The complete technique consisted in the use of inactivated serum, watery and alchoholic solutions of syphilitic liver, and fresh guinea-pig serum for complement. After one hour for binding of the complement at 37° C. they added a 5 per cent. sheep corpuscle solution, and as the hemolysin, 0.5 to 1.0 c.c. of the potassium chlorate solution. The sera of 65 patients, both syphilitic and non-syphilitic, were studied, and of each serum five tests were made. Each was controlled by the regular Wassermann reaction, and in every instance the results agreed completely. The authors conclude by saying that many more observations are necessary for definite conclusions.

An Anatomical and Clinical Contribution on Parametritis Posterior Chronica.—Fraenkel concludes a lengthy article on this subject as follows: (1) The so-called parametritis posterior chronica consists of a change of the physical characteristics of the retrocervical and retrovaginal connective tissue, consisting of decrease in or the disappearance of the elastic fibers and muscle elements, especially of the sacrouterine ligaments. (2) It occurs as the main lesion once in every ten, and as a secondary condition once in every two, females suffering from genital diseases. (3) The diagnosis is made by the functional testing of the posterior ligaments. (4) For the differential diagnosis from perimetritis Douglasii the testing of the torsus uterinus must be done more than previously. (5) The cause is very often masturbation.

Book Reviews.

Über nichtdiabetische Glykosurien. Von Prof. Dr. Ferdinand Blumenthal, leitendem Arzt am Israelitischen Krankenheim zu Berlin. Halle a. S.: Carl Marhold Verlagsbuchandlung, 1909.

The writer has long been known as a chemist of large experience and the author of an excellent text-book on the analysis of the urine. With these qualifications, it was to be expected that the little pamphlet on the glycosurias not connected with diabetes would be full of interesting matter. The discussion includes alimentary, infectious, and toxic glycosurias, a chapter on the very infrequent levulosurias, another on the appearance of lactose in the urine, and a chapter on pentosuria, neglecting, as usual, the American publications on the subject. The final chapter is one on the testing of the urine for sugar, and, while somewhat condensed, contains most of the important points.

Selected Papers on Hysteria and Other Psychoneuroses. By Prof. Sigmund Freud, Vienna. Authorized translation by A. A. Brill, Ph.D., M.D., Chief of Nervous Dispensary, Beth Israel Hospital; Clinical Assistant, Department of Psychiatry and Neurology, Columbia University; Assistant in Mental and Nervous Diseases, O.P.D., Bellevue Hospital; Assistant Visiting Physician, Hospital for Nervous Diseases. New York: The Journal of Nervous and Mental Disease Publishing Company, 1909.

The reviewer ventures the remark that the readers of Freud, in the original, in this country, are few in number. The subject-matter and the German are too difficult for most of us. A translation of representative papers by him, outlining his views and methods, is therefore welcome. The book is divided by the translator into ten chapters. In the first the author describes the psychic mechanisms of hysterical phenomena, and we learn at the outset that the hysterical symptom has a definite meaning, that it is a reminiscence of a former painful or disagreeable experience. The second and third chapters contain interesting analyses of a number of cases of hysteria. The three succeeding chapters treat of the neuroses and psychoneuroses, while in the final chapters may be found especially Freud's views respecting the rôle of sexuality in the neuroses. If a careful perusal of the book does not at once make the reader a Freud convert and enthusiast, it will at least imbue him with renewed hope regarding the prognosis of some cases of chronic hysteria, obsessions, and phobias hitherto looked upon as practically hopeless. The keynote of the Freud papers is individual psychology. He writes as if confident that he has solved the riddle of the neuroses. The translation meets every requirement.

Medical Diet Charts. Prepared by H. D. Arnold, M.D., Professor of Clinical Medicine at Tufts Medical College, Boston. Philadelphia and London: W. B. Saunders Company, 1909.

The general practitioner will find these diet charts useful in regulating the diet of his patients. They give on one sheet all the data necessary for arranging and calculating the nutritive value of a diet and furnish a convenient means of recording the results. Chart A has space for recording the diet for five successive days or for five changes of diet for any interval of time. Chart B fulfills the same functions for a single day. The charts also give information as to the nutritive value of food in measures such as are used in everyday life.

Surgical Diagnosis. By Edward Martin, M.D., Professor of Clinical Surgery in the University of Pennsylvania. Illustrated with 445 engravings and 18 plates in colors and monochrome. Philadelphia and New York: Lea & Febiger, 1909.

Of the nineteen chapters in the book, the first five deal with general subjects, the next six with the various tissues of the body, and the last eight with regional surgery. The chapter on laboratory diagnosis is written by Dr. Warfield T. Longcope; that on *x*-ray diagnosis by Dr. Henry K. Pancoast; that on gynecology by Dr. Brooke M. Anspach; that on nervous diseases by Dr. Theodore H. Weisenburg; and that on diseases of the eye largely by Dr. George E. de Schweinitz. The value of calling in the assistance of experts in special lines is apparent. The book is concise, exact, and practical. The author leaves no misunderstanding of his meaning. For instance, on page 454 he says: "Pericardial blood effusion following a wound immediately or shortly (hours) or developing suddenly later (days) is almost pathognomonic evidence of heart lesion." This method of statement is used frequently. A mine of information is often contained in a page. In describing the esophagus, for instance, the author gives its location, size, etc., in a few words, and tells precisely how to explore it. He is guilty of no exaggeration when he says: "Dr. Pancoast's outline drawings of negatives in his possession constitute the most complete series of *x*-ray fracture pictures yet published." They are remarkable for their clearness, accuracy, and number. The other illustrations of the book are also good.

The Ophthalmic Year Book. Volume VI. Containing a Digest of the Literature of Ophthalmology, with Index of Publication for the Year 1908. By Edward Jackson, A.M., M.D.; Professor of Ophthalmology in the University of Colorado; George E. de Schweinitz, A.M., M.D., Professor of Ophthalmology in the University of Pennsylvania; Theodore B. Schneideman, A.M., M.D., Professor of Ophthalmology in the Philadelphia Polyclinic. Illustrated. Denver, Colo.: The Herrick Book & Stationery Company, 1909.

The conception of the "Ophthalmic Year Book" was a happy one, since its realization places an annual epitome of all that is of value in ophthalmological literature before the reader in a form which renders it easily accessible. In addition, it gives a comprehensive bibliography of the yearly writings in this branch of medicine, which is of great value to the student. The present volume is an improvement on its predecessor. No progressive ophthalmologist can afford to be without it.

Miner's New Complete Obstetric Record, Combining with the Usual Record All Desirable Medical Statistics; together with a Medical History of the Pregnancy and of the Life of the Child whenever these are medically noticeable. Improved Edition, giving all medical data bearing upon the problem of heredity. Ann Arbor, Mich.: Joel A. Miner, 1909.

The reviewer sees no advantage in the "Obstetric Record" over the book provided by the local health boards in cities where such a book is published. If additional records are required, they may be kept on cards and filed away for future reference. For country practitioners it will be found very useful.

Organic and Functional Nervous Diseases. A Textbook of Neurology. By M. Allen Starr, M.D., Ph.D., LL.D., Sc.D.; Professor of Neurology, College of Physicians and Surgeons, the Medical Department of Columbia University, in the City of New York; Consulting Neurologist to the Presbyterian and St. Vincent's Hospitals, and to St. Mary's Free Hospital for Children; ex-President of the American Neurological Association and of the New York Neurological Society; Corresponding Member of the Société de Neurologie and of the Société de Psychiatrie de Paris, and of the Neurological Section of the Royal Society of Medicine, London. Author of "Familiar Forms of Nervous Diseases," "Brain Surgery," and "Atlas of Nerve Cells." Third Edition, thoroughly revised. New York and Philadelphia: Lea & Febiger, 1909.

The popularity of the second edition of Starr's book, wherein a section devoted to functional nervous diseases had been added to the original work, is attested by the fact that it was published but two years ago and has become exhausted in this time. The present edition is considerably enhanced in value by the addition of many new engravings and plates, notably those in connection with the presentation of new pathological material; and by much revision, some rearrangement, and additions to various parts of the book. The structure of the nervous system and principles of diagnosis and localization are brought together in the first part; organic diseases are discussed in part two; functional diseases in part three; and diseases of the sympathetic system in the last part. Comparison of this edition with the previous one shows noteworthy revisions of the chapters on tabes, syphilis, paresis, neurasthenia, hysteria, psychasthenia, epilepsy, and the vasomotor and reflex neuroses. Advance knowledge in regard to various diseases has been incorporated in a conservative way; for example, in regard to decompressive operations in diseases of the brain; in the discussion of nerve grafting, the treatment of mental states, the description of diseases but lately understood and recently described, etc., the author's personal observation and experience have been so great in clinic, hospital, and private practice that he is enabled to speak authoritatively from this standpoint. Frequent references are made, however, to important articles in the literature of the various subjects considered.

Society Reports.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Twenty-Second Annual Session, Held at Hot Springs, Va., December 14, 15 and 16, 1909.

THE PRESIDENT, DR. STUART MCGUIRE OF RICHMOND, VA., IN THE CHAIR.

A Brief Discussion of Some of the Surgical Junk, Demanding Further Surgical Interference.—Dr. JOSEPH PRICE of Philadelphia stated that a short time ago a patient entered his office, and asked him to reopen her abdomen, and to correct, if possible, a distressing condition that she could bear no longer. Her abdomen had been opened three times, a pelvic operation having been followed by two gall-bladder operations. She complained bitterly of a griping sensation in her epigastric region, followed by nausea and starvation. In a short period of six days he had reopened four abdomens for post-operative, pathological and operative sequelæ. Large numbers of these patients were objects of pity and mercy. One of the number had had her abdomen opened eight times. Fortunately the late operations were complete procedures, the reproductive organs and appendix were gone, leaving only a ventral hernia, omental and bowel adhesions to be freed. One of the late operators drained her gall-bladder, leaving a fistula and distressing adhesions. He liberated the stomach, bowel, and other adhesions, exposing the gall-bladder, disorganized and charged with pus; its clean removal would probably result in a cure. Dealing with surgical junk required more than the ordinary hospital apprenticeship. The operations done by pioneers in abdominal surgery were free of operative sequelæ. The percentage of recoveries was good in the country. He had had the opportunity of seeing a large number of the patients operated upon by the first school of abdominal surgeons. They constituted an interesting group of patients, none of them complaining of those common symptoms of modern operations. The high death rate in the hands of some few operators explained surgically the distressing condition of the few that did recover, but commanded more surgery.

Dr. LEWIS S. MCMURTRY of Louisville said that Dr. Price had called attention to one of the greatest evils prevalent at this time in relation to abdominal surgery. He alluded particularly to incomplete operations being done and to a large number of men who were operating in the abdomen who ought not to do so without having served an apprenticeship in this work. When this association was first organized it was far more difficult for men who were not qualified to do abdominal surgery than at the present time.

Dr. A. VANDER VEER of Albany, N. Y., said he always felt that there was a certain amount of risk in encouraging abdominal surgery in small hospitals because much of the work was necessarily done by men who had not served a sufficiently long apprenticeship to do the work thoroughly and completely. Not infrequently a correct diagnosis was not made and incomplete operations were undertaken which did not reflect credit upon American abdominal surgeons. Within ten or fifteen years there had been a sort of feeling on the part of our younger surgeons to do as many operations as they could upon a particular patient. In this regard they sometimes erred. He had seen many cases that had terminated in what Dr. Price had termed surgical junk. He appreciated this paper because it was not only timely, but it dealt with a subject to which more attention should be paid at the present time. It was the kind of paper for the younger surgeons to read carefully.

Dr. WILLIAM M. POLK of New York City stated that the trouble with some of us was that perhaps we had been endeavoring to work out pathological problems on live subjects and in so doing we might have left conditions within the abdomen in our endeavor to preserve structures, and so forth, that really had no business there. And in so far as he had been a sinner in that direction he was free to confess that probably he deserved all the criticism that the distinguished essayist had made. He was particularly obliged to him because in his paper he opened up the whole field of surgical work. He found that the average person had been so well educated that his or her mind was made up as to what they wished their physician to do long before they interviewed them and if he failed in any way to fall in with their preconceived notion they at once went elsewhere. We all know perfectly well that there was a great many of the younger members of the profession who had not that stiffness of spine that comes with age, that kind of ankylosis of the vertebral column which was beneficent in its influence and which did come with age and experience.

Adhesion of Sigmoid to Tube and Broad Ligament as a Cause of Pain in Salpingitis.—Dr. HUBERT A. ROYSTER of Raleigh, N. C., reported the following case: Mrs. S., 32 years old, married seven years, had given birth to one child about a year before. Previous to that she had had an abortion performed on account of pernicious vomiting. Several weeks before he saw her the same procedure had been again gone through with for the same reason. For two or three years she had suffered from typical tubal dysmenorrhea, the pain began a week before the flow and continued throughout the period. Intermenstrual pain was constant, and referred chiefly to the left iliac region; there had been several slight attacks of pelvic peritonitis. Defecation was particularly distressful. Almost every day the patient took morphine or heroin. Examination revealed extreme tenderness in either side of the pelvis, especially in the left. A diagnosis of chronic salpingitis was made. At operation, March 28, 1907, both tubes, tortuous and thickened, were removed. Their removal was considered justified in view of the history. The ovaries were what are called "cystic." He removed the left and excised two-thirds of the right one. In bringing up the left tube for inspection he found that the sigmoid flexure was adherent to its fimbriated end, and also to the upper surface of the broad ligament. These adhesions were carefully divided, and the raw areas were closed by fine catgut sutures. The result was all that could have been expected. The patient immediately improved, but not until six months had passed was she really relieved. She was now entirely well, menstruating regularly without pain. The speaker had records of eight similar cases in which the sigmoid adhesion was apparently the sole source of left-sided pelvic pain. He was convinced that the condition was one to be reckoned with. In association with salpingitis or other disease of the pelvis could not, as a rule, be determined beforehand, but it might be suspected in the absence of other lesions, to account for the suffering and more especially in the presence of painful defecation. This had been a constant symptom in the instances which he had observed.

Dr. HENRY T. BYFORD of Chicago said that when a patient presented herself with pelvic disease he always asked her whether she had pain or not on defecation. Then he asked the question, do you have any mucus in the stools? He thought we frequently found mucus in the stools in such cases, but not the abundant mucus which comes from a general colitis, nor the tendency to tenesmus with mucus, that comes from inflammation low down in the rectum. There was pain on defecation, particularly when these patients were at all constipated, and there was mucus in the stools. In connection with the symptoms, if the pain was in the iliac region there would be found adhesions to

the sigmoid flexure. In another class of patients there was pain in the back, and no pain in the iliac region.

Dr. Robert T. Morris of New York said there was one place where the surgeon should allow adhesions to remain, namely, in his subliminal mind. There was no one thing more often overlooked in his experience than peritoneal adhesions, and their influence. Dr. Royster liked to close raw surfaces by continuous sutures. They saved time by one of two methods. The commonest one which he had used was to sprinkle aristol over the raw surface and wait until lymph accumulated and engaged the aristol in a mesh. This acted as an obstacle to further adhesion and he had found it satisfactory in his experience on animals. The other method was to use sterilized animal membrane. That took a little longer, but in such cases as Dr. Royster had described aristol powder would engage itself in the lymph coagulum, and present an excellent mechanical obstacle to readhesion.

Dr. Thomas S. Cullen of Baltimore said he had a patient at the present time who had complained for five or six years of severe constant pain in the left side. On opening the abdomen he found the uterus perfectly normal. The tubes and ovaries showed no alteration. There was no thickening of the ureter. In making a closer examination of the sigmoid he found it adherent to the entire left broad ligament, extending as far forward as the round ligament. He adopted a procedure similar to the one described by the author of the paper, that is, freeing the adhesions as thoroughly as possible, and closing the raw surface of the broad ligament by a continuous catgut suture, and the raw surfaces of the rectum by interrupted suture, on account of which slight tearing was not so likely to occur.

Dr. I. S. Stone of Washington, D. C., said that in opening the abdomen for tuberculous peritonitis and allied conditions they could never hope to separate all adhesions in such cases. It would be folly to try to do it. There were many women who had extensive adhesions, one organ being thoroughly adherent to its fellow, yet there might be no pain on defecation, or pain at any time. Where were they to stop in separating adhesions when they had such cases as that? He found he was getting excellent results from operating upon patients and placing the bowels in the very best condition he could for continuous passage of flatus and feces. He had separated adhesions of the sigmoid and in some cases had been astonished to find not only the greatest improvement, so far as pain and local distress were concerned, but in the general improvement of the patient, when the sigmoid had been sutured up out of the pelvis, where there should be continuous passage of flatus and gas, instead of more or less obstruction, produced by a circular folding or duplication of the sigmoid in the pelvis. Such an operation as that had given him more comfort than the mere separation of adhesions.

Dr. W. P. Carr of Washington, D. C., said it was the situation of the adhesion and not the extent of it that caused trouble. A patient experienced great pain where there was a slight, strong adhesion attached to a small area of some movable organ; whereas in the case of an extensive adhesion to a large surface the weight was sustained without any pain whatever. The most painful adhesions had been those where there was a small band pulling on some point of a movable organ.

Dr. Royster, in closing the discussion, said that he was very glad Dr. Byford mentioned the discharge of mucus, because that was very important. The question then arose, in such a case was not intestinal condition the cause of adhesion rather than the pelvic disease? Where the adhesion was due to intestinal stasis the discharge of mucus was a prominent symptom, but where it was secondary to pelvic disease, mucus was not a prominent symptom.

The Treatment of Advanced Extrauterine Pregnancy.—Dr. Reuben Peterson of Ann Arbor, Mich., in his paper drew the following conclusions: 1. Whenever conditions permit operation for the removal of the gestation sac is indicated in the first half of an extrauterine pregnancy since, at this period, the mother is in great danger from rupture and sepsis, and the chances for the survival of the fetus are very poor. 2. During the latter part of an extrauterine gestation the chances of rupture and a fetal hemorrhage are very much less (4.8 per cent.) and the chances of the survival of the fetus are very much greater. 3. While malnutrition and malformation of the extrauterine child are more common than with the fetus under normal conditions, they are not frequent enough to contraindicate attempts at saving its life; hence, under favorable surroundings when the patient can be watched she should be allowed to go within two or three weeks of term before operation. 4. Since the maternal mortality is more than twice as great after operation in advanced extrauterine pregnancy where the placenta is left behind, its removal should be one of the cardinal principles of each operation. 5. In the discoid variety of placenta, where only a small surface of this organ is not attached, the blood supply must be controlled, either by tying the vessels, or by compression of the aorta before an attempt be made to remove the placenta. 6. When, for any reason, removal of the placenta is impossible, the sac should be stitched and the placenta shut off from the peritoneal cavity by gauze. 7. Dependent drainage through the vagina should be secured whenever possible.

The Advantages of Neglect in Appendicitis Operations.—Dr. Robert T. Morris of New York said surgeons had conscientiously tried to do too much in appendicitis operations and had damaged patients unnecessarily. According to the principles of the pathological era in surgery they felt bound to remove all the products of infection in a most thorough way. They made elaborate arrangements for drainage, and they took the greatest care to avoid infection of the normal peritoneum. All of these things which they did with so much care and caution were commendable until they learned to step over to the principles of the fourth, or physiological, era in surgery, allowing the patient to do most of the work of managing infection himself. Their function to-day was merely to turn the tide of battle, and to place the patient in such condition that he could call out his own resources and fight the battle better than they could do it for him.

Dr. Joseph Price of Philadelphia said he wanted to condemn unqualifiedly stump operations of every character, for the reason that they were too far advanced to leave one-sixth or one-eighth of the appendix when operating for appendicitis. A clean removal of the appendix was a simple procedure.

Dr. W. P. Carr of Washington, D. C., said Dr. Morris was certainly right in one respect, namely, that in the bad cases of appendicitis they must fit the operation to the condition of the patient. He had seen many patients recover after a simple opening had been made, and pus let out, nothing further being done except perhaps to put a catgut ligature around the appendix and remove it, if it is possible to do so at the time. Such patients would not have stood a prolonged operation.

Dr. J. M. T. Finney of Baltimore wished to take exception to the word "neglect" in the title of Dr. Morris' paper, and ventured to suggest in its place the word "observance," meaning by that observance of certain fundamental principles of surgery.

Unusual Type of Bladder Tumor.—Dr. Robert C. Bryan of Richmond, Va., reported briefly a cavernous angioma of the bladder. By suprapubic cystotomy the tumor was located with difficulty, owing to the collapsed condition of the bladder. With serrated scissors it was carefully dis-

sected out of the mucosa, the base was thoroughly seared with the Paquelin cautery, the free edges of the mucous membrane were now stitched together with catgut, the bladder sewed to the abdominal wall, and drainage established. There was little hemorrhage. The patient reacted well and made a good recovery. The tumor measured about ⅜ of an inch in diameter.

Observations Upon the Surgery of the Knee-Joint.—Dr. J. Garland Sherrill of Louisville stated that fracture of the patella might be a very simple injury, if the fracture was incomplete and the fragments were not separated. On the other hand, a compound fracture of this bone became a most serious accident. The result, after the so-called expectant treatment of fracture of this bone, might be sufficiently good to insure fair functional use of the limb. The results of the open operative treatment, however, were so much better that in healthy young patients and under proper surroundings the open method was strongly to be advised. He recorded a case in which first one and then the other patella was dislocated as result of trauma, with a persistence of dislocation in each case. The operation for its relief consisted of an incision on the inner side of each knee through the quadriceps tendon, and the edges of this muscle were overlapped so as to shorten the attachment of the patella on the inner side, according to the mehod described by F. E. Bunts. Dislocation of the semilunar cartilage proved very troublesome to the patient and frequently caused great pain, as well as fixation of the joint. The internal cartilage was affected more frequently than the external, and the dislocation might be partial as a folding of the cartilage upon itself, or the entire cartilage might be separated. The causative factor was in most cases a sudden torsion of the tibia, although a blow driving the tibia backward in moderate flexion might produce it. The diagnosis was to be made by the sudden fixation of a previously healthy joint, accompanied by a sharp pain, with subsequent restoration of function, and later a recurrence of the symptoms. Effusion into the joint might follow the injury and in some cases the cartilage might be felt in front of the joint near the margin of the tibia. Pressure over its former attachment would elicit pain and soreness. The latter was a valuable point in the diagnosis of this condition from loose (extraneous) bodies in the joints. Treatment for this condition was either palliative or operative.

Dr. A. R. Shands of Washington, D. C., said he had no more hesitation in opening the knee-joint than he would have in opening the abdomen, and he had been doing it right along in cases of obstinate synovitis. In many cases of recurrent synovitis the joint had never been emptied of synovial fluid. The accumulative synovial fluid formed a mass similar to that in the bottom of an old vinegar barrel, and that was what caused recurrence of the trouble.

Dr. W. O. Roberts of Louisville said he agreed with Dr. Sherrill relative to the treatment of fractures of the patella, in that he had long since given up the use of metal appliances for holding fragments together. He resorted to the open method in the treatment of these cases where they had the advantages of a suitable infirmary. He had seen but two cases of dislocation of the patella.

Dr. Horace J. Whitacre of Cincinnati said he wished to report two cases of loose semilunar cartilage, one in a boy ten years of age, in which the cartilage was organized and was removed; the other in a patient in whom the cartilage seemed to be in fairly good shape, and was sutured in place. The boy remained in good condition except that he had had some pain from time to time when he exerted himself, but he had had no further displacement.

Dr. John C. Wysor of Clifton Forge, Va., recalled one case in which he found fifteen floating bodies in the knee-joint, which ranged in size from the size of the end of his little finger to more than an inch in diameter. Operation was followed by a good result.

The paper was further discussed by Dr. Stephen H. Watts of Charlottesville, Va., and Dr. Randolph Winslow of Baltimore.

Myositis Ossificans Traumatica.—Dr. J. M. T. Finney of Baltimore said the pathological condition which formed the basis of his paper was one, the existence of which had been recognized for a long time, but only within a comparatively few years had it attracted any general attention. Including the seven cases reported in the paper, over 150 cases now have been so far recorded. There was always danger of mistaking this disease for sarcoma. Three of his cases came to him with a provisional diagnosis of sarcoma of the femur. There still existed a considerable difference of opinion as to the manner in which these bony deposits took place, and the source from which they came. He called attention to a number of distinct conditions which had been grouped under the general head of "myositis ossificans." These all represented different pathological processes. The factor most concerned in the production of this trouble was unquestionably a single severe trauma, as, for instance, a kick by a horse. Nearly one-half of all the cases were observed in the front of the thigh, involving the quadriceps extensor muscle. This and the flexor muscles of the arm seemed to be the most common sights. The symptomatology was, as a rule, quite characteristic. Following a severe trauma there might be noticed the usual clinical phenomena, namely, localized swelling, tendnerness, ecchymosis, and disturbance of function. As prophylactic measures, aspiration and pressure were of somewhat doubtful efficacy, although highly recommended. Early incision with the evacuation of effused blood, the thorough removal of small fragments and spicula of bone, with drainage of the affected area may, in some instances, prevent the formation of the trouble. Massage in the early stages was contraindicated, as it might affect unfavorably the development of the trouble by stimulating the production of bone. The indications for operation were the presence of the tumor, the disturbance of function, pain, etc.

Cholecystenterostomy in Certain Cases of Pancreatitis.—Dr. Le Grand Guerry of Columbia, S. C., made a plea for the more general use of this operation in this disease. He related a case which was typical of quite a number to serve as a concrete illustration. Mr. M., aged 38, married, several years ago had an attack of pain in the gall-bladder region, with very slight jaundice, pain occasionally radiating under the right shoulder, slight fever, indigestion, etc. These attacks occurred at infrequent intervals, but there was a gradual weakening and loss of flesh. There was no sugar in the urine. A diagnosis of gallstones or pancreatitis or both was made and at the operation a slightly distended gall-bladder, with no stones, was found. The bladder was full of the characteristic ropy, tarry, black bile and a well-marked colon bacilli odor to it. The pancreatic head was markedly enlarged. Operation consisted in cholecystotomy after the common duct had been thoroughly explored and a probe passed into the duodenum to insure the patency of the choledochus. Drainage was continued for three months, during which time the patient gained twenty pounds in weight and was completely restored to health. Later the patient had another attack, at which time cholecystenterostomy was done, with the result that he had been permanently relieved from all of his symptoms and was now in perfect health.

Pancreatic Hemorrhage and Acute Pancreatitis.—Dr. Joseph Ransohoff of Cincinnati reported three cases, two of the former and one of the latter. They were all of the ultra-acute type. In two of the cases the hemorrhage into the free peritoneal cavity was very extensive, so

that one might have thought of the rupture of one of the large vascular viscera or of a large mesenteric vein. In the third case the fluid was only tinged with blood. In two of the cases, where the hemorrhage was very severe, no fat necrosis was seen at the time of operation. In the third a fat necrosis led to the diagnosis during the operation. One of the acute cases with severe hemorrhage recovered after laparatomy with drainage and gauze packing. In one of the fatal cases, fat necrosis was not seen at the time of the operation nor after autopsy was made. In none of the cases was a diagnosis made. In one it was thought of on account of the slight jaundice which was present. In the critical part of the paper the time for operation and the method of procedure were considered. While, as in phlegmonous conditions elsewhere, it would seem necessary that the lesion of the pancreas should be attacked in every case from an academic viewpoint, it was not practicable in all cases. The condition of the patient was often so desperate that a prolonged search for the lesion would be fatal, while drainage and gauze packing properly placed would give the patient a chance for recovery. Statistics with great preponderance showed the value of attacking the pancreas in a formal way as part of the operative interference as compared with drainage alone. Statistics, however, could have little value in determining the procedure to be adopted when one considered the great variation which existed in the symptoms at the time an operation was performed. Each case must be considered on its own merits and the operator must know to what extent operative interference beyond drainage and walling off the focus of the disease with tampons the patient would tolerate. No fixed or fast rules should be laid down. In regard to chronic pancreatitis, he objected to the off-hand way in which a diagnosis was often made at an operation by the sense of touch alone and regardless of the existence of the well-known clinical evidence of chronic pancreatic disease.

Pancreatoenterostomy.—Dr. R. C. Coffey of Portland, Ore., stated that the drawback to the development of pancreatic surgery had been that during embryological development the pancreas had been rotated out of the peritoneum. The peritoneum produced an exudate when injured which served the same purpose as callous after a fracture. The fat splitting ferment of pancreatic juice did not readily penetrate the peritoneum, but was serious when spilled in the retroperitoneal areolar fat spaces or between the layers of the mesentery or omentum. The problem to be solved in direct pancreatic surgery was to supply peritoneum to the operative field. This was best obtained from the outer coat of the intestine by inversion. The lumen of a single intestine was too small. Therefore, it had been necessary to throw the two lumina of an intestinual loop into one which, after inversion, gave an ample peritoneal canal into which the cut end of the pancreas was implanted. Using this method the following classes of operations were done: The tail of the dog's pancreas was cut in two and each cut end implanted into a separate loop of jejunum. Of four specimens recovered, each showed perfect union between pancreas and intestine; but no pancreatitis nor necrosis. In isolating the tail of the pancreas the pancreatic duct was found patent and delivered into the intestine. The connected end of the pancreatic duct was closed by a thin, tough film, the juice all going through the duct of Wirsung. The same thing occurred where the duct was ligated by a linen ligature but not cut, for the ligature was circumvented in all cases, and the juice was freely delivered back into the duodenum through the duct which was established amound the ligature. By ligating and cutting both ducts of Wirsung and Santorini and interposing omentum, and implanting the cut end of the tail, the juice of the other tail and body was freely delivered into the loop of jejunum through the implanted tail and its duct maintained. Second, the head of the pancreas and one tail and the duodenum were successfully removed in two stages. *First,* the bile duct was transplanted to intestine lower down, and a gastroenterostomy done with excision of pylorus. *Second,* two weeks later the body and one tail of the pancreas and section of duodenum were removed and the remaining tail implanted into the jejunal loop. The results were the same as in the previous cases. In all five cases the specimen showed enormous dilatation of the common and hepatic ducts, and in one instance the bile duct was almost as large as the duodenum and almost as thick. The communication with the intestine was free enough to admit the end of the little finger, the distention evidently being due to intraintestinal pressure; therefore, an indirect method was devised, which consisted of running the duct immediately under the mucous membrane for an inch before bringing it inside. The results in the three specimens removed, two of which were of two months' standing, showed that a perfect valve had been formed and no dilatation had occurred, the ducts being entirely normal in size and thickness. Encouraged by these results the writer was now conducting a series of experiments in which the ureter was implanted into the large intestine in the same manner with the hope of preventing ascending infection here. Direct implantation of the stripped pancreatic duct was tried in six cases. While one dog lived to be killed on the 24th day and was in good health, it was found that the duct connected with the intestinal lumen only by a fistula. Four of this group of dogs died before the sixth day, showing pancreatic necrosis. One died on the tenth day. One fact stood out in all the six cases, namely, the pancreatic duct died as soon as it left the pancreas, thus leaving the inference that the pancreatic duct probably received most of its nutrition from adjacent pancreatic substance, and would not bridge the chasm between the gland and intestine, as was done in the case of the bile duct and ureter.

Dr. Joseph C. Bloodgood of Baltimore stated that the cause of death in acute hemorrhagic pancreatitis had been said to be due to trypsin and perhaps other ferments free in the peritoneal cavity, and present in the blood, and these ferments produced disseminated fat necroses. If one could make a diagnosis of acute pancreatitis the abdomen should be opened and the fluid allowed to flow out and the region of the pancreas drained to prevent further intoxication with these ferments. The question of the operative treatment of acute hemorrhagic pancreatitis was settled, and that was, evacuation of the peritoneal exudate and drainage of the pancreas.

Dr. Stephen H. Watts of Charlottesville, Va., said that during the present year he had had three cases of acute pancreatitis, one of them of the subacute variety. One of the most interesting things in these cases was the presence of hemorrhage in acute pancreatitis, and it was a question in his mind as to the relation of this hemorrhage to infection in the gland, as to whether or not hemorrhage preceded infection, or pancreatitis, or whether it followed it. Dr. Ransohoff had not found infection in his early cases, as the cultures had been negative. It looked as if in many of these cases there was an arteriosclerosis which might give rise to the first hemorrhage, and that the blood subsequently became invaded through the intestine or biliary tracts.

Dr. Roswell Park of Buffalo stated that at the time President McKinley was shot we did not know much about the surgery of the pancreas, and when seeking an explanation for the peculiar necroses which were found in his case, he suggested that in all probability the wound of the pancreas had to do with the subsequent course of events. He really believed that this wound of the pancreas had much to do with it. He believed that unfortunate instance directed surgical attention to the surgery of the pancreas

in a way which it would not have done had not that sad event happened.

Dr. Chas. H. Mayo of Rochester, Minn., said he was struck with what Dr. Guerry has said with reference to cholecystenterostomy. No doubt this operation should be more frequently done. If there was jaundice present, with hardening of the pancreas, and no gallstones, then we should at once think of the advisability of doing this operation. The question of doing it in simple inflammatory conditions, such as cholecystitis, was something for the future to decide. But these were not the gall-bladders that they would remove to-day, but they were the ones that led to further operation.

Dr. H. A. Royster of Raleigh, N. C., stated that two months ago a man, 70 years old, came in with a typical history of gallstones. He had had jaundice only once, and that had disappeared entirely. Examination of his urine three days before operation showed a well-marked reaction to sugar. They opened his gall-bladder, removed one hundred and eighty gallstones, and drained in the usual manner. The head of the pancreas was enlarged. One week after the operation the sugar disappeared entirely from the urine, and had not returned.

Dr. Walter C. G. Kirchner of St. Louis stated that of five cases of pancreatitis he had met with three which were of the suppurative type and resulted fatally. In two of these cases a diagnosis was made, but the conditions were so fulminating that opertaive procedure did not seem to be indicated, or by the time the patient reached the hospital his condition did not warrant operation. In one case in which a pathological diagnosis was made of hemorrhagic pancreatitis, there was no hemorrhage in the abdominal cavity, but the pancreas itself was involved. This patient gave all the acute symptoms of pancreatitis, and at the autopsy an ulcer of the duodenum was found, which had a direct communication with the head of the pancreas.

Dr. George W. Crile of Cleveland said that in making cultures from the gall-bladder in these cases of chronic infection or chronic pancreatitis, he had seen much better results from the use of autogenous vaccines than from drainage alone, that is, following the use of autogenous vaccine *plus* the drainage. Furthermore, large doses of urotropin for a certain period of time were of value. Again, in cases of acute hemorrhagic pancreatitis he called attention to the value of nitrous oxide anesthesia.

Dr. John C. Munro of Boston stated that the paper of Dr. Guerry reminded him of a case in which he did a cholecystenterostomy six or eight years ago for a lesion at the ampulla, but which proved to be a case of chronic pancreatitis. A diagnosis now could undoubtedly be made both in the chronic and in the acute forms of pancreatitis in a fair number of cases. He had had quite a number of acute cases of pancreatitis and in a fair proportion of them had been able to make an accurate diagnosis before operation. The type of jaundice, both in the acute and chronic forms, was rather significant, although it was not an absolute sign on which to depend. He favored operating upon very acute cases.

Dr. O. H. Elbrecht of St. Louis said he would like to report briefly a case which differed somewhat from those mentioned. It was a case of chronic pancreatitis, the patient coming from an insane asylum, presenting the picture of an acute gallstone attack, with profound icterus. The pain was severe. The case was diagnosed as gallstones, with probably the escape of the gallstone through the intestinal wall. A definite lump could be felt in that region, and they found dense adhesions everywhere, and an immensely distended gall-bladder. The gall-bladder was drained. As the patient was in a bad condition they did not care to explore the region of the pancreas, as it was not suspected at the time. The patient died the next day, and autopsy revealed the case to be one of primary tuberculosis of the pancreas. Sections were made from an ulceration at the tip of the pancreas and found to contain innumerable tubercle bacilli.

Frequency of Cancer.—Dr. Roswell Park of Buffalo said that cancer was one of the most important problems which confronted the medical profession to-day. He believed cancer was on the increase as a disease of modern life. When he began work in this direction there were in New York State fourteen thousand deaths from tuberculosis each year, and about five thousand deaths in cases of cancer. Now the mortality from tuberculosis had been reduced to eleven or twelve thousand cases a year, while the mortality from cancer had risen to nearly eight thousand. Their studies had established the fact that cancer was prevalent in certain localities and in certain houses. They found there were certain places where cancer was more prevalent than in others, and in a considerable number of houses several deaths from cancer had taken place. With regard to heredity, it was now stated as a fact that the disease was not transmitted by inheritance, but there was a possibility of the transmission of predisposition. This was a very important question for the laity and for us. The infectivity of cancer was quite generally established. Last year, at the meeting of the International Congress of Surgeons in Brussels, the question of cancer was discussed for three separate days, and of some three hundred who were present out of a membership of six hundred, he found the majority of surgeons present believed in the infectivity of cancer. There were still some doubters of this theory. The very fact that metastases occur during cancer was the best demonstration of its infectivity, and for him every instance of metastasis in a given case was an expression of a reinfection from the original source. As to the contagiousness of cancer, they had far more proof for its contagiousness than leprosy, or some other diseases that were considered more or less contagious. The early diagnosis of cancer was difficult, and in many instances impossible. Cancer had no definite symptomatology. If cancer could be diagnosed or recognized early, and if it were accessible to their present means of attack, and if it were thoroughly removed it could be cured, but there were "ifs" standing up in tremendous proportion, and they were insuperable apparently.

Suture of the Recurrent Laryngeal Nerve, with Report of a Case.—Dr. J. Shelton Horsley of Richmond, Va., stated that after a thorough search of the literature, he had been unable to find a report of any case in which the recurrent laryngeal nerve was sutured. There had been considerable experimental work done, chiefly by those interested in veterinary surgery, in which the left recurrent laryngeal was divided, and implanted higher up in the vagus. Most of these experiments had resulted successfully, so far as restoring the function of the laryngeal muscles supplied by the left recurrent nerve was concerned. He reported a case in which the left recurrent was injured by a bullet wound. The case was referred to him about three months after the injury. The patient was examined by a laryngologist, and all of the muscles supplied by the left recurrent laryngeal were found completely paralyzed. An incision was made along the anterior border of the sternocleidomastoid muscle and the injured nerve was easily found in the groove between the esophagus and trachea. The diseased portion was excised, except a small filament consisting of the posterior part of the nerve sheath. The ends of the nerve were brought together with a single suture of No. O chromic catgut in a fine-curved needle. Some muscle tissue was drawn over the sutured nerve. The wound healed by first intention and the patient left the hospital nine days after the operation with no improvement in voice or in breathing at this time. The improvement was gradual, however, and two reports from a laryngologist were made

after the operation. The first about two months after the operation showed improvement in the muscles and the second report, fifteen months after the operation, stated the laryngeal nerve had fully recovered. The case was apparently unique.

Treatment of Wounds of the Heart, with Report of Two Cases.—Dr. WALTER C. G. KIRCHNER of St. Louis said there had been five cases of cardiorrhaphy with three recoveries at the St. Louis City Hospital. He reported two of his own cases: one patient died four hours after the operation, and the other made a successful recovery. In the first case there were two wounds of the ventricles, and in the second there was a wound of the heart, one and three-fourths inches in length, which penetrated the left ventricle. The symptoms and treatment of injuries to the heart were outlined. He laid special stress on the method of approach to the heart of these injuries. He considered all wounds of the heart as serious, and gave the following conclusions: "The heart may be manipulated without serious injury to the organ and is amenable to surgical interference. Hemopericardium with heart tamponade is a serious complication and demands prompt drainage of the pericardial sac. In suspected injuries to the heart, the wound in the chest should be carefully explored so that the extent of the injury may be determined, and in cases of doubt, exploratory pericardiotomy is indicated. Small wounds of the heart may heal spontaneously, but in all cases where hemorrhage from the heart exists, the wound should be sutured promptly. In operations upon the heart, when pulsations suddenly cease, massage of the heart and artificial respiration should be tried as aids in resuscitation. With a minimum amount of anesthetic the healthy lung is capable of performing its function, though to a less extent, even when the pleural cavity is exposed. Time is an important factor in injuries to the heart, and an early diagnosis should always be made. The immediate treatment should be directed to the control of hemorrhage and shock. The chief remote complications result from infections of the pericardium and pleura. In treating injuries to the heart, the surgeon should have in mind a definite plan of attack, and the kind of flap to be used in approaching the heart should be determined by the nature of the wound in the chest."

Circumscribed Serous Meningitis of the Cord.—Dr. JOHN C. MUNRO of Boston stated that an interesting paper on this subject by Spiller, that appeared in the *American Journal of the Medical Sciences* for January, 1909, explained a condition which he had observed a number of times at operation and for which he had previously obtained no satisfactory explanation. At the time of his earlier cases (1897) he reported the findings to pathologists, who not only gave him no light on the subject, but even questioned the existence of the lesion. In a small collection of cases of laminectomy reported at the meeting of the American Medical Association in 1904 he called attention to one with syringomyelia and to another diagnosticated as subacute fracture-dislocation, in which he found a "collection of clear fluid under a distinct arachnoid membrane," in which the removal of this fluid produced marked amelioration in the pressure symptoms. This phenomenon and the relief that followed the removal of a soft extradural myeloma here in another case led him to say that there was a something that produced grave paralysis that was demonstrated clinically, which appeared totally inadequate and for which they had no corresponding experimental nor post-mortem explanation. There was no definite cause known for the lesion. Trauma, syphilis, caries, tuberculosis, glioma, influenza, gonorrhea had all been more or less intimately associated with the lesion. In other cases nothing could be found as the primary cause. Whatever the cause, the important thing for them to recognize clinically was the fact that such a condition might exist and that laminectomy was the only rational treatment. In uncomplicated cases the outlook was most encouraging. In complicated cases most distressing suffering could be relieved. Patients always suffered from pain and at times it was intolerable. It might start as a lumbago; it might be girdle-like; it was diffuse and not referred to one nerve root. Paralysis or paresis began generally as weakness of the lower limbs. Spasticity was almost always present and sooner or later there was paraplegia sufficient to render the victim bedridden. Sometimes they found urinary and fecal incontinence; sometimes the upper extremities were more or less affected. Spasmodic contractions, excited by a light touch, were often most distressing. In simple cases the limbs were well nourished, the muscular power was good and there was no trophic disturbance. The reflexes varied among individuals and in the same case. Sometimes they were increased, sometimes absent. Anesthesia might be absolute or very slight. It varied in different regions in the same case and from time to time. So also might the other phenomena of sensation. The onset might be short, a few days after traumatism, and years in other types. Laminectomy by relieving the localized pressure cured the uncomplicated case. Lumbar or local puncture was futile.

Abdominal Cesarean Section for Puerperal Eclampsia.—Dr. LANE MULLALLY of Charleston, S. C., in his paper reported four cases of puerperal eclampsia. The first two patients were brought into the hospital with the usual history of eclampsia, each having had convulsions for about six hours before being admitted. The first case was delivered under anesthesia by dilatation, instrumental and manual and high forceps, and the second by similar dilatation and version, each case occupying from one to two hours. In the first case convulsions continued for twelve hours when the patient died. The second case had several convulsions after delivery and recovered. The third case was a multipara with considerable scar tissue in the cervix; she was anesthetized and an hour or more uselessly spent in attempted dilatation. Finding it impossible to dilate the cervix, he determined upon abdominal cesarean section, preferring this to vaginal cesarean section, and delivered the child in seven minutes. The whole operation when completed occupied twenty-seven minutes. The case was a six-months pregnancy and the child was dead when delivered; in fact, the child was dead before the operation was begun. In the fourth case of full term pregnancy the woman had convulsions every fifteen minutes. In this case he did an abdominal cesarean section at once, delivered the child in six minutes, closed the wound and the patient was returned to the ward in twenty-six minutes from the time operation began.

(To be continued.)

PHILADELPHIA NEUROLOGICAL SOCIETY.

AT the joint meeting with the New York Neurological Society, held December 18, Dr. CHAS. S. POTTE exhibited "A Case of Tic of the Tongue." The patient was a man, who twenty years before, in consequence of some cutaneous irritation near the mouth, began to protrude his tongue in an effort to secure relief. Gradually the habit became established, and at the present time the man in paroxysms of varying duration and recurrence opens the mouth widely and protrudes the tongue to the utmost. These movements are attended with no particular satisfaction or discomfort, and they are induced by no irresistible impulse. Dr. JOHN K. MITCHELL presented "A Case of Amyotrophic Lateral Sclerosis, or Lead-Poisoning." The patient was a house painter who had suffered from symptoms of lead-poisoning on two previous occasions, but who came under observation with fibrillary muscular twitchings, exaggerated reflexes, muscular wasting and weakness, and with bulbar

symptoms, difficulty in speech and in swallowing, and atrophy of the tongue. Dr. D. J. McCarty demonstrated "A Case of Presenting the Symptomatology of Paramyoclonus Multiplex." The patient was a young man with mental deficiency who had presented from birth involuntary, incoordinate movements of the right upper extremity, with some weakness in the right lower extremity and increase in the reflexes. Dr. F. X. Dercum exhibited "A Case of Athetosis and Astereognosis of Sudden Onset." The patient was a man who presented irregular, involuntary, incoordinate movements in the left upper extremity, with deranged sensibility and loss of the sense of recognition of objects by the left hand. The symptoms were thought to be due to a lesion in the neighborhood of the optic thalamus. Dr. Dercum presented also "A Case of Athetosis and Astereognosis of Gradual Onset Associated with Signs of Multiple Lesions." The patient was a woman who exhibited athetoid movements of the right hand, together with various derangements of sensibility in the right upper extremity and on the anterior and posterior aspects of the chest. Drs. Wm. G. Spiller and Chas. H. Frazier presented a communication entitled "The Treatment of Spasticity by Resection of Posterior Spinal Roots," and they exhibited a patient on whom the operation had been performed with relief. The case occurred in a man who exhibited such a marked degree of spasticity of the lower extremities as to be unable to get about. Division of the posterior roots of the second, third, and fifth lumbar nerves was followed by improvement sufficient to permit the man to get about and to go up and down stairs with the aid of crutches. Dr. Chas. H. Frazier presented a communication entitled "Division of the Auditory Nerve for Persistent Vertigo and Tinnitus," and he reported the case of a woman suffering from deafness, with intense vertigo, on whom the operation was performed, but without the desired success. The operation has thus far been performed in only a small number of instances, and the results have scarcely justified the expectations. Some of the patients succumbed directly or indirectly to the operation and others were not relieved of their symptoms. Dr. M. Allen Starr presented photographs of a child of eight years exhibiting unilateral facial atrophy; these pictures were sent to him by a former student practicing in Australia, and he stated that the patient was the youngest within his knowledge in which this disease had been observed. Dr. Chas. K. Mills presented a communication entitled "The Clinical Study of Changes in Sensibility Due to Organic and Functional Diseases, Especially with Reference to Methods of Testing." He considered the various forms of sensibility and the significance of their derangement, and he discussed the methods of testing, describing a number of forms of apparatus devised for this purpose.

A Form of Spasmodic Paralysis Due to Hereditary Syphilis in the Child.—A. B. Marfan describes a spastic paralysis occurring in children which he believes to be due to hereditary syphilis. It occurs from the age of four to seven years, in children whose birth has been normal and who have appeared up to that time perfectly healthy. It comes on insidiously and progresses slowly. There is a paraplegia accompanied by spasm of the muscles of the legs, and partial flexion of the ankles and knees, which causes the feet to be dragged, the toes scraping the ground. This spasm is absent when the child is in repose, but the reflexes are much exaggerated. Argyll-Robertson pupil is present. There is no trouble with sensation nor with the sphincters. Electrical examination shows faradic contractility to be exaggerated, and galvanic reaction normal. The intelligence is affected. The pathological condition indicates a myelitis involving the pyramidal tracts. In such cases the eyes should be carefully examined as to the reaction of the pupils and the presence of a parenchymatous keratitis. The author believes that this peculiar symptom complex is the result of syphilitic changes in the blood vessels and connective tissue of the pyramidal tracts. The result of mercurial treatment is not satisfactory.—*La Presse Médicale.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of January 15, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	606	164
Diphtheria	344	47
Measles	832	13
Scarlet Fever	506	33
Smallpox	—	—
Varicella	203	—
Typhoid Fever	33	9
Whooping Cough	27	2
Cerebrospinal Meningitis	2	2
Malarial Fever	—	—
Totals	2,553	270

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 14, 1910:

CHOLERA

		CASES	DEATHS
Batavia, Java	Nov. 14–20	200	30
Nov. 19, one case on S.S. Konigen Wilhelmina en route to Suez.			
Germany, Heydekrug	Nov. 19–Dec. 4	2	..
India, Bombay	Nov. 8–14	..	1
Rangoon	Nov. 21–Dec. 4	..	9
Persia, Astara	Dec. 1–4	13	8
Russia, general	Nov. 28–Dec. 11.	150	70
Baku, government	Nov. 28–Dec. 11.	6	5
Baku	Nov. 28–Dec. 11.	13	8
Don territory	Nov. 28–Dec. 11.	4	2
Ekaterinislav, government	Nov. 28–Dec. 11.	9	4
Kursk, government	Nov. 28–Dec. 11.	3	..
Moscow, government			
Moscow	Nov. 29–Dec. 11.	85	41
St. Petersburg, government	Nov. 28–Dec. 11.	5	4
St. Petersburg	Nov. 28–Dec. 11.	22	4
Taurda, government	Nov. 28–Dec. 11.	45	18
Turkey in Asia, Trebizond	Nov. 28	a1	On a vessel from Bat'm

a From the Veroffentlichungen des Kaiserlichen Gesundheitsamtes, Dec. 15, 1909.

YELLOW FEVER

Brazil, Manaos	Dec. 5–11	..	1
Para	Dec. 12–18	3	3
Ecuador, Guayaquil	Dec. 1–15	12	5
Peru, Callao	Nov. 2–Dec. 2	11	From S.S. Loa.
Mexico, Quintana Roo, Santa Cruz de Bravo	Dec. 20	1	1
Merida	Dec. 20–21	1	1
Trinidad, Port of Spain	Nov. 28–Dec. 4	1	1

PLAGUE

Brazil, Bahia	Nov. 20–26	2	1
Para	Dec. 12–18	3	2
Rio de Janeiro	Nov. 22–Dec. 5	2	1
Ecuador, Guayaquil	Dec. 1–15	60	23
Egypt, Provinces—			
Assiout	Nov. 10–16	1	..
Beherach	Dec. 8–14	1	..
Indo-China, Saigon	Nov. 7–13	1	..
Paraguay	From Dec. 10	..	a30 In the no. part.
Peru, Provinces—			
Lambayeque	Oct. 1–18	27	9
Lima	Oct. 22–Nov. 18.	..	..
Russia, Astrakhan, district	Dec. 10–16	14	13
50 miles south of Beiskulak.			
Beiskulak	Dec. 10–16	18	16
Ural, district	Dec. 10–16	..	23

a From the Veröffentlichungen des Kaiserlichen Gesundheitsamtes, Dec. 22, 1909.

SMALLPOX

Argentina, Buenos Aires	Oct. 1–31	..	2
Brazil, Bahia	Nov. 20–26	18	12
Rio de Janeiro	Nov. 22–Dec. 5	3	..
Sao Paulo	Nov. 1–21	..	2
Canada, Nova Scotia—			
Halifax	Dec. 19–25	2	..
Chile, Quillota	Nov. 28–Dec. 4	..	Present.
Valparaiso	Nov. 20	..	Do.
China, Shanghai	Nov. 22–28	1	among Chinese.
Egypt, general	Nov. 19–25	34	13
Alexandria	Nov. 19–25	..	4
Cairo	Dec. 3–9	2	..
France, Paris	Dec. 12–18	9	..
Germany, general	Dec. 12–18	3	..
Great Britain, Plymouth	Nov. 12–18	..	1
Southampton	Nov. 12–18	1	..
Greece, Athens	Nov. 22–Dec. 4	..	7
India, Bombay	Dec. 8–14	..	6
Rangoon	Nov. 21–27	..	6
Indo-China, Saigon	Dec. 7–13	1	..
Italy, general	Dec. 13–19	35	..
Genoa	Dec. 1–15	1	..
Naples	Dec. 13–19	21	2
Mexico, Aguascalientes	Dec. 12–25	..	3
Chihuahua	Dec. 20–26	2	1
Persia, Hamadan	Nov. 15	..	Present.

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A REPORT ON SOME OF THE LARYNGOLOGICAL WORK OF THE BRITISH MEDICAL ASSOCIATION AND OF THE XVI. INTERNATIONAL MEDICAL CONGRESS IN 1909.*

By D. BRYSON DELAVAN, M.D.,
NEW YORK.

IT was my privilege to attend two important meetings last summer, one that of the Section in Laryngology of the British Medical Association, the other that of the corresponding section of the XVI. International Medical Congress. Many topics were brought forward and discussed. All of them were of decided interest. The official program of the Section in Laryngology at Budapest announced 115 papers. The authors of most of these were present, and the papers were read. Several additional papers were offered after the publication of the program. The Section in Laryngology of the British Medical Association was ably presided over by Dr. St. Clair Thomson. The chief presiding officer of the section in laryngology at Budapest was Professor Emerich de Navratil, without question one of the most distinguished of living laryngologists. He was aided by other co-presidents, one of them the well-known Professor Onodi. The spirit of these meetings, actuated by the dignity and geniality of their respective presiding officers, was particularly delightful. At both of them the best of good feeling prevailed and with it every evidence of a strong desire on the part of those who participated to advance the science of the study of diseases of the upper-air passages in the most wholesome and substantial way.

The subjects represented at the International Congress covered a somewhat wide range. Thus, ten papers were upon cancer of the larynx; ten more upon tumors of the nose and pharynx; six upon new methods for the exploration of the upper-air passages; eight upon the treatment of cicatricial stenosis of the larynx; several upon Hay-asthma and several more upon ozena; at least fourteen upon the nasal sinuses; six or more upon scleroma and as many upon tuberculosis of the larynx; ten upon adenoids, and a few upon the tonsils; eleven upon recurrent paralysis and other affections of the nerves of the larynx; seven upon intranasal operations and a number more upon various miscellaneous topics.

I have selected three of these subjects as presenting features of especial interest: (1) The Treatment of Suppurative Diseases of the Nasal Sinuses; (2) Cancer of the Larynx; (3) The Treatment of Cicatricial Stenosis of the Larynx.

*Presented at a meeting of the Laryngological Section of the New York Academy of Medicine, November 24, 1909.

Suppurative Diseases of the Nasal Sinuses.—At Budapest the discussion on the first of these was opened by Dr. M. Hajek of Vienna in a paper entitled "The Treatment of Empyema of the Nasal Sinuses," and by Professor A. Onodi of Budapest in a paper upon the "Intracranial and Cerebral Complications of Diseases of the Nasal Sinuses." A number of other papers were read upon the same general subjects, many of them of distinct value. Several of them dealt with the conservative treatment of sinus disease. The discussions which followed were participated in by the best representatives of the subject in Europe. Among them Professor Killian of Friebourg, Prof. Chiari of Vienna, and Prof. Jansen of Berlin. Prof. E. Fletcher Ingals of Chicago read a masterly paper upon the intranasal treatment of suppurative diseases of the frontal sinuses. The most interesting speaker who took part in the discussion was Professor Hajek, who spoke with rare wisdom and discrimination, giving evidence of full knowledge of all that had been done in this field but appreciating the value of those more difficult but less dangerous methods which, in the hands of a sufficiently skilful operator, are capable of effecting cure without resort to the more radical external operations in common vogue.

The papers of Professors Hajek and Onodi are given *in extenso* in the preliminary transactions of the Section in Laryngology of the XVI. International Congress, a copy of which may now be found in the Library of the Academy of Medicine.

The subjects of the debate and the deductions which may be drawn from it may be stated as follows: Many operators justified their resort to extreme radical measurers in operating upon these cases upon the plea that radical operation is necessary in order to save life. Often this is without doubt true. To say that severe radical measures, however, are always necessary or that life has been in jeopardy in all cases in which they have been applied is to ask too much. No one to-day denies for a moment that there are some cases which absolutely demand radical measures and are clearly beyond the reach of any others at present within our power. All of us have had to deal with such. We are not only willing but glad to recognize the splendid rôle which radical surgery has played in relieving them. Such operations as those devised by Luc, Ogston, and others, not to speak of those of more recent date, have been welcomed by every intelligent specialist who has recognized the needs of the situation and who has found in these operative measures the means of curing cases which before had been entirely beyond control. For these cases radical surgery has been an unquestioned blessing. Where the disease has been of long standing, where the soft parts have been seriously affected, and particularly where necrosis is present, radical operation can hardly be dispensed with. All cases of suppurative

sinus disease, however, are not of this severe type. Some on record have been dealt with successfully by intranasal treatment. This has often been proved in the practice of men of especial skill in this department. In cases of this type the advocates of radical surgery would perhaps determine to operate at once when those skilled in treatment by intranasal methods would at least endeavor to help the patient without surgical operation, and, as experience has abundantly proved, would succeed in doing so in at least a fair proportion of instances.

Where no great injury to the patient would be likely to result from delay it would seem fair that such cases should be allowed the privilege of an effort to secure relief through intranasal means before radical treatment was resorted to, rather than that the radical operation should be done without any attempt at cure by means of the less severe methods.

The third type of case represents a class in which radical operation is in my opinion positively contraindicated; in the hands of the sufficiently skilful operator they can be cured and are cured by intranasal treatment. In these cases radical surgery is out of place. Nevertheless we are not infrequently consulted by patients representing this class to whom radical operation has been strongly advised. The proposition that radical operation is necessary to save life contains two fallacies; the first we have just explained; the second is quite as important as the first. Not a few radical operations have ended fatally and the life of the patient has been directly lost through the operation itself. Possibly, of course, if the operation had not been done, the patient would have died of the disease, but we all know that in cases where operation has been refused, the result has not by any means invariably led to a fatal issue. Hajek called attention to the fact that the proportion of cases of brain abscess complicating sinus disease had been greater since the introduction of radical surgery than it was before.

From a general view of the whole matter extending backward to the time when attention was first directed to these troubles, many things have been learned with regard to the nasal sinuses. Great benefit has been accomplished to those suffering from their diseases. Hand in hand with such men of genius as Bryan in our own country and Zuckerkandl, Greenwald, Onodi and Hajek abroad have been the originators of the radical surgical methods which, variously modified and described under other names, are used by us to-day. These men and the ones who have followed them, of both classes, namely, those skilled in intranasal methods and those who operate from without, have succeeded in greatly alleviating human suffering. Why should there be any question, therefore, as to the relative value of the two general methods? Without question radical methods are not only indicated but are absolutely indispensable in certain cases; equally true is it that in certain other cases intranasal treatment is amply sufficient. The perfection of knowledge at the present time would consist, therefore, in the clear recognition of the conditions present in a given case and accurate judgment as to the best means of relieving them. Giving all praise, and that not a little, where credit is due, it nevertheless appeals to me as unfortunate that this matter, in common with so many other surgical questions of a like nature, should not be placed upon a firm scientific basis. Obviously the only way in which this can be done is through the careful observation of the cases through long periods of time after the date of the operation and through the truthful reporting of all cases, good and bad alike. At the meeting at Budapest it was impossible to learn from many of the leading speakers just what their results had been.

Cancer of the Larynx.—The subject of Cancer of the Larynx came up both at Belfast and at Budapest. At Belfast Dr. R. H. Woods of Dublin presented a remarkably successful case of extirpation of the larynx. The chief interest attaching to this, however, lay in the presentation of a new vocalizing apparatus in the use of which this patient had been instructed. In describing the apparatus of Dr. Woods it should be said that it differs from the one devised by Prof. Gluck of Berlin in that with the latter the tube is carried from the trachea and when held in front of the patient's mouth it reinforces the resonance of that cavity, especially for vowel sounds, in such a way that by listening carefully one is often able to understand what the patient is attempting to say. Dr. Woods has carried this tube a little further, put a reed into its distal end, and introduced the reed into the pharynx through the nose. In this way the patient by blowing through the tube actuates the reed in his pharynx and the sounds thus produced take the place of those ordinarily made by the vocal cords, with the result that the patient is able to speak as well as before operation except that he speaks in a monotone. This, however, is a small objection when the perfection of the result in every other respect is considered. The effect produced by the apparatus of Dr. Woods is that of a wonderful reproduction of the normal tone of the human voice. Nothing just like it has ever been presented before. It is devoid of the objections commonly met with in such forms of apparatus as are made of metal and designed to wear in the laryngeal space. These have been invariably irritating to the surrounding parts. The note produced by them has been so unnatural as to make the employment of the apparatus next to impracticable. By using reeds of different sizes almost any quality of tone can be afforded by Dr. Woods' apparatus so that the different qualities of voice can readily be simulated. In the opinion of the writer this apparatus is the best device of its kind that has ever been presented.

The work of the section in laryngology at Budapest was opened by an excellent paper by Sir Felix Semon upon the subject of Simulated Cancer of the Larynx. In this the various diagnostic signs of carcinoma of the larynx were alluded to and a series of cases presented in order to illustrate the difficulties which sometimes exist in arriving at exact conclusions as to the nature of a given intralaryngeal growth. In such cases mistakes of diagnosis are not uncommon. The paper reported 13 cases. Of these three showed appearances very similar to one another, all resembling cancer, and yet were due to absolutely different causes and non-malignant. The first was a chronic infective inflammation, the second an extravasation of blood into the right vocal cord, and the third tuberculosis. Three or four other cases illustrated the difficulties sometimes met with in the differential diagnosis between tuberculosis and malignant disease of the larynx. A brief history of each case is given and each is accompanied by an admirable illustration, accurately representing the picture seen on laryngoscopic examination. This contribution is based upon an experience gained by the study of 246 cases of malignant disease of the larynx. In closing the author says: "I trust that by frankly reporting the various difficulties and errors

that have occurred in my own practice I have not nursed in the hearts of any the feeling that the diagnosis of malignant disease of the larynx is a desperately difficult matter. No doubt sometimes it is, but after all I have observed only 13 cases in which real and serious diagnostic difficulties existed. Thirteen out of a total of 246 observations will suggest that the percentage of exceptional difficulties is only a small one. As a general rule, the diagnostic signs at our disposal are trustworthy." In the experience of the writer the diagnosis of cancer of the larynx is not always easy. There are some cases which present difficulties apparently only to be overcome by careful microscopic examination of the whole substance of the growth, while in other cases a growth which may be recognized as malignant after careful study and observation will be impossible of recognition as the result of a single examination of the larynx. In the diagnosis of these cases, therefore, it is not to be expected that one consultation will in every case offer opportunities which will enable a positive diagnosis to be made. This is particularly true when tuberculosis and syphilis are to be excluded through careful examination for the one and a tentative course of specific treatment for the other. While close observation of the growth by one of skill and experience will generally reveal its true nature there are not a few cases in which visual examination alone is insufficient for a positive diagnosis. The article of Semon is suggestive and interesting. The illustrations which accompany it are enlightening and are deserving of careful study.

Of the other contributions to this subject at Budapest by far the most interesting was the paper of Prof. Gluck of Berlin upon the diagnosis and treatment of carcinoma of the larynx and, especially, the presentation by him of four cases upon which he had performed his most extensive operations for the removal of widespread disease of the throat, including a total extirpation of the larynx and the removal of affected adjacent parts of the esophagus, pharynx, tongue, and the lymph nodes. All of these patients had survived for a period of two years and all appeared to be in fair condition. The mutilation caused by operation, however, was so extensive that it seemed incredible that life could be sustained; much more difficult to believe that the patient's existence could be endurable. In each case the whole front of the throat seemed to have been obliterated and practically speaking much if not everything, from the neighborhood of the base of the tongue to the episternal notch removed as far back as the vertebræ. This may be an exaggeration, but the result was a vacant space of surprising extent. The cases presented by Prof. Gluck were interesting from at least two points of view. First, as proving the possibility of such extensive resections of important parts of the throat, and secondly, the possibility of prolonging the lives of patients in whom carcinoma has extended so far outside of the larynx as to make a simple laryngectomy useless. To such cases which in the hands of many surgeons would be considered beyond relief, the operations of Prof. Gluck offer a ray of hope. Unfortunately, however, it must be stated that it was not explained in how many cases the patients had succumbed early to the effects of operation. Until we are better informed as to the mortality rate we are unable to judge of the actual value of this work.

With regard to cancer of the larynx and its treatment to-day it may be said that comparatively little new information has been offered for many years. Operations are being constantly performed upon the larynx, however, and two propositions have been placed beyond contradiction. First, that such work improperly done can only lead to disappointment and failure, and second, that, of the operative work now being carried on in this country and abroad there is none on the whole as successful as that which has been inspired by the able leadership and instruction of Mr. Henry T. Butlin. To him more than to any one man belongs the credit of having evolved a system of treatment by which the largest number of cases can be benefited and the greatest prospective period of time added to the existence of the patient. Early operation, skillfully performed under rules long since laid down by Mr. Butlin after careful study and experience on his own part, has without question gained its place in surgery. Until some better procedure has been provided it must be regarded as by far the most promising method. This has been recognized in England by an ever-increasing number of practitioners, with results which seem to justify these statements. I have long since insisted that in so far as these views are respected and followed out the treatment of laryngeal cancer will meet with the maximum of success. On the other hand, in so far as they are neglected, failure and disappointment will result. Long observation has proved the truth of this statement. I can only reiterate it with increased emphasis founded on constantly accumulating experience. Success in important operations upon the larynx can only be gained through the same principles of action as made possible the discovery of the North Pole. The novice, the careless or unprepared operator, the man who does his work in an institution supplied with inexperienced internes and nurses ignorant of this particular class of work will never succeed. Many years ago I expressed my views upon this subject, and in no uncertain language. Fortunately, a few men among us have at last acted upon them, with results which already go far to prove their value.

Treatment of Cicatricial Stenosis of the Larynx.—This subject was invested with peculiar interest on account of the recently suggested method known as "laryngostomy." It was discussed at both meetings. At Belfast the discussion was opened by Dr. Lambert Lack of London, Dr. Delsaux of Brussels, and Dr. Delavan of New York, and was participated in by Dr. Emil Mayer of New York, and Dr. Logan Turner of Edinburgh. The paper of Dr. Lack dealt chiefly with the subject of stenosis of the larynx in children as the result of diphtheria. He offered nothing particularly new. Various methods of treatment were referred to by him and condemned. Dr. Lack's experience with intubation in these cases had also been unfavorable and this method was condemned by him. It is interesting to know, however, that he had based his opinion on the subject of intubation in chronic stenosis upon the study of but two cases, that he had employed the method upon these cases for but two or three weeks, and at the end of that time had decided that the method was a failure, because the patients were not cured. We do not know with how much skill or otherwise the intubation was managed. The time of its employment, however, a few weeks, was entirely insufficient, as has been explained by all experienced in its use.

The paper of Dr. Delsaux was a description of the new method of Gluck, known as laryngostomy and recently presented to the medical world by Saignon

and Barlatier. In it a careful résumé is given of the study of 37 collected cases operated upon by various surgeons. Unfortunately, of the 37 patients treated, six died, a mortality of 16 6/10. Starting with this knowledge, we have some basis upon which to estimate the relative value and the relative risk of this method. For this the scientific world owes Dr. Delsaux a debt of gratitude. Of the remaining 31 of Dr. Delsaux's 37 cases, there were 14 in whom the final plastic operation had been completed. These were considered entirely cured and up to the present time had in no case suffered recurrent stenosis. Of the remaining 17 cases the process of dilatation in 14 was still going on and the plastic operation for the closing of the opening in the neck had not yet been performed. Three cases had disappeared and one case failed. Usually, the patients operated upon in this way were able to make themselves understood in conversation, and some had even recovered their voices, owing to alleged reformation of the vocal bands. Dr. Delsaux concluded from these statistics that laryngotracheotomy had proved the most successful method for the cure of these cases, that it was the operation to be preferred in the treatment of them, that it was an operation attended with little risk, and that it should become the routine method of dealing with cicatricial stenosis of the upper-air passages.

In a paper of Dr. Delavan three things were stated as essential to the successful management of stricture of the larynx: (1) that the stricture be relieved; (2) that the relief be permanent, and (3) that the treatment be conducted with the least possible injury to the parts involved. The last proposition was particularly insisted upon. The writer laid all possible stress upon the necessity for so conducting the case that the least injury possible be inflicted either within the larynx or from without. He regarded this as one of the most important considerations which could affect the subject under discussion and believed that before the acceptance of the new methods which involved so much of operative work outside of the larynx clear proof should be adduced to show that these extensive operations were not in the end productive of harm. Very often operative measures had aggravated the stenosis rather than relieved it. He called attention to the proposition that success in cases treated by intubation depends upon the constant and long-continued distention of the stricture, on the principle that scar tissue in general, when subjected to continuous stretching, will in time lose its resiliency. Illustrations of this loss of resiliency in scar tissue are found in various other departments of surgery, for instance in the stretching of abdominal scars after laparotomy or after operation for hernia. For the indications present in cicatricial stenosis the O'Dwyer tube answers every purpose and the larynx tolerates its presence indefinitely. Much clinical evidence had been accumulated in this country to prove the value of the O'Dwyer method. Relief by any form of operation could only be proved to be permanent by the lapse of years without recurrence. Injury to the parts, either through endolaryngeal or extralaryngeal operation was by no means a negligible factor, and as far as possible must certainly be avoided. Attention was also called to the possibilities of the development of laryngeal disease, possibly remote, subsequent to the time that operative work upon the larynx had been carried on and the necessity was pointed out for a careful observation of such cases long after treatment.

At Budapest the discussion of this subject was opened by Prof. Ucherman of Christiania, Norway, who condemned intubation, because in cases of diphtheria and the like the internes in his hospital had been unable to manage their cases with success.

It thus appears that two of the main objections against intubation in Europe have been based, first, upon insufficient knowledge of its use and its application for too short a period to be productive of benefit and, secondly, through the handing over of the method to inexperienced beginners, who could not for a moment be supposed to possess the skill necessary for its proper management.

At Belfast Dr. Emil Mayer made a strong plea for the O'Dwyer method, illustrating his remarks by reference to his own series of cases successfully treated in this way and explaining its superior advantages.

At Budapest the writer strove to impress the fact that intubation is an art, that the practice of any art worthy of the name could never be assumed in a desultory manner by those ignorant of its principles and that it was therefore no argument against intubation to say that those untrained in its use had failed in its successful application. He also called attention to the importance of the method, a method which for years had been applied with great success in all parts of the United States. Such men as O'Dwyer, Rogers, and others had done their part toward exploiting it, and it remained for the rest of the world to appreciate its value and to test with proper care and skill what had been presented. The open method, namely, that known as laryngostomy, had been so recently suggested that it was quite too early to predict its ultimate value. While any method would be heartily welcomed which would produce the desired result with the least amount of trouble to the physician and distress to the patient, it was still necessary to convince us by practical demonstration that a better method had yet been brought forward than that of O'Dwyer.

In the discussion which followed it was suggested that the care of patients, especially children, after laryngostomy was both difficult and painful and that the frequent dressings required, involving the frequent withdrawal and reintroduction of the tubes, was attended with much distress. This was not denied by those who had had experience in the matter. In the case of intubation the tube in many cases may be retained for long periods of time and even its reintroduction is not necessarily as distressing to the patient as is the ordinary dressing after largyngostomy.

In considering the sum total of the work presented at these meetings we are struck with the fact that there is little novelty in it. Indeed, the more one considers the work of the present time the more he is impressed with the importance of going backward and studying carefully the methods of the great masters of laryngology who flourished a quarter of a century ago. Many valuable lessons are to be learned, among them this, namely, that not all of the good things of laryngology are utilized by us to-day. In certain instances methods which were recognized as valuable a number of years ago have been completely supplanted by others not nearly as good. It must also be remembered that a new thing is not necessarily better simply because of its novelty. Another thing which is somewhat distressing is the ease with which the names of our instructors have in so many instances been forgotten, simply because

some recent successor has made a slight modification in a method which in itself is classic. I am inclined to think that a little too much credit is being given at the present time to certain operators upon the nasal sinuses at the expense of those to whom we are really indebted for our best knowledge of the subject. Thus, a name may have swept all others out of sight, whereas without the suggestions of those who prepared the way the present methods of operating would probably not now be in existence. Moreover, and much more important than all of this, there has been a tendency of late years to forget, or to underestimate the value of intranasal treatment for the relief of these conditions. Many a case in the experience of the writer has been subjected to radical operation, which, in the hands of a really skillful master of this department, would have been cured by intranasal means. The names of Bryan and others of his way of thinking are no less illustrious throughout the world to-day than they were before radical operations upon the sinuses became so common. Nor are his methods and those of the men who have followed him any less desirable than before. I believe that too little attention has of late been given to this department of the work. First, because radical operation is attractive and savors more of novelty, and, secondly, because, all things considered, it must be admitted that in many instances the external radical operation is actually easier of performance than is treatment by the other means.

After all, here, as in all other departments of surgery, wide and accurate knowledge, based upon rich experience, keen judgment, and finally, a highly conscientious view of the best interests of the patient are essential. Another thing which has impressed me is the rarity with which even the best operators are willing to truthfully report their unsuccessful cases. A shining exception to this was the statement of Delsaux in his treatment of the subject of laryngostomy, in which, as I have already said, he fearlessly reported a mortality of 16.6 per cent. Few of those who have written upon the subject of laryngeal cancer have made it possible for us to derive any idea whatever as to the actual mortality reached in these operations; while in the department of suppurative diseases of the sinuses some of the leading men in Europe refuse to state their final results.

The symposium upon sinus diseases at Budapest gave evidence of a strong tendency toward a more careful and conservative consideration of radical methods. Its result will be to recall the attention of the profession to the possibilities of intranasal treatment.

1 West Thirty-third Street.

THE IMPORTANCE OF CORRECT DIAGNOSIS OF DISEASES OF THE EYE.*

By A. EDWARD DAVIS, M.D.,

NEW YORK.

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Some months ago, to be exact, February, 1908, it was my pleasure to write a short paper on a subject similar to the one I present to you this evening, to wit, the importance of correct diagnosis in diseases of the eye, being the chief reason why opticians should not fit glasses. That paper was for the purpose, if possible, of preventing the opticians and optometrists from practising medicine, which, I am sad to say, to the shame of medicine in the great State of New York, they have succeeded in doing, thanks to the "wisdom" of an all-wise Legislature and the approval of a Governor, whose judgment, usually sound, seems, in this instance at least, to have been warped by a high degree of astigmatism.

*Read before the Section of Ophthalmology, Kings County Medical Society, Brooklyn, October, 1909.

In the opening paragraph of the paper referred to I stated that "In no branch of medicine is a correct diagnosis of more importance than in diseases of the eye. Not only is this statement true as regards errors of refraction, and local diseases directly affecting the eyes, but indirectly as bearing upon many grave general diseases, as Bright's disease, arteriosclerosis, diabetes, etc., which latter diseases are often first manifested by some disorder within the eyes. In such cases a correct and early diagnosis of the conditions in the eye and a recognition of their significance as an index of some grave disease, together with the institution of prompt and energetic treatment, all are of paramount importance, if we wish to save the sight of the eyes or the life of the patient." And, gentlemen, we who have had a thorough training, both in general medicine and in our specialty, know how difficult it is at times to arrive at a correct diagnosis, even with all our training. And we know full well, and laymen of average intelligence also know, or ought to know, that no one who is not well trained in medicine is competent to understand the relation which nephritis, arteriosclerosis, syphilis, diabetes, and other diseases bear to disorders of the vision. Important as are the relation of the above-mentioned diseases to disorders of vision, I shall not stop to consider them in my brief paper this evening, for we are all familiar with the eye conditions in these diseases, only the atypical cases giving us any considerable trouble to arrive at a correct diagnosis.

It is to another phase of the subject that I want to invite your attention at this time, to wit, the correct diagnosis of the eye conditions in (1) autointoxications, (2) accessory sinus diseases, and (3) tuberculous affections.

Autointoxications.—In discussing the matter of autointoxication it is altogether important to make a clear distinction between autointoxication and autoinfection. As Chapman states, "Specific infectious diseases must not be included with autointoxications; only substances which originate in, or are elaborated within the system should be regarded as causing autointoxications. Thus, mussel or sausage poisoning is a different process from intestinal putrefaction in which poisonous diamins are formed within the bowel lumen. In other words, autointoxication must not be confounded with autoinfection."

Relative to the general organism and autointoxication and relative to the eye also, for that matter, we know but little. In fact, as Alonzo Taylor says, "We do not know the entity of a single autointoxication except the acidosis of diabetic coma."[1]

It is with especial reference to certain diseases of the eye supposed to be produced by autointoxication as the result of intestinal fermentation and the resulting products of enterogenous decomposition that I wish to direct your attention for a moment.

That intestinal toxemia may be considered a contributing etiological factor in the following ocular affections seems likely from the various clinical observations thus far reported. In certain cases of relapsing iritis, chronic iridocyclitis; certain forms of

scleritis and episcleritis and recurring ulcers at the sclerocorneal margin; retrobulbar neuritis; paresis of accommodation, and as intensifying and adding to the toxic agencies in the commoner toxic amplyopias, tobacco, alcohol, etc., by entering into the formation of new and even more violent toxins. For example, in some forms of chronic iridocyclitis and relapsing iritis, no treatment is of much, in fact, of any, aid, unless strict regulation of the diet is carried out together with the use of intestinal antiseptics, tonics, etc.

De Schweinitz and C. A. Fyfe, in June, 1908, at the Section of Ophthalmology of the American Medical Association, presented a paper in which they reported a number of cases of autointoxication in relation to the eyes, in which they had made extensive and exhaustive laboratory examinations of the gastric contents, together with a thorough and complete examination of the urine and feces. They state that while they had not found a single disease of the eyes which of itself would justify the inference that it was caused by intestinal autointoxication; and also that while laboratory examinations revealed no definite toxins to which a single eye disease might be attributed, yet it was worth while they thought to make such investigations as they presented. By such investigations the presence or absence of intestinal putrefaction is established at least, and the nature of the patient's nitrogen metabolism is found out; and it is only by such scientific investigations that we may expect to arrive at the correct diagnosis in these obscure cases, and by instituting a proper régime of diet and treatment expect to give relief, as they have done in some of their cases. De Schweinitz and Fyfe considered an increase in the amount of the conjugated sulphates in the urine as the most reliable test in intestinal putrefaction. The presence of indican in the urine is highly indicative of putrefactive intestinal indigestion. Dr. William H. Porter of this city considers the presence of an excess of indican in the urine as a positive indication of intestinal indigestion and putrefaction, and the test for indican, as above stated, is easily made, even by the busy practitioner. While indican itself is not dangerous it is a danger signal of putrefaction taking place in the intestines. Porter, speaking on this point in regard to toxins and indicanuria states the following: "Taking up the alcohol and nicotine toxemias, it has seemed to me that the result has not been so directly due to the alcohol or the nicotine as to the disturbance produced in the digestive functions by the arrest of the digestive secretions, following which the bacteria of putrefaction have an opportunity to attack the proteids and ultimately give rise to the presence of indican in the urine. The putrefactive bacteria seem to break up the proteid molecule, forming indol and sulphurous acid, and that acid being active combines quickly with the potash salt and forms indoxyl potassium sulphate, which is inert. It is rapidly absorbed from the intestinal tract, carried through the system to the kidneys, and yields indican in the urine. The indican is simply a danger signal indicating that we have the putrefactive fermentation of the proteid molecule. Where indol is formed as a by-product of the full proteid molecule is produced, and that by-product breaks up into numerous forms of toxins, some of which are intensely poisonous. In this way is produced the condition which sometimes irritates one part of the nervous system and sometimes another, and thus we have a logical cause for the multiplicity of symptoms. It is by one of these by-products acting upon the optic centers in the brain that sudden blindness without retinal or nerve lesion is explained."

It is not necessary to go further into details as to the nature of these toxins, as the time and extent of this paper will not allow of the same. An interesting clinical observation made in this connection is that by Dr. Fernandez of Havana, Cuba, in a recent address, October 5, 1909, delivered before the Society of Ophthalmology and Oto-Laryngology, where he states that during the late Spanish-American War, and at its close "We began to note the ocular disturbances produced by alcohol that we had almost forgotten. At the end of this abominable period, partly from the reconcentration of the country people, mostly Cubans, there was noticed another kind of amblyopia, and atrophy of the optic disc, which, although we first thought to be caused by alcohol was due to autointoxication, due to inanition or a very defective or insufficient feeding, induced by the poverty to which the country people were rapidly reduced." This clinical observation only goes to emphasize the fact that we should be on the lookout for such complications with suitable surroundings for producing autointoxication, and this astute observer was quick enough to make this observation.

I shall report but one case here, and that briefly, by way of illustration of autointoxication.

A. M., aged 14, male. Has one brother, younger, and one sister, older; good health. Father and mother living and in good health, although the mother at one time had goiter, of which she has been completely relieved. Syphilis, rheumatism, tuberculosis can be definitely excluded. The patient first consulted me in November, 1900, for slight hyperopic astigmatism and a mild conjunctivitis. With treatment of the conjunctivitis the symptoms were entirely relieved, which consisted of slight asthenopia and itching of the eyes. In February, 1901, the patient had a mild attack of acute catarrhal otitis media in the left ear which was entirely relieved by hot douches and leeches. In April, 1901, his tonsils and adenoids were removed. In 1902 he had his appendix successfully removed. In June, 1908, he again consulted me, complaining of headaches, puffiness of the eyelids, and inability to use the eyes for close work, this condition having prevailed for about six months before having consulted me. Thorough examination of the eyes with correction of the refractive error was made. The glasses relieved his condition only partially. Examination of the urine at this time revealed a very excessive amount of indican, together with a few small hyaline and rarely a finely granular and epitheliated cast, with a strong trace of albumin (see chart, June 26, below). The patient was placed on tonics, nitromuriatic acid, nux vomica, lactated elixir of pepsin, together with remedies, calomel, etc., to clear the bowels. Diet was also instituted to control the condition. He improved but slowly, although kept on this treatment for about two months. Examination of the urine on July 20 showed still an excessive amount of indican and a few casts in the urine, together with a trace of albumin (see chart, July 20, below). By the middle of August the patient's condition had improved markedly. The puffiness of the eyelids had been reduced, the patient was able to use the eyes with some comfort, and the urine showed only a trace of indican and

only a very minute trace of albumin (see chart, August 17, below). Within another month, however, he again had a relapse to the former condition although he had been kept on a pretty rigid diet and under treatment. September 30, examination of the urine showed a very excessive amount of indican with a few hyaline and finely granular casts and a low per cent. of urea. At this time I placed him under the care of Dr. Wm. H. Porter of this city, who went very carefully into the examination of the urine, as I had done myself, which at that time, as just stated, showed a very excessive amount of indican. The patient was placed on a general mixed diet, and was given ox-gall and pancreatic extracts, and as a tonic caffeine and strychnine, also iron. After about eight weeks' treatment he was considerably improved and at the end of about three months albumin and casts disappeared from the urine, asthenopic symptoms were relieved, also the puffiness of the eyelids, and the patient was able to use the eyes with comfort. He is still kept under the observation of Dr. Porter and myself, so far with no relapse.

In this case the eye symptoms were no doubt the result of an autointoxication, but of what autointoxication we are not positive. The important factor in the treatment of his case, as in all such cases of autointoxication, is a thorough examination of the urine, stomach contents, and with the proper treatment to relieve the conditions present, both as regards diet and medicine. No two of these cases of autointoxication are alike and each one has to be studied individually. I thoroughly agree with Dr. de Schweinitz that, although we do not know the nature of these toxines or poisons, it is worth while to make a complete study of the cases if we hope to arrive at the solution of the question.

Examination of urine, June 22, 1908: Spec. grav., 1,020; reaction, acid; odor, strongly aromatic; transparency, clear; consistence, normal; color, dark yellow; appearance of sediment, nebulous, white, very faint.

Chemical analysis: Albumin, negative; reaction with Heller's test, strong trace; sugar, negative; reaction with Fehling's test, negative; bile, negative; urea, 2.2 per cent. (10.55 grs. to oz.); chlorides, normal; phosphates, earthy, normal; indican, enormous excess.

Microscopical Examination: Casts, occasional large and small hyaline, rarely a finely granular, epitheliated, and mixed (granula, epithelia, and blood); numerous mucous shreds; blood, occasional isolated cells; epithelium, occasional vesical and large squamous; pus, occasional isolated leucocytes; crystals, none observed; amorphous deposits, negative. Remarks: Very intense intestinal fermentation (autointoxication); mild (toxic) parenchymatous irritation therefrom.

July 20, 1908: Spec. grav., 1,010; reaction, acid; odor, faintly aromatic; transparency, clear; consistence, normal; color, pale yellow; appearance of sediment, nebulous, white, very faint.

Chemical analysis: Albumin, negative; reaction with Heller's test, trace; sugar, negative; reaction with Fehling's test, negative; bile, negative; urea, 1.5 per cent. (7.2 grs. to oz.); chlorides, normal; phosphates, normal; indican, very excessive.

Microscopical examination: Casts, rarely a small hyaline, finely granular; numerous mucous shreds; blood, none observed; pus, occasional isolated leucocytes; epithelium, occasional large squamous and vesical; crystals, none observed; amorphous deposit, negative. Remarks: Very marked intestinal fermentation (toxic parenchymatous irritation therefrom).

August 17, 1908: Color, amber; sediment, small, flocculent, gray; reaction, acid; specific grav., 1; albumin, very minute trace; sugar, none; urea, 11.00 grams per liter; indican, very minute trace; bile pigment, none; acetone, none; casts, an occasional hyaline, small and large granular; blood, none; pus, some leucocytes; epithelium, few squamous.

September 30, 1908: Spec. grav., 1.010; reaction, acid; odor, faintly aromatic; transparency, clear; consistence, normal; appearance of sediment, nebulous, very faint; color, yellow.

Chemical Analysis Albumin, Heller's test, negative; Esbach's test, trace; chlorides, normal; phosphates, normal; bile, negative. Sugar: Fehling's test, negative; Nylander's test, negative; urea, 1.3 per cent. (6.24 gr. to oz.); indican, very excessive.

Microscopical Examination: Casts, rarely a small hyaline and finely granular; blood, none observed; pus, occasional isolated leucocytes; epithelium, occasional vesical and large squamous; crystals, none observed; amorphous deposit, negative. Remarks: Urea percentage and spec. grav. low; marked intestinal fermentation; otherwise, practically normal.

Accessory Sinus Diseases.—The importance of correct diagnosis in accessory sinus diseases and the presence of such diseases as a possible or probable cause of obscure eye affections, has been given but scant attention, until recent years. That sinus diseases sometimes caused orbital cellulitis and abscesses was recognized, of course, especially if the sinus abscess had perforated into the orbital cavity. Cancerous affections originating in the sinuses and affecting the eyes were also recognized; but that accessory sinus diseases should or could cause optic neuritis, optic atrophy, post-bulbar neuritis, retinitis, choroiditis and general uveitis, to say nothing of the symptoms of amblyopia and asthenopia, frequently present in such cases, apparently did not occur to ophthalmologists and rhinologists. Or, if such an etiological connection was suggested, it was dismissed as too remote a cause. The demand for a more correct and definite diagnosis in these obscure cases of ocular disease stimulated both oculists and rhinologists to a closer study of the anatomical and physiological relations of the sinuses to the orbit and the orbital contents and the optic nerve entrance. Not only were the healthy specimens studied but the pathological and clinical cases, with the result of establishing a direct etiological connection between sinus diseases and many grave ocular affections, such as optic neuritis, retinitis, etc., either by direct contiguity, by pressure, or through the blood and lymph channels; and at times perhaps through toxemia. This relation between sinus diseases and affections of the eye is now so well established and so many cases have been reported that it is not necessary to report others of the graver affections, such as optic neuritis, retinitis, etc., as secondary to sinus diseases; because we are all now on the lookout for such cases. However, I wish to call your attention to some of the minor affections of the eyes which may be secondary to the accessory sinus diseases, lest we forget to consider this factor in such cases. I refer to cases of troublesome asthenopia, unrelieved by the usual methods of treatment with glasses, tonics, rest, etc., or even after a course of rest to the ciliary muscles under the influence of atropine, as practised by some.

By way of illustration I shall report very briefly two cases to the point, recently under my care.

Case I.—June 24, 1909, W. M. S., broker, aged 43, consulted me because of a troublesome asthenopia which glasses had failed to relieve. He complained chiefly of pains in the eyes, more marked in the left, after any reading or close work, also of frontal headaches and general irritability. The patient is a nervous man and prematurely old. Examination of the eyes revealed a mixed astigmatism of high degree, but with correcting glasses vision was brought up to 20/10 in each eye. Even with this acute vision he did not get the desired relief from the asthenopic symptoms, pain over the left eye particularly annoying him. Two months before coming under my care he had a piece of cartilage removed from the right side of his nose. On examination of the right side of the nose it was found free, but on the left side the middle turbinate was swollen and pressed rather firmly against the nasal septum. The patient was just starting for his vacation and so did not have anything done to the left side of the nose. On September 7 he returned to the city and still complained of pain over the left eye and inability to use the eyes. Nasal treatment was now begun, and by relieving the pressure caused by the left middle turbinate bone the pain over the left eye was completely relieved and the patient was able to use the eyes with entire comfort for the first time in many months, and this happy condition still prevails.

Case II.—Miss M. M., aged 34, consulted me for glasses because of severe frontal headaches, especially over the left eye. She also complained of marked dizziness and vertigo, so pronounced at times that she had to catch things to stand. The patient gave a history of a discharge from the nose and dropping into the throat. She stated that she had had her nose treated for two years in one of the clinics in the city in a perfunctory way and without relief. Examination of the eyes revealed no refractive error or pathological condition, and the vision was perfect in each eye. Careful examination of the patient's nose, by Dr. George E. Davis, now revealed a polyp about the size of a hazel-nut, on the left side, high up, attached to the cribriform plate. It made considerable pressure on the frontal part of the upper and middle turbinate bones. This polyp was snared off under cocaine anesthesia with immediate and complete relief of the pain over the left eye, and of the very troublesome vertigo of which she had complained. The patient was discharged, cured, after two weeks' treatment.

These cases show the necessity of complete and thorough examination, not only of the eyes, but of the nose and accessory sinuses in all obscure cases, if a correct diagnosis is to be arrived at.

Tuberculous Affections of the Eye.—Within the last two and one-half years a valuable aid to a correct diagnosis of tuberculous affections of the eye, and for that matter of the general system, has been given to the profession by Wolff-Eisner[2] and Calmette,[3] Wolff-Eisner originating the method and Calmette making many clinical demonstrations of its usefulness. The method, or test, is generally known as the Calmette reaction test. Since their earliest publications in 1907, the method has been tried by many different observers and the literature is rich in reports of cases. That the "ophthalmoreaction" test (Calmette) to tuberculin is a valuable aid in the diagnosis of certain eye diseases, such as scleritis, episcleritis, chronic iridocyclitis and iritis, choroiditis, interstitial keratitis, and phlyctenular keratitis and conjunctivitis, has been fully demonstrated; however, the application of the test to the eyes, especially if diseased, or have been diseased, and at times in perfectly healthy eyes, is not without danger, as serious damage to the eyes has been reported in numerous cases where the test has been used. Eyes that have been inflamed and quieted down have been incited to new inflammation, and, as above stated, even perfectly healthy eyes have been injured. Fortunately we have other tuberculin tests than the Calmette opthalmoreaction, *e.g.* von Pirquet's cutaneous-reaction test and the subcutaneous-reaction test. The subcutaneous-reaction test, by the way, is sometimes used after the other tests to confirm the presence of active tuberculosis, but Zimmermann[4] gives us warning that the subcutaneous test should not be used after the opthalmoreaction test has been made, as it is apt to reproduce the local reaction on the eye or induce it, if it did not occur before with the opthalmoreaction test. The subcutaneous test, however, can be used with perfect safety after the von Pirquet test.

As to the reliability of the opthalmoreaction test as a diagnostic measure, and as to its dangerous effect on the eye itself, opinion is somewhat divided. In a paper read before the Section of Ophthalmology of the American Medical Association, in June, 1908, Dr. Harry C. Parker, Indianapolis, after a careful review of the literature up to that date, and from his own experience with the test, draws among other conclusions the following:

1. The Calmette ocular tuberculin test is of as great diagnostic importance as any other single test.

2. The test is uncertain in patients under two years of age, in whom the cutaneous test of von Pirquet is most certain.

3. Recent investigations have shown a greater number of ophthalmic affections due to tuberculosis than formerly supposed, and in the Calmette reaction we have a simple means of differential diagnosis which should be thoroughly tried.

4. The ocular reaction is especially valuable for ascertaining the tuberculous nature of cases of phlyctenular keratitis and conjunctivitis, episcleritis and scleritis, chronic iritis and iridocyclitis, interstitial keratitis, and choroiditis.

5. A one per cent. solution of Koch's "old" tuberculin is nearly as good as the Calmette solution for diagnostic purposes.

6. The initial instillation should be preferably under one per cent. strength, in order that severe inflammatory conditions may not follow its use.

7. The consensus of opinion seems to be against using the test in an eye not wholly normal.

In a quite recent paper on the same subject, Charles Zimmermann (*loc. cit.*) of Milwaukee, after reviewing the literature of the subject up to date, October, 1909, is not so favorably impressed with the Calmette test. He states that "ophthalmoreaction as to clinical value compared with other local reactions, cannot be considered as absolutely reliable, and its employment requires certain conditions. For instance, more than 1,000 observations have been made by Calmette and his pupils which tend to show that the reaction may be demonstrated in all forms of tuberculosis, unless the patient be moribund or nearly so." Zimmermann also cites Baldwin's experience in 1,087 conjunc-

tival tests, as follows: "It is noteworthy that fully 70 per cent. of persons who had been healed in the clinical sense from two to thirty years reacted positively. The chief interest relates to the clinically incipient (71.4 per cent. positive) and suspected cases (33.3 per cent. positive), in which the test would be expected to assist in diagnosis. The results fall considerably short of the requirements for an ideal diagnostic method in suspected tuberculosis, though relatively good in confirmation of the clinically tuberculous cases."

The experience of other authorities is also cited to similar effect with the ophthalmoreaction test, the consensus of opinion being that a *positive reaction* is indicative usually of active tuberculosis somewhere in the body; but that a *negative reaction* does not exclude tuberculosis, as it often fails to react in very advanced cases of tuberculosis, and also in very young children. W. Stock's experimental investigations are quoted also to the effect that "positive reaction in disseminated choroiditis, iritis, scleritis, parenchymatous keratitis, which clinically and anatomically have nothing characteristic, but may be produced by tuberculosis, does not indicate with certainty their tuberculous nature, as they may be of different etiology (syphilis, or the introduction of fermentation fungi into the circulation). The possibility of the presence of another tuberculous focus, eliciting the positive ophthalmoreaction, can never be excluded, which, as it frequently happens, cannot be diagnosed."

W. O. Nance and Swift[5] make a similar statement, to the effect that the ophthalmoreaction is not a positive indication of tuberculosis of the eye, as the focus may be in some other part of the body.

C. Brons, cited by Zimmermann, states "that the tuberculous nature of an eye disease cannot be inferred from the course of the ophthalmoreaction. If it is severe or if the diseased parts participate in it, tuberculosis is probable; if it is mild it is no proof against tuberculosis. If the subcutaneous injection is followed by a positive general or local reaction" (which, by the way, Zimmermann claims should not be given after the ophthalmoreaction test) "the ocular affection is certainly tuberculous." Zimmermann points out some of the cases in literature of injury to the eyes from the ophthalmoreaction test; not only to diseased eyes, but even in healthy eyes, and gives a word of warning against its use as a test. Because of such disastrous complications after the Calmette test a number of ophthalmologists are entirely against its use. Stuelp[6] especially strongly advises against its use at all, and prefers for the diagnosis of ocular tuberculosis von Pirquet's cutaneous reaction, which in young children is especially valuable, and with the positive reaction indicates tuberculosis is present. If the reaction is negative and especially if repeated, tuberculosis may be excluded. In older subjects von Pirquet's test is not so valuable and the subcutaneous injection must be resorted to following it for diagnosis of active tuberculosis. On the other hand, if the von Pirquet test is negative the subcutaneous test is not necessary. Because of the many complications from the ophthalmoreaction, Zimmermann concludes his paper in the following words: "In view of these experiments ophthalmoreaction cannot be recommended and if the subcutaneous injection of tuberculin is not desirable the cutaneous method of von Pirquet may be tried, which in the very beginning of tuberculosis infection, especially for early childhood, is of inestimable value." Brons, Morax, Kalt, Zur Nedden, Torek, and others cited by Zimmermann prefer the subcutaneous test for tuberculosis. Of all the others Brons concludes that it acts with more certainty and ultimately through local reaction in the eyes confirms the tubercular nature of the affection. While Torek is of the opinion that, if after the subcutaneous injection of a small quantity of T. V. we have a general reaction, even though no local reaction takes place, in the suspected tubercular eye, we are justified in making a positive diagnosis of ocular tuberculosis, especially if the general condition of the patient and the local symptoms are indicative of tuberculosis.

From a résumé of the foregoing it may be concluded:

1. The ophthalmoreaction test (Calmette) is valuable as a diagnostic test for tuberculosis, a positive reaction from it indicating tuberculosis somewhere in the body, but not necessarily in the eyes. A negative reaction does not indicate the absence of tuberculosis, as in very young children (up to 2 years) and in advanced cases of tuberculosis the test often fails to give a positive reaction.

2. The opthalmoreaction test is not without danger even to healthy eyes and should never be used at all in eyes that have had old sites of inflammation or eyes with inflamed lids.

3. The initial dose should be small; less than 1 per cent. Koch's "old" tuberculin.

4. The cutaneous reaction test (von Pirquet) is a very sensitive test, especially in young children, where, if a positive reaction takes place active tuberculosis is indicated; while in older children and adults a positive reaction indicates tuberculosis either latent or active.

5. A negative cutaneous reaction, especially if repeated, is highly indicative of the entire absence of tuberculosis.

6. The subcutaneous test is considered by Brons, Torek, and others as the most reliable test for tuberculosis, and a positive reaction is a strong indication of active tuberculosis; furthermore, through local reaction in the eye itself tuberculosis of this organ is indicated.

7. The subcutaneous test should be used as a confirmatory test after von Pirquet's test, in adults, to make a positive diagnosis of active tuberculosis.

8. The subcutaneous test should not be used after the ophthalmoreaction test, as it is liable to reproduce the local reaction in the eyes, or to induce it if it has not occurred before.

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Fracture of Patella.—Heineck summarizes the requirements of treatment as follows: The fracture must be reduced. The bony fragments must be maintained in intimate apposition until organic union has been effected. The continuity of the divided soft tissues must be reestablished. The functional integrity of the knee joint must be restored.—*Western Canada Medicol Journal.*

THE PECULIAR PROVINCE OF ERGOT.

By ALFRED T. LIVINGSTON, M.D.,

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After I had read before the New York County Medical Association the paper entitled "Some New and Unusual Therapeutic Applications of Ergot," one of the most noted of my auditors said to me, "Doctor, I can accept everything that you have said this evening except one thing. You said that ergot acts most pronouncedly upon the abnormal fiber. Now, if you can explain to me how ergot or any other drug can act more markedly upon the abnormal portion of the class of tissue upon which it has an influence than upon the normal portion of that same class of tissue, I will be greatly obliged to you." I replied that I regretted that I did not know the ultimate relation to, or action upon, the weak, relaxed, or stretched fiber, of the ergot which I had hypodermically introduced into the circulation, but that, in logical reasoning upon all the observations which I had made upon the effects of ergot in a great variety of malconditions, I could only conclude as I had stated, viz., that in its therapeutic application ergot had not markedly affected the healthy contractile fiber, but that it did always affect markedly and often marvelously those areas of that class of tissue which were in an abnormal state, weak, relaxed, or stretched.

Another of the noted practitioners of the Metropolis confessed to me that he had been inveigled into reading, late one evening, my first published paper, on "The Broad Therapeutic Application of Ergot," and that he had become so convinced that I was wrong that he had spent half the night in looking up his notes of the lectures of a famous professor of Materia Medica and that he had found that he had remembered them correctly, and that, therefore either I must be wrong or his teaching had been wrong.

One of my earlier papers was sent to the editor of a leading American journal by two gentlemen who had previously proven to their satisfaction the correctness of my statements as to the action of ergot, with the request that he would publish the paper promptly. The editor replied that he had read the paper and that he had been so astounded at its statements that but for the fact that those gentlemen had vouched for its author he would certainly have refused to publish the paper. At the urgency of one of these gentlemen I sent a copy of that same paper to each of two of the leading English journals and both copies were promptly returned with the apology from each editor of "lack of space."

I have premised thus to indicate the prejudice that existed against the conclusion which I had been obliged to deduce from logical reflection upon my experience.

There are several reasons for this strong prejudice. Ergot has belonged to the materia medica for centuries and it is natural that the profession should assume that its therapeutic virtues and fields of application must have long since been recognized. The teachings of authors and lecturers have been to the effect that ergot has but a limited field of application, which, indeed, is the necessary deduction from the generally accepted theory that it contracts the involuntary or unstriped muscle-fiber.

In the books and by lecturers a warning is always expressed regarding the grave danger of producing ergotism by its use in therapy. To several of my patients, traveling in Europe, druggists there have refused to sell ergot, telling them it was a rank poison.

I do not question but that the condition called ergotism has been caused by the eating of bread made from rye from which the smut had not been separated and I can accept that it may have been caused by some of the extemporaneously prepared potions, before the development of the modern extracts, but I do not believe that there is the shadow of a reason to continue to promulgate this malign innuendo against a most beneficent drug. While I have probably used as much ergot therapeutically as any other man, living or dead, in as great a variety of malconditions, in as large doses in certain cases and as long continued application in an individual case, I desire to put on record the statement that I cannot conscientiously say that I have recognized any ill effects from my use of this drug, given hypodermically, and I most certainly have seen nothing suggestive of the so greatly apprehended and dreaded ergotism. Yet even the manufacturers, by what I believe to be an utterly mistaken attitude toward this drug, not only damage their own business but, which is much worse, influence a large percentage of the medical practitioners against the use of the one drug which, in many of the most serious cases, might save the life of the patient.

One prominent pharmaceutical house has recently issued a most emphatic warning against the use of ergot in cerebral or pulmonary congestion or hemorrhage, basing the deduction to this effect upon "laboratory experiment." Basing *my* statement upon thirty-six years of medical practice, during which I have made use of ergot in all sorts of variations from the normal distribution of the blood, I do not hesitate to say, and will rest my reputation, present and future, upon this statement, that there are no other two regions of the body upon which a proper preparation and dosage of ergot, hypodermically administered, has had or will have more therapeutically beautiful and desirable effect than those of the brain and the lungs. Especially is this true as to states of congestion in those regions.

With these regions vies that of the abdomen as to the supreme indication for ergot, especially in relation to those disturbed states of the circulation which impede the action of the heart, which, of all the organs of the body, is probably the most irrationally and outrageously treated by the profession today, if I am to judge the profession in general by those lights which so often shine upon the public in relation to patients of wealth or position who, supported by strychnine, glonoin, salt solutions, *et al.*, "pass on" under the certificate "heart failure."

The region of the pelvis would come after the others mentioned, in the matter of importance or frequency of indication for ergot, and, of the chief organs of the pelvis, that one would probably come last which for centuries was the only organ of the body upon which ergot was used.

I have said advisedly a proper preparation of ergot. The fact, which I will further assert, that it is *not* the normal tissue of the body upon which we desire the influence of ergot in treating the sick, and another fact that I have observed in my experiments with those preparations of ergot from which the manufacturer claims that the inert (?) elements of the drug have been expunged, viz., that there has not been demonstrated that degree of therapeutic efficiency which the manufacturer has implied from

his physiological tests, have led me to question the propriety of such methods of standardization of this drug and I am free to say that I distinctly prefer, because I have found them the most effective, those preparations of ergot which most nearly represent the drug.

The assumption involved in the physiological method (experiment upon normal tissue of animals) of determining the therapeutic efficiency of ergot is practically the same as that made by the gentleman whom I first quoted, viz., that all drugs must have their most marked effect upon the normal tissue of the classes which they influence. That this assumption cannot apply to ergot would seem to be sufficiently indicated in the fact that, when applied to a pathological case, it is only upon the abnormal unstriped or other contractile tissue that a proper preparation of ergot demonstrates its peculiar power, which is to restore to or toward the normal that which was below the normal.

Were it true that ergot has its supreme action upon the normal contractile tissue, there is not a single instance in which I have applied it in which there would not have resulted a worse state than existed before its application. For example, the vessels of a congested area contain too much blood; this fact implies a relatively lessened contractile power in the walls of those vessels, as compared with the vessels not congested; the vessels not congested are relatively normal and the congested vessels are abnormal. Assuming that the physiological test does determine the efficiency and that ergot, as is claimed for other drugs, acts most vigorously upon the normal contractile tissue, what will be the result of applying a dose of ergot in a case of congestion? The vessels which are not congested will be contracted more, relatively, than the congested vessels and some of the blood which has occupied the former will be forced into the congested vessels, resulting in a greater congestion than had existed before the ergot was applied. The *fact* is that the assumed result does *not* occur and the inference which I am obliged to deduce from that which *does* occur, viz., the contraction of the congested vessels, is that the assumed theory is wrong.

Were it true that ergot acts most vigorously upon the normal contractile tissue, it must follow that ergot will always raise blood pressure. If the reader will refer to either of my first three published papers* upon the therapeutic action of ergot, he will find the relation of the case of the old man in Philadelphia. I have surely never seen a more extreme case of arterial tension, and the result of the application of one ordinary syringeful of ergot was the changing, within a few minutes, of a sledgehammer pulse to one of the softness of a baby's.

A young doctor of a Johns Hopkins clinic class wrote to me asking whether ergot had the effect of raising the blood-pressure or of lowering it, stating that there were opposite opinions among the members of the class. I replied at some length and with great care explained how in some cases ergot would raise the blood pressure and in other instances would lower it, yet having in each instance precisely the same effect upon the abnormal contractile tissue of the circulation. As, for my pains, I had not even the courtesy of an acknowledgment of my letter, I inferred that the young man had set me down as unworthy of further consideration because I had made the same drug to appear to "blow both hot and cold." Nevertheless this is the exact truth, and the explanation of the apparent contradiction is the differing combinations of areas of abnormal unstriated fiber, or other contractile tissue, which have produced the opposite sets of symptoms.

If the cause of a too high blood pressure is an irritation to the heart, central or reflex, producing over vigorous pumping into the arteries, or is a great venous stasis against which the heart is vainly exerting, ergot, by relieving the congestion which has produced the irritation, or by contracting the overdilated veins, will reduce the blood pressure. If the heart pump is weak from a general exhaustion, the heart walls stretched and thin, or if there is so great a distention of the splanchnic veins that there is but little blood left to pass through the heart and arteries, as is the state in syncope, collapse, so-called heart-failure, and shock from trauma, operation, or anesthesia, the blood pressure is lowered and it will be raised if ergot is hypodermically administered, because this drug will not only tend to normalize the weak and stretched heart fibers, but it will contract the engorged abdominal veins and so restore to the arterial system the quantity of blood which it should have.

In all such cases it is eminently rational to apply ergot to produce the effects just stated and it is quite as eminently irrational in such cases to prod the heart with strychnine or like irritants, without taking the one simple and efficient therapeutic step to correct the real and basal trouble.

To whatever extent there exists an abnormal disturbance of equilibrium of blood distribution, to that same extent there exists a variation from the normal blood pressure for that individual, and a variation from the normal heart action. Whoever, in the cases of so-called "heart failure," will limit his therapy to ergot only, will soon recognize that heart failure *per se* is a mighty rare condition; and that, instead of pelting the poor heart when it is weak and failing, the real and paramount indication, in the vast majority of the instances of threatened fatality, is the relief of the heart from those obstacles to ease and freedom of its action, which exist in states of abnormal vascular distention, both venous and capillary.

I once listened to the reading of a paper upon angina pectoris by a noted doctor of a neighboring city. I had mentally resolved not to take part in the discussion of it, because I felt that my silence would appear more harmonious to our guest than my speech, but as I was directly called upon to speak, I said what I believed. I was not quite prepared though for the denouement, for the moment that I mentioned ergot as, in my judgment, the desirable treatment, the reader of the paper, not waiting until the close of the discussion, nor even until I had finished my remarks, instantly arose and exclaimed with great emphasis, "Of all drugs, *that one* is the most contraindicated in angina pectoris!" He did not know that another famous practitioner, he who had spent half the night in verifying his impression that I must be wrong in my theory as to the action of ergot, had, on the morning following that night, proven my theory by using ergot in a case of angina pectoris "as a last resort and in sheer desperation" after having vainly tried every other treatment of which he knew, and within ten minutes the patient, who had been long in agony, sitting in a

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fixed and constrained attitude, took a deep breath, settled back and remarked "I feel *comfortable* now."

That was the first of a long series of cases and great variety of conditions in which that practitioner proved my statements, and I have heard him say five or six times, in the discussion of as many of my papers, that he believed every word that I had said. This sweeping support of my asseverations was doubtless suggested by his recognition of that one truth which has been the theme that runs through all that I have written concerning this drug, viz., that the normalizing of the abnormal (weak, relaxed, or stretched) unstriped fiber or other contractile tissue is the peculiar province of ergot.

I have not attempted to explain, for the simple reason that I have not known the ultimate relation of ergot to the abnormal contractile tissue, just how it normalizes it, nor why ergot does not notably affect the normal tissue in a pathological case. It has been sufficient for me that I have clearly recognized and demonstrated and have unequivocally expressed the fact.

I have left to the profounder students of ultimate pathology the explanation of this peculiar therapeutic action.

Dr. Homer Wakefield, of New York, was one of the first to confirm my published views upon the action and province of ergot. From his studies he had come to like conclusions to my own regarding the relation of disordered states of the distribution of the blood to functional and organic disorders of the heart, and he was searching for better means than he had possessed to empty engorged splanchnics, to draw to the surface the excess of blood in the storage vessels—in other words, to restore normal general blood distribution. Upon hearing my first New York paper he found this desideratum in ergot. In his development of a scheme of general pathology he has at the same time made apparent the only rational explanation of the *modus operandi* of the action of ergot that I have encountered.

There are three qualities of tissue that are especially concerned in this explanation, viz., density, equilibrium length of fiber, and sensibility. Density and sensibility are self-explanatory. "Equilibrium length" is the length of fiber in the state of physiological rest. The processes of change from the normal are gradual to a point at which the possibility of function ceases. Up to that point, in the instance of such tissue as is affected by ergot, there are gradations from the normal in lessened density (which implies a greater porosity and increased capacity to absorb), in increase of equilibrium length (which implies weakness proportionate to such increase), and in increased sensibility (tissue hyperesthesia).

The hyperesthetic state and the more absorbent (osmotic) quality of the less dense and elongated fiber determine the application of the ergot to those altered tissues.

It will be seen that this explanation also covers that tissue (not technically abnormal, but physically similarly altered) upon which was first observed the effect of this wonderful drug, viz., the greatly elongated fibers of the gravid uterus. No one questions the effect of ergot in shortening the equilibrium length and increasing the density of the stretched uterine tissue.

The obstetrician is no better assured of the efficacy of ergot in contracting the stretched fibers of the womb, than am I of its like efficacy to normalize the weak, relaxed, and stretched contractile tissue of blood-vessels anywhere in the body (brain included), of the heart, of the bowels, and of the hollow viscera. I have never claimed for ergot that it will bring the dead to life, nor do I maintain that it will restore to the normal such tissue as has degenerated beyond the point indicated above, the possibility of functionating.

The technical statements in connection with the explanation of the action of ergot are vouched for by Dr. Wakefield and they certainly harmonize with and tend to corroborate all that I have claimed to be the peculiar province of ergot.

ANATOMICAL HEREDITARY PECULIARITIES AS AN ETIOLOGICAL FACTOR IN DEFLECTED NASAL SEPTA AND ACCESSORY SINUS DISEASE.*

By J. G. WILSON, M.D.,

ACTING ASSISTANT SURGEON U. S. P. H. & M. H. S.; ASSISTANT SURGEON N. Y. THROAT, NOSE AND LUNG HOSPITAL.

THE mammals are remarkable for the degree in which the sense of smell is developed. The large extent of pituitary surface, and the large size and number of olfactory nerves are mammalian characteristics. Although this general statement holds good in the majority of species, we have numerous exceptions. In the *Delphinidæ*, of which the dolphin and porpoise are representatives, we find no olfactory apparatus at all.[1] In the herbivora and ruminants the sense of smell is most highly developed and the bones of the face preponderate greatly over the brain case. In regard to the acuteness of the sense of smell both man and monkey are inferior to most other quadrupeds. The progress in the development of the sense of smell is, therefore, not *pari pasu* with a general rise in the scale, as is the case with the sense of taste.[2]

Passing from a consideration of animal forms to that of the lowest type of primitive human skulls available, we have evidence to show that the brain case is developing at the expense of the bones of the face, and that the olfactory apparatus is becoming more and more encroached upon as the type of the species improves. This relation of the facial to the cranial capacity is expressed in degrees of the facial angle. This angle, as described by Owen, is formed by the intersection of two lines, one of which is drawn from the occipital condyle along the floor of the nostril, to the most prominent point of the upper jaw, and the other of which extends from this latter point to the most prominent point on the forehead. This angle varies greatly. In the dog it is 20 degrees. In the gorilla, 40 degrees. In the Australian, 40 degrees, while in the educated white man we may expect to find it more nearly approaching the perfect type of the Grecian ideal, that is, 100 degrees.

The preponderance of face over cranium in the lower mammals is explained by the fact that in these forms the bones of the cranium cease to grow at an early date, whereas the facial bones continue to develop up to adult life.[3] A study of figures 1 to 7 will show how, in the lower forms of vertebrates, the bones of the face are developed at the expense of those of the brain case, until we come to the gorilla, where the facial and cranial capacity are about equal. In the lower forms of the human type

*Read at the regular meeting of the Clinical Society of the New York Throat, Nose, and Lung Hospital, October 6, 1909.

the facial and cranial equilibrium is still fairly well maintained, but in modern civilized man the tendency of the brain case to develop at the expense of the bones of the face is constantly making itself shown. The effects of this relative overdevelopment of the brain case is manifested in the following ways: (1) The recession of the jaws; (2) The gradual disappearance of the accessory sinuses; (3) The prevalence of deflected nasal septa.

The recession of the jaws is responsible for many pathological conditions of these appendages. The diminished space for the development and eruption of the teeth, leading to overcrowding and irregularities, the inability to approximate accurately the two maxillary surfaces, thus leading to mouth breathing and the improper mastication of food, are all conditions well known to the orthodontist.[4] The natural and gradual recession of the jaws which is going on in the white races is also shown in the prognathous negro race as a result of crossing with the white.

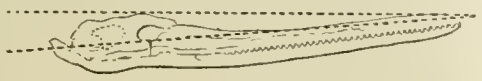

Fig. 1.—Crocodile (Owen).

Boas has shown that when race intermixtures take place, there is a strong tendency to reproduce ancestral traits.[5] In the case of the mulatto we would, therefore, expect to find many instances where the jaws were more receding than in his negro ancestor. That such is the case and that its frequency is increasing as time goes on has been conclusively shown by Talbot.[6] He states that out of many hundreds of negros examined in the lower Mississippi valley 97.5 per cent. showed marked prominence of the lower jaw. Out of 1,000 negroes examined in Boston, 45.4 per cent. corresponded to the type where the point of the chin fell behind a perpendicular line drawn from the most prominent portion of the forehead at right angles to the base line of the skull. The inference from this is plain. The recessive type of jaw is dominant, and wherever the cross between white and black takes place to any appreciable extent, we may expect to find many examples of conformity to this type among the mixed offspring.

Fig. 2.—Albatross (Owen).

Pari pasu with the recession of the jaws, we find the accessory sinuses giving place for more brain development. In those vertebrates in which the sense of smell is highly devloped the accessory sinuses are large, and afford room for the ramifications of the turbinal scrolls, and consequently indirectly contribute to the space for the distribution of the olfactory nerve filaments. The enormous development of the middle turbinate in the dog is intimately connected with his acute sense of smell.[7]

In man only the upper portion of the middle turbinate is supplied with olfactory nerve filaments, and there are no ramifications of the turbinal bones into any of the accessory sinuses. In the dog there are scroll-like filaments of this bone in all the sinuses, even in the frontal and the sphenoidal. That the accessory sinuses in man subserve any specific purpose is highly problematical. Some authors have stated that their function is to give more resonance to the voice, but this is probably only an accidental quality which they possess, and can hardly be looked upon as the result of any selective action on the part of nature. The argument sometimes advanced that they serve to increase the space or bone surface available for the numerous muscle attachments of the face, and have, therefore, been developed for that purpose, will not stand the test of close reasoning. The other bones of the body whose surfaces are obviously increased for the sole purpose of providing additional space for muscle attachment are filled with a cancellated structure rich in fat and blood-vessels, their nourishment being thus amply provided for, and their resistance to pathogenic germs reduced to a minimum. If a selective process with exactly the same end in view had taken place in the bones of the face, it seems difficult to understand why the same result would not have transpired here as in the ends of the long bones. Identical ends in different parts of the body are attained by identical methods, and there seems no good reason to suppose that nature has made an exception in the case of the accessory sinuses.

In the human embryo there is a complicity of accessory sinuses and nasal fossæ which subsequently disappear.[8] A study of these sinuses in primitive man is instructive. Here the evidence is all in favor of a former great development in comparison with that found in modern man. Huxley, in commenting on the characteristics of the Neanderthal skull, quotes Schaafhausen as remarking upon the extraordinary development of the accessory sinuses which it presented.[9] Schaafhausen did not consider this to be an individual or pathological deformity, but a typical race characteristic.

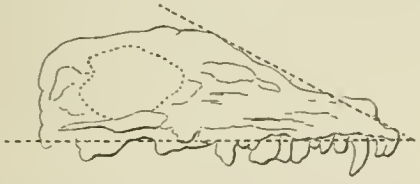

Fig. 3.—Dog (Owen).

The consensus of opinion seems to be that the North American Indian and Eskimo have unusually developed accessory sinuses. Hrdlicka, who spent much time among the Indians of the southwestern United States and Mexico, and made many accurate observations of their physiological and anatomical peculiarities, subscribes to this belief.[10] An examination of ninety-one crania in the Museum of Natural History in New York City was undertaken with the idea of ascertaining if there existed any uniformity in regard to the size of the cells in primitive man, and whether or not they were universally large. Of these crania twenty-six were northwestern coast Indians from Vancouver island, two were from Wisconsin tribes, eleven from Alaska, thirty-one were Eskimo, thirteen were from Ohio and Kentucky mounds, seven were Peruvian Indians, and one was from the Yaqui tribe. On account of the peculiar anatomical characteristics of the sinuses, it is impossible to take accurate measurements of their capacity without making cross-sections. This was not possible, but the general result of the observations leaves the impression that there was a much greater development than is commonly encountered in the case of patients presenting themselves at our clinics for treatment.

The sphenoidal cell admits of accurate measurement of its anteroposterior diameter in the dried skull, without any dissection or any cross-section sawing, this measurement taken in the ninety-one cases referred to, ranged from three-eights to one and one-half inches, with a mean of sixty-four one-hundredths inch. The medium was five-eights inch. The standard deviation, nine hundred and thirteen ten-thousandths of an inch, with a probable error of six hundred and fifteen ten-thousandths. Although the number of crania examined may seem too few on which to base conclusions, the fact that the median variation so closely approximates the mean, and that the fraction of probable error is small, would lead one to believe that a sufficient number had been measured to form a fairly accurate opinion as to the average depth of the sphenoidal cell in primitive American types.

Eleven specimens of modern skulls showed an almost equally wide range of variability, the smallest being one-half inch in diameter and the largest one and one-eighth inch. The number of skulls examined is not sufficient to warrant the forming of comparisons between the capacity of the sphenoidal cells in primitive and modern man, but the extreme range of variability in both cases counts strongly in favor of the argument that these cells are undergoing developmental changes common to those organs which no longer subserve any specific useful purpose to the organism.

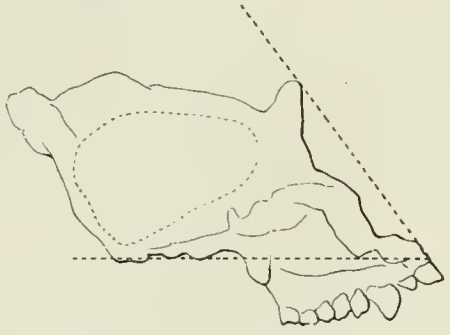

Fig. 4.—Gorilla (Owen).

Although the accessory sinsuses in man are not at the present time in any way contributory to an increased acuteness of the sense of smell, their size and development seems to bear some relation to the acuteness of that sense. Humboldt[11] noted the highly developed state of the olfactory sense among the South American Indians, and it has been proven by experiment that negroes and Indians are often able to recognize individuals by their odor.[12] The fact that certain savages are apparently insensible to bad odors does not at all invalidate the truth of the proposition that their sense of smell is more highly developed than in civilized man. Whether an odor is pleasant or disagreeable is largely a question of individual taste, and depends more upon the habit of the individual or species than it does upon the degree of acuteness of the sense in question. The fox, which is a remarkably keen-scented animal, lives habitually in dens which are extremely foul smelling to us. The hog, which has also an acute sense of smell, seems to be entirely oblivious to the odor of putrid flesh.

As the accessory nasal cavaties deviate more and more from the primitive type their liability to disease correspondingly increases. Among the modern civilized races both chronic and acute sinusitis are very prevalent. The frequency of their occurrence seems to be in no way dependent upon any particular kind of climate, or geographical locality. It would seem that chronic suppurative conditions of these sinuses often exist without giving their possessors much apparent trouble. In a pamphlet published by Martin he tabulates the results of seven hundred and forty-six autopsies in which the accessory sinuses were examined. In the seven hundred and forty-six cases there were found evidences of chronic sinusitis in two hundred and forty-nine instances.[13]

Whereas the evidence is ample that affections of these cells are very common among Europeans and Americans, there seems to be an entire lack of testimony to show any thing like an equal occurrence among primitive races. The Indian and negro, and Australian aborigine, are practically free from troubles of this kind.

As the negro in the United States is undergoing a gradual change owing to intermixture of white blood, we should expect to find instances in which the facial development—and capacity—of the accessory sinuses would correspond to the white parental type. Hence, affections of these sinuses should be, theoretically, more frequent in mulattoes than in full-blooded negroes.

In regard to the third manifestation of relative overdevelopment of the brain case, namely the deflection of the nasal septum, we are confronted with so many other theories of its causation that we must first analyze the various explanations advanced, and see wherein they fail to account for the condition, before we bring forward the positive evidence in favor of our own hypothesis.

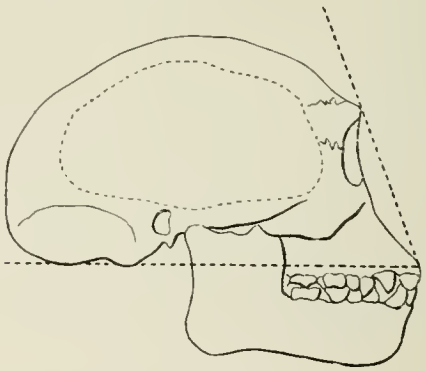

Fig. 5.—Pithecanthropus erectus (Dubois).

At first thought the most rational explanation of deflected septa is mouth breathing, caused by adenoids. According to this theory, the mouth breathing child lacks the support and lateral pressure exerted by the tongue against the alveolar processes of the superior maxillary bone, thus allowing the palate to become high and narrow, and thereby encroaching from below upon the perpendicular space available for the development of the septal bones and cartilage.[14] This is the commonly accepted view of its causation. That this is not the primary cause is conclusively shown by the fact that the percentage of deflected septa among those races which are not mouth breathers, and who do not have adenoids, is almost as great as among our own people. Hrdlicka states that a more or less deflected nasal septum is very common in the Indian. A perfect septum being one of the greatest rarities. At the same time he states that they are much more free from catarrhal affections than is the white man, and that mouth breathing is not at all common

among them.[15] Of sixty-four dried skulls of primitive man examined at the Museum of Natural History in New York City, nineteen marked deviations of the bony septum were found. This is a frequency of thirty per cent., and must necessarily be an underestimate because of the fact that only bony deviations were observed. Cartilaginous deviations are much more common, but in the dried specimens the cartilage is usually lacking, and therefore has to be left out of the count.

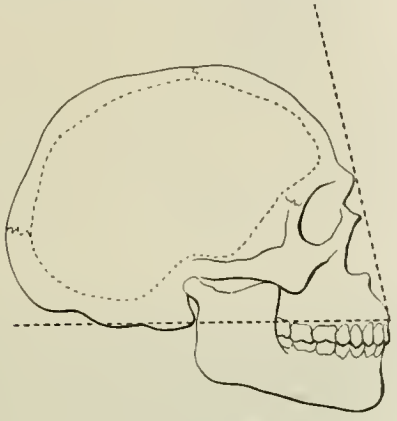

Fig. 6.—Australian savage (Owen).

That the Southern Italian and Sicilian are much more free from adenoids and mouth breathing than the narrow nose races of Northern Europe and the United States, is a matter of common knowledge, and yet deflected septa are prevalent among them. Of ten hundred and eighty-six South Italian immigrants examined without a speculum there were eighty-seven or eight per cent. found with marked deviations of the cartilaginous septums. Of 1044 narrow nosed Northern European immigrants, including over 600 Scotch and Irish, all of which were examined in the same way and under the same conditions as the Italians, there were 93, or 8.9 per cent., found with marked deviations of the cartilaginous septums. Here we find practically the same result in two classes of people which are entirely opposite in respect to the prevalence of mouth breathing. The occurrence of deflected septa seems to be pretty clearly established among all races of people. The difference means simply this, that in the narrow nosed races a deflected septum so nearly approaches the turbinate on the side of its covexity that the slightest coryza or irritation is sufficient to produce a congestion which will cause contact with the mucous surfaces, thus giving rise to nasal obstruction and mouth breathing. This quickly leads to a condition of negative atmospheric pressure with a resulting hyperemia of the nasal pharynx, which in turn causes the adenoid tissue there normally present to undergo hypertrophic changes; thus rendering worse or entirely complete the obstruction for which the septal deviation was primarily responsible. A sort of vicious circle is now established, and as a result of the mouth breathing and loss of the lateral support of the tongue, the arch of the palate becomes high and the septum, which was at first only slightly deviated, becomes more and more deflected until its development ceases with the advent of early adult life. In the wide nosed races, on the other hand, it takes a very marked and unusual degree of septal deviation to produce contact with the mucous surfaces and a consequent congestion of nasal obstruction. Thus it is, that although deflected septa are as a matter of fact prevalent among negroes, Indians, and all wide nosed races, they rarely produce pathological conditions in these peoples and have consequently been overlooked by a majority of observers.

Another theory to account for deflected septa is that they are due to irregularities of development caused by mingling of distinct racial types. The recent work done in investigating the laws governing heredity would seem to discredit this theory.[16]

As stated before, Boas has shown that when two races intermingle the half-breed product serves to reproduce one or the other of the ancestral unit characters rather than a cross between them.[17] From the standpoint of the antropologist the Southern Italian is one of the purest races of which we have cognizance,[18-19] yet we have seen the prevalence of deflected septa among them to be almost equal to those of the races of Northern Europe, which are the result of the intermixture of many different types.

Whatever opinion one may hold as to the racial unity of the Jews, considered as a class, there is very little doubt but what those coming from Russia and Southeastern Europe have maintained a high degree of blood purity for a great many generations.[20] The extreme prevalence of deflected septa among the Hebrews coming from this part of Europe has been shown by Glogau. Out of 4400 cases which he examined at Mt. Sinai Hospital he found 3823 deviations.[21] Fishberg, who has made anthropological investigations among the same class of Jews from which Glogau's statistics are compiled, is authority for the statement that the width of the Hebrew nose is usually less than 70 per cent. of its height.[22] A nasal index of 70 per cent. must place its possessor among the distinctly narrow nosed races.[23] Hence, the slight septal deviation which is almost universally present among all races readily becomes pathological in the Jew on account of his congenitally narrow air passages.

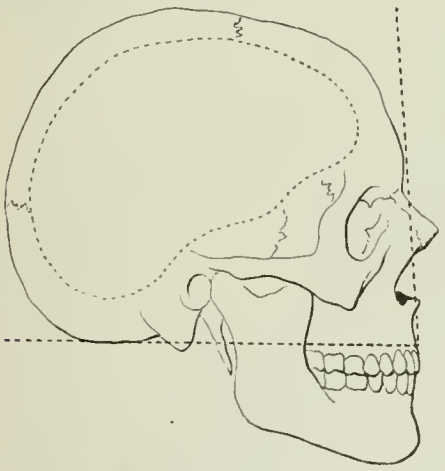

Fig. 7.—Modern civilized man (Owen).

Thus, we see that the theory of race intermixture as the cause of deflected septa is not only contrary to what we know of the laws governing heredity but actual observation also fails to establish it upon a firm foundation.

The theory that the primary cause is due to prolonged pressure during parturition can have no foundation in fact from the simple reason that primitive races show a large percentage of deflected septa notwithstanding the ease and rapidity of labor among them.

The real cause of this condition is probably to

be found in the relative overdevelopment of the brain case in comparison to the bones of the face. In the human embryo the parietal, frontal, and occipital bones, together with the superior maxillary, palate, nasal, and ethmoidal, commence to ossify about the seventh week of fetal life. The vomer does not show any center of ossification until about the sixth month.[24] Thus we see that very early in life the space for the development of the septum is being impinged upon by those bones with which it articulates. As the infant grows older the pressure on the septum from above rapidly becomes more marked on account of the great growth of the bones comprising the brain case. In the lower animals growth of the cranium ceases at an early age, while the bones of the face develop up to adult life.[25-26] Whereas the process is not exactly reversed in man, nevertheless there is a continuance of the growth of the cranial bones up to the time of the cessation of cerebral growth, which is usually about the age of thirty years.[27]

Thus the process of deviation which begins in infancy is hastened by a lack of correlation between the growth of the nasal bones and those comprising the cranium, and it is in the relative overdevelopment of the latter that we find the fundamental cause of deviated septa.

From the foregoing observations I think the following conclusions may be fairly deduced:

1. The accessory nasal sinuses do not at present subserve any specific useful purpose, but are to be classed among the disappearing or vestigial organs, which facts largely account for their susceptibilty to infection.

2. The presence of deviated nasal septa is probably equally common in all races, becoming pathological only in those races which are congenitally narrow nosed.

3. The cause of congenitally narrowed air passages and deviated septa is primarily developmental, and finds its true explanation in the fact that the brain case is being developed at the expense of the bones of the face and olfactory apparatus.

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SPONDYLITIS DEFORMANS.*

WITH A REPORT OF SEVERAL INTERESTING CASES.

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Spondylitis deformans having interested a large number of observers in the past few years, serves as a motive for my bringing the subject before you this evening. Called by French observers *spondylose rhizomelique,* it is essentially an ankylosing inflammation of the spine, chronic in its course, progressive in its disabling effects, and accompanied by painful symptoms. Predominance

Fig. 1.—Case 2, boy of 16 years; showing marked lordosis and prominence of the scapulæ.

of characteristic symptoms and ensuing deformities leads to the classification into a number of types. To begin with, there may be simply a stiffness in the back, without much bony change.

Case I.—Mrs. G., 65 years of age, consulted me for longstanding pains in the knees and ankles, besides a stiffness in the lower part of the back. She had tried treatments by naturopaths, electricity administered by her family physician, and visited various spas without result. The lower dorsal and lumbar spine proved, upon examination, to be ankylosed, while the motions of the hip were restricted

*Paper read before the Richmond County Medical Society, New York, June 9, 1909.

in flexion and abduction. Treatment: Strapping of the back, proper shoes, and a diet chiefly of buttermilk, gave a fair measure of relief.

This was a mild case, of a type that is frequently seen in neurasthenic patients. In the more marked cases, we notice the peculiar deforming action of

Fig. 2.—Case 3, Spondylitis deformans, with bow-back; a temporary adhesive strapping has been applied.

periosteal and bony hypertrophy. The ligaments and interarticular cartilages degenerate. The new formation of bone tissue, so characteristic of osteoarthritis, takes place on either side of the body of the vertebra, and extends down the spine; one segment after the other is affected, until we have a mass of newly deposited bone, sheathing the column as if one had poured thick syrup from above, and let it crystallize. The vertebræ are usually lipped at their edges, and they soon fuse together, forming the "poker-back." If there be much proliferation along the lateral aspects of the spine, the process may encroach on foramina of exit of the spinal nerves, causing pain along their areas of distribution, disturbances of sensation, and occasionally paralyses. Herpes zoster and symptoms of meningeal irritation have been observed. *X*-Ray plates demonstrate a compact fusing of bony trabeculæ. The microscope shows evidence of extreme density, in that the lamellæ are packed closely together. As to deformities, most of the cases belong to the type of the "long round back"; scoliosis can occur, however, from enlargement of one side of the body of a vertebra. Lordosis is quite unusual.

Etiology: Injuries are often described to be the starting point of the disease, but it has been difficult to demonstrate a direct relationship in most of the cases I have observed. The majority are past the prime of life and of the male sex; day laborers, coming for treatment for backache, will mention that the deformity has existed for long periods, without inconvenience. Gonorrhea has been antecedent in a fair number of cases coming under the observation of Bradford of Boston. I believe that in many instances gonorrheal rheumatism leaves the spine stiffened, and certainly every one has seen backaches in chronic polyarthritides of urethral origin. I have seen three cases of intractable backache complicating gonorrheal exostoses of the heels.

The types of the disease are: (1) Bechterew's, in which the other joints are not generally affected, and in which a neuropathic connection is supposed to exist; (2) the Strumpell-Marie type, combining ankylosis of the spine with that of the shoulders and hips. These vary so that they really merge into each other. Cases appended belong to either type.

Symptoms: The peculiar spinal stiffness seen in spondylitis deformans is at first due to muscular irritability, later to true ankylosis. During an acute attack the functions may be so disturbed as to render the column entirely rigid. Later a considerable part of the muscular spasm may have passed off, excepting a more or less extensive area of residual stiffness—that of bony fusing. Forward bending is awkward or impossible, the trunk bending as if it were an iron poker from sacrum to occiput. The testing for lateral mobility gives striking results; at first being limited more to one side than the other; later progressing stiffness is observed. One may find a lateral deviation, or the physiological dorsal curves may be so increased that the lumbar (forward) curve is obliterated. The whole spine forms a bow with its convexity

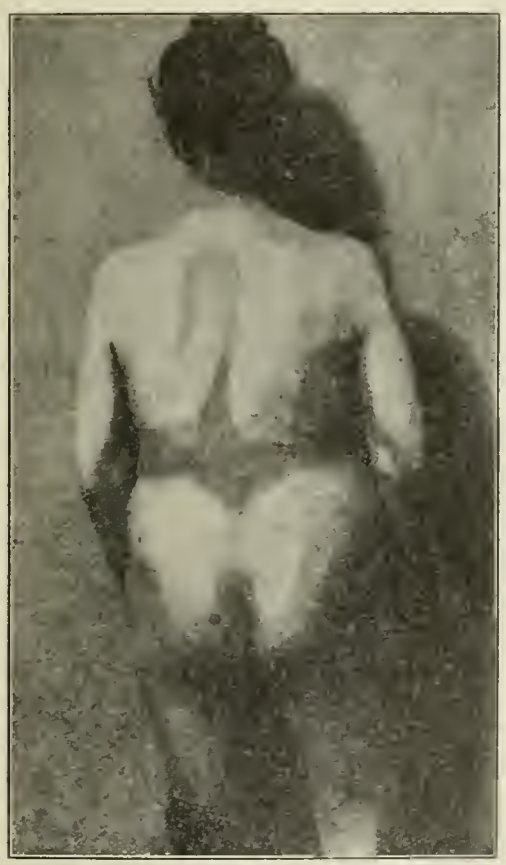

Fig. 3.—Case 4, spondylitis deformans; kyphoscoliosis; the fold in the abdominal muscles seen on the right side extended anteriorly across the abdominal wall.

backward—"the bow-back." Another common deformity is a straight, boardlike back. The gait is stooping, with the body bent forward, motion being entirely from the hips. Should the hips be involved, the body weight must be alternately shifted from one side to the other, the gait becomes

a disabling waddle, and patients find canes necessary in going about. In the reclining position the curves are not obliterated. The lower portion of the spine is generally first affected, the cervical portion becoming the seat of a subsequent attack. In severer cases the ribs are ankylosed at their junction with the spine, the chest wall scarcely moving during respiration. On attempting to turn around, in the standing position, the individual uses his heels as a pivot. Pain may be localized in the spine, at or around the spinous processes; it is often referred to the hips and shoulders, from impingement of the bony growths on the neural exits. This explains some of the miraculous "cures" of pains in thighs and calves, brought about by the effective "wiggling" of the spine by osteopaths. The figurative lengthening of the patients' legs from pulling thereon, seems to be a common sequel. This backache, neuralgic in character, "like a toothache," is usually more marked to one side. It may be increased by jarring on the heels. Marked tenderness over the spinous processes is the rule. The pain is always accentuated by active work, and relieved by resting.

Differential Diagnosis: In lumbago, there may be muscular spasm, but mobility of the spine is not long nor gravely limited. Sciatica is a disease limited to the nerve and its trunks in the sacroiliac region, and although there is frequently a scoliotic curve, there is no limitation of the spinal motion. Diseases of the hip, such as tuberculosis and malum coxæ senile, have their peculiar .r-ray appearances, a mobile spine, and physical signs in the hip. Spinal conditions to be cast aside are: Pott's disease (with its usually angular kyphosis, tuberculous lesions elsewhere, and the positive reaction to the various tests), aneurysm, and malignant disease. Sacroiliac disease furnishes tenderness and swelling localized to the sacroiliac joint, plus marked stabbing pain on attempting Goldthwait's maneuver of flexing the thigh on the pelvis while the leg is straightened. Pott's disease is usually the difficult problem for the diagnostician to eliminate, but abscesses will assist in the exclusion, while time, too, will help—referring to a short expectant period in which the patient wears appropriate immobilizing appliances. Diseases of the mesenteric nodes would present abdominal symptoms.

The prognosis, in early cases, is favorable as to complete recovery, a quiescent stage supervening under prompt and proper treatment. If the case is a progressive one, or if other joints are affected, the condition is a problem of patience, on account of the relative impossibility of complete cure. If both hips be implicated, as is occasionally seen, the patient's disability is marked, and the outlook is doleful.

Treatment: Under general measures we force the patient to stop his work, and instruct him to lead the simple life. We encourage the liberal use of water by approved methods. Exercise in the open air is ordered, and fatigue avoided. Thermal baths may be of benefit, but electricity is of no avail. The rigidity and pain have positive indications for fixation and protection of the spine, there being always an annoying exacerbation after any traumatism. We see in fixation a prevention, not only from stimulation of the proliferative process, but from the painful jarring of bone or osteophyte against sensitive nerve filaments incident to bending or twisting. Fixation is best furnished by a plaster jacket. This should be applied with the patient standing, slightly extended by the Sayre suspension apparatus, the desideratum being fixation, at first, rather than correction. As the acute symptoms abate, in four to six weeks, a second jacket is applied. It is good management to remove this in about eight weeks, and continue the fixation with a third jacket. At this time an improvement will be noted, the pain having practically disappeared. The spine will be found to be less rigid, and on examining for muscular spasm, the peculiar twitching that had previously been noted, on hyperextending the back, will be conspicuous by its absence. A brace, known as the "spinal assistant," is now accurately fitted to the spinal column, and worn as long as there is any evidence of irritability; this being a disease in which the patient has his "ups and downs." In certain cases, manipulation, massage, and active motion has proven of a great deal of assistance in my experience. Bradford believes that "the use of manipulation to ward off the approaching ankylosis is harmful and undesirable at all stages of the affection." I well remember one patient who always felt better after a session of rubbing, in which the masseur jumped on him, and bent him almost double. Palliative treatment, with the cautery, followed by strapping of the back, is temporarily of great benefit in selected cases. The management of a large number of instances of this condition has firmly convinced me of the efficacy of resistance exercises, accurately regulated by the Zander machines. Thyroid extract is to be recommended.

Case II.—L. F., 16, Austrian. Arthritis deformans, spinal, sarcoiliac, and coxitic (Fig. 1). Father died of tuberculosis. Boy walked at the age of two years. Was able to run about as other children. Noticed stiffness of back only during past year, gradually getting worse. Now complains of pain over the right hip, worse at night, and of difficulty in walking.

Physical Examination, Sept. 16, 1908: walks with marked waddle, body being inclined to the side at each step, on account of disability at the hips. There is a marked lordosis, and the abdomen is prominent. Boy is thin, skin seems darkly pigmented, while mucous membranes are somewhat pale. The spine, from the last cervical to last sacral vertebra, forms a long lordotic curve. Stiffness in this area is absolute; side bending impossible in either direction. No tenderness; no lateral deviation. Over the sacroiliac joints a number of osteophytes are palpable. These are rounded, the size of peas, probably form a synostosis of the articulation. Hips: all motions are limited, to some extent, especially adduction. The visible apex thrust against the left thorax is striking. X-ray findings: The lumbar spines show ankylosis of the articular processes, ossification of the intervertebral discs, and light shadows of large osteophytes above the sacroiliac joints, as well as to the sides of each vertebral body. Blood count, RBC, 5,000,000; white cells, 11,000; hemoglobin, 80 per cent. Treatment, a light spinal brace has been worn with a great deal of comfort. The stiffness of the hips, which skiagrams showed to be due to osteal outgrowths about the acetabular rim, has been somewhat improved by systematic use of the hip machines, that have been installed during the past year at the clinic. A recent examination demonstrates a small range of motion in the dorsal region of the spine, a decided improvement in the gait, as well as the general appearance.

Case III.—Mrs. Lizzie G., 27, married, Russian.

Spondylitis deformans, chronic nephritis (Fig. 2).

Past History: At the age of sixteen, suffered from nephritis, with attacks of kidney insufficiency on several occasions since. Has had a backache for two years, and noticed that during a previous pregnancy that this symptom was slightly diminished. Present complaint: Dull aching pain in the dorsal region of the back, worse while doing housework. Has some discomfort in hips and feet, and, at times, in the lumbar region. Examination of the spine revealed entire stiffness of the dorsal portion, flexion, extension, and side bending being nil. There is slight enlargement of the left side of the heart, and a high grade of albuminuria. The treatment consisted in weekly use of the cautery, to the spine, followed by adhesive plaster strapping. She derived considerable benefit from our Zander machine for active spinal twisting, which somewhat resembles a revolving chair, whose motions are resisted by means of weights. The nephritic condition soon cleared up under appropriate medication. She is still under treatment, now principally centered on the machines and massage, and has been fitted with a spinal brace, to furnish support during the day.

Case IV.—Mrs. F. D., age 42, married, Russian. Referred for treatment of a long-standing backache, by the gynecological department of the Vanderbilt Clinic. The examination of the internal organs, it had been found, showed that there was a complete absence of the internal, and most of the external, organs of generation. She had never menstruated. In the lumbar region of the spine, she presented a fairly marked kyphoscoliosis, with the convexity to the left. The photograph does not indicate the size of this gibbosity as it should. There were numerous Heberden's nodes on the fingers, the hips seemed to be stiffened by a similar osteoarthritic process, and the entire picture pointed to a developmental defect in the pelvic organs, that had in some way been associated with a localized hypertrophic arthritis of the spinal column, at the same cord level. The recent history of this patient cannot be detailed, for I lost sight of her after measuring and fitting a spinal support.

591 Lexington Avenue.

A CASE OF HOOK-WORM INFECTION ENDEMIC IN NEW YORK.*

By HARLOW BROOKS, M.D.,

NEW YORK,

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Hook-worm infection is a condition as yet uncommonly reported in New York City. Still more rarely are cases recorded in which the infection seems to have been acquired in our immediate vicinity. This has been a matter of surprise to those of us who are familiar with the prevalence of the disease in neighboring localities and who know of the considerable number of individuals who come to the city suffering from this parasite.

It is, however, highly probable that the infection will eventually become more generally disseminated here, especially from infected earth workers who have of late flocked to the city and its environs in large numbers to take part in the construction of our subways, water systems, and other operations involving extensive excavations. The danger of the spread of this infection under just such conditions as pertain here has been for a long time fully recognized in France, Switzerland, Italy, and other places, in some of which the climatic conditions differ but slightly from those of our city.

In so far as I am aware, no precautions to prevent the spread of this quite serious condition have been taken by the physicians in nominal medical control of these enterprises, and in some contracts I personally know that the hygienic and social conditions present in every way favor dissemination from known cases present. There are no cogent reasons why the infection may not become quite as serious a one with us here as it is in other localities, hence the importance of recognizing the first few cases of local infection which develop and the wide dissemination of knowledge concerning the disease. It is for these reasons that I desire to report the following case of local hook-worm infection which was discovered in my service at the City Hospital.

The patient was of Irish-American extraction, 55 years of age, and born in Philadelphia. He was well as a child, and the family and personal history have no bearing except for the fact that while a general laborer he had worked mostly at excavating, rock drilling, and the like. He had never in his life been further from New York than Pennsylvania, where he had worked for two years as a coal miner, during all which time he was perfectly well.

Two years before admission he was working as a rock driller in a reservoir at Brewster, N. Y. Several of his associates, including his immediate "helper," were Italians, some very recent arrivals in this country. Meanwhile he boarded at a farmhouse and lived very largely on milk. When he took this job he was in perfect health and of a ruddy complexion. He began, while engaged in this work, to suffer from headache and pains in the shoulders. About two months later he noticed that his legs began to swell, he became short of breath, and suffered greatly from dizziness, sometimes falling and losing his consciousness. He complained greatly of cardiac palpitation, and noticed that he had become very pale. He was obliged to give up work, and finally became so weak that he had to go to a hospital, where he remained from June until December. A diagnosis of pernicious anemia was made, but he finally improved sufficiently to permit his return home to Philadelphia, where he again entered a hospital, remaining there without improvement for six weeks. He finally returned to a New York hospital and was transferred to my service at the City Hospital with a transfer diagnosis of "pernicious anemia."

His chief complaints at this time were great weakness, dizziness, and palpitation with dyspnea. His appetite and digestion remained excellent. He was large and fairly well nourished. The skin was very pallid and of a pale yellow tint. He was mentally clear, and complained of no pain.

Examination of the chest presented nothing of note, and the heart sounds were found distinct and free from murmurs. The pulse was soft but regular, except after exertion, and ran from 72 to 88 per minute in the prone position. The abdomen was soft, somewhat retracted, and presented no points of tenderness. The splenic dullness could not be made out, and the liver border extended but to the free border of the ribs.

The temperature during his stay in the hospital

*Read before the Section on Medicine of the New York Academy of Medicine, December 21, 1909.

varied from 98° to 100° in the rectum. Examination of the urine showed a slight trace of albumin, but it was otherwise normal.

Examination of the blood showed hemoglobin, 25 per cent.; red corpuscles, 2,300,000 per cm.; leucocytes, 6,200; a few normoblasts and many poikilocytes, but no megaloblasts were found. There was great variation in the size of the erythrocytes and marked chromatic and endoglobular degeneration of the red cells. Differential leucocyte count showed the following significant finding: Polynuclear neutrophiles, 47.3 per cent.; small lymphocytes, 17.2 per cent.; large lymphocytes, 9.3 per cent.; mast cells, 1.8 per cent.; mononuclears, 3 per cent.; eosinophiles, 21.4 per cent.

Examination of the feces showed hook-worm ova in considerable numbers.

The patient was then given magnesium sulphate in purgative doses. The movements showed increased numbers of ova and an abundance of occult blood, but no parasites. Thymol was then administered in doses of 15 grains, followed by magnesium sulphate. At first no parasites were dislodged, but later a few appeared. The patient's condition had now become so serious that it was deemed wise to discontinue treatment for a week, during which time he was given a generous diet, chiefly of milk, eggs, and whiskey. Iron was given in the form of the tincture of chloride. The bowels were then again cleared by Epsom salts, food discontinued, and thymol given in doses of 30 grains daily. A considerable number of parasites and many eggs were discharged, but ova still persisted in the feces. After three days' rest the doses were repeated with the discharge of more parasites, but ova still were found in the movements. The patient was made quite seriously ill by the last doses of thymol, and as eggs still remained, after a rest of a few days beta naphthol was given in doses of 20 grains after the preliminary clearing of the gut by salts. This was followed by much less disturbance and by the discharge of many parasites in the feces. Less prostration followed this medication, which was repeated several times, and the patient's feces finally remained clear of ova.

Close examination of the parasite identified it positively as the European form of the worm, certainly differentiated from *Uncinaria Americana* by the position of the vagina, by the size, and by the arrangement of the buccal hooks.

The patient made a slow recovery under active ferruginous and dietetic treatment, but was not able to be discharged from the hospital for nearly three months. At this time the hemoglobin had reached 60 per cent. and the eosinophilic leucocytes had fallen to a relatively normal percentage. The general condition and feeling of the patient improved much faster than his hemic picture and he demanded his discharge, saying that he liked his job better than hospital treatment.

The interesting points presented by this case are, in brief, these: The infection was undoubtedly contracted in this State. As the identity of the parasite was definitely shown, it was clearly established that it was a European infection, probably received from his Italian associates.

The case demonstrates the well-known clinical resemblance between the anemia of uncinaria infection and pernicious anemia, and it strikingly demonstrates the necessity of examining the feces in all such instances. The diagnostic importance of the relative leucocyte count is also shown.

It is noteworthy that this patient passed through three hospitals, one of which was a well-known New York City institution, under a diagnosis of pernicious anemia, and he was sent to us in a presumably moribund condition.

The case also illustrates the difficulty with which this parasite is sometimes dislodged from the gut when it has remained there for a long time and it shows as well that treatment is not unattended with dangerous symptoms, even when thymol is given in inefficient though large doses. Beta naphthol in this particular instance appears to have acted better, though in two other cases under my observation thymol acted most satisfactorily and without the dangerous symptoms which attended its use in this instance.

In conclusion I wish to express my thanks to my house staff for their painstaking work and great interest in this case. My thanks in this respect are especially due to Dr. Snyder of the Sage Institute of Pathology who was at that time my house physician.

44 West Ninth Street.

LETTERS TO A NEUROLOGIST.

By JOSEPH COLLINS, M.D.,

NEW YORK.

PHYSICIAN TO THE NEW YORK NEUROLOGICAL INSTITUTE.

III.

"No love hath she, no understanding friend."

My dear Doctor:—I am very desirous of getting the facts of my case before you in the most telling way. It seems to me that I can do this best by sending you a letter which will contain the important points in my history, and then call upon you after you have had time to read it. To find oneself, thirty-six years old, alone, unattractive, unprovided for, and wholly incapable of earning a livelihood, is not a pleasant prospect, especially when ill-health is added to it. Many people think I am peculiar, but none of the peculiarities that I manifest are of my own choosing. I would gladly drop them and be like other people I see around me, who are evidently contented and happy.

The nervous exhaustion from which I suffer now began apparently in my twenty-first year, but I am convinced that it dates back to a humiliating and ignominous experience, a whipping given me by my father when I was nine years old. The thing that hurt me most was that my father, whom I worshiped, should be able to strike me. I am sure that the effect would not have been so lasting had I not had a great love for him and had not the whipping been done in anger. As a child, my affections were centered upon my father, an undemonstrative man, who used nothing less severe than criticism as a means of correction. This and the fact that he never gave outward token of affection or approbation, led me to believe, not only that he did not love me, but that he was displeased with me and disappointed that I existed at all.

This brought about a state of mind and feeling which not only made me very unhappy, but developed in me an attitude, a behavior, which led people to think me peculiar. I felt that if my own father was displeased with me and disappointed in me, others would certainly be so. I repressed myself in every conceivable way, and this included avoiding people. My father never sought to know his children. He never advised, encouraged or

praised. He either ordered or found fault. Criticism and correction were the tools he used in shaping his children's characters. No one knew my state of mind then, and I never spoke of it to anyone until many years later.

In my fifteenth year I began the study of painting and for five years I found in this work escape from myself and much happiness. But there was always a craving which I felt might be satisfied by someone who loved me, or perhaps even better by someone whom I could intensely love. Often in my despair of my father's ever understanding me or accepting my overtures of devotion, I would turn to companions of my own sex. Here also I was repulsed. Although some girl would be at first attracted by my admiration, she would very soon become listless and show signs of ennui when in my society and would shortly turn away from me, as though the very strength of my affection exhausted her. The fact of my demands being greatly in excess of her power to supply seemed to excite feelings of resentment and she would turn to more congenial and less exacting companions.

Is there no one in the world who cares to be deeply loved? Perhaps it is that only deep natures can bear to receive deep devotion and that the ordinary person under these circumstances merely feels disgust and resentment towards those who bring out superficiality which hitherto has been unsuspected. I cannot understand it at all, but I feel convinced that there is in me some force, which, denied a natural outlet, could still be utilized and made productive in some other direction, giving me a *raison d'être*.

In my nineteenth year I left home and went to study art. While there I experienced a remarkable change. I began to feel confidence in myself. When I returned home, and repressed myself no longer, I found people ready to admire and love me. Realizing that I was as capable and deserving of admiration as most of the girls of our acquaintance, I felt a bitterness toward my father which I had not before experienced. It is useless to dwell upon this now. I do not think that the hatred which would sometimes overwhelm me ever entirely supplanted my love for him, but it kept me in a state of bitter resentment. I could not understand how it was possible for him to tolerate himself and treat me, a part of himself, as he did. He was apparently unaware that any conflict was going on within me, or that I was unhappy. I made many plans to get away from home, to an atmosphere that would be favorable to spiritual growth and tranquillity, but I had no one to help me develop them, and it did not occur to any of my family that what they alternately considered as wilfulness, eccentricity, and misanthropy could be overcome by going away. Moreover, we were not so situated financially that I could ask to be sent to New York to study. Indeed, I am aware of the sacrifice that had already been made to send me to —— for the year.

My plans to get away were frustrated and my pangs of hunger for love were thwarted by a serious and protracted illness, a disorder of the intestines of a dysenteric nature, which attacked me at this time and which so utterly exhausted me that in two months I was scarcely able to move. For almost a year I was most miserable and listless, unable to do anything, and very nervous. When the symptoms of this disorder ceased I began to have headache and backache and entire cessation of a function, which alarmed me very much. I was now in such a state of apprehension that I thought I was losing my mind. I had never read or heard about nervous disease, and as I had indigestion constantly, I believed the trouble was with my stomach. The mental condition, I thought, was the result of being disliked and misunderstood.

I realized that I must get away. I knew my father would not consent to my coming to New York, so I did not discuss it with him. I told him I was going, and when he absented himself from home that day I did not even have an opportunity to say good-by to him. When my mother told him I had gone, his comment was that I had made my bed and could lie in it. I had got some money by selling several pictures, and I borrowed some from a clergyman.

The physician whom I consulted on my arrival here sent me to a nerve specialist, who said I was on the verge of nervous collapse and that I was already suffering from neurasthenia. He told me I should live an outdoor life in the country or go to a sanatorium. As I had just come from the country, and as I had no funds to pay for maintenance in a sanatorium, the only thing I gained from this consultation was the knowledge that I had a real disease. I tried to do some work, but inspiration and strength both failed me. For nearly two years I dragged out a miserable existence in hall bedrooms of "respectable" boarding houses in the vicinity of Stuyvesant Square.

Then I went home, fortified with all the good resolutions that I could command, and convinced that the trouble there must have been of my making or imagining. I was contrite and humble, filled with every desire for self-effacement. I wanted to go back and make my life harmonize with the life of my father. But my resolutions and my attitude did not long withstand the circumstances existing at home. It soon became very obvious that my father's peculiarities had become more accentuated. I shall never understand the injustice to his own children and his over-charitableness toward others. If a difficulty ever arose between his children and other children, he invariably took the ground that his children were in the wrong. Although he never did anything which could possibly contribute to make us what he wished us to be, he expected perfection from us, and was dissatisfied when he got it!

My parents are as dissimilar in temperament as it is possible for two persons of character and understanding to be. As for myself, I inherit those qualities of my father which my mother cannot understand and those of my mother which irritate my father. I appreciate my father's sterling qualities. I do not think that there exists a man who is his superior for uprightness of character and love of his fellow-men, so long as they are not his own flesh and blood. He is unusually broad-minded in many respects, and unusually narrow in others. He does not know the meaning of the word imagination, and he is apt to think that what he does not see or understand does not exist. My mother, who considers every one better than herself and never speaks of herself unless forced to, has had her personality effaced. In reality, she is a perfect mother so far as an automaton can discharge those duties. She believes that the queer streak in me is due to some experiences she had before I was born. At that time she had the care of her grandmother, who was very old and very ill. When my father would remain away from home until late at night this grandmother would insist that something had hap-

pened to him, and she would insist upon it to such purpose that my mother never failed to get apprehensive and frightened. When she spoke to my father about it and asked him to come home earlier, he said she was unreasonable and continued to remain away.

But whether or not my ill-health is due to some prenatal cause, I know that it exists, and that I must get over it. I have been in New York now for about five years, supporting myself in part by my own effort and in part through the bounty of friends. My only cheering thought is that I may get well and some day meet a man whom I will love and who will love me. I presume I ought to tell you that when I came back here some five years ago, utterly despondent and overwhelmed with loneliness, I met a man who awakened in me a force the existence of which I had up to that time been unwilling to recognize and too unhappy to realize. Quickly there developed something within me which made it impossible for me longer to dwell in the valley of despair. Happiness was in full sight, but although he liked me and found pleasure in my society, he did not love me. The strength of my own feeling so overmastered me that it forced me to believe, in spite of reason, that he must care for me. Within a year he married some one else.

Strangely enough, soon after I first knew this man I began to experience a decided change physically and mentally. For the past five years there has been a gradual return of strength, and now, save when I overdo, I am comparatively free from suffering. I cannot do any mental work, and my capacity for painting (what little I had, for I never overestimated my talent) has been entirely lost. I have to be extremely careful how I use my little fund of strength or energy, for if I am not always vigilant I suffer. When you see me, you will no doubt be astonished that my appearance does not betray my experience, but my appearance is not more deceptive than it is variable. When I am down I look it.

I am very easily excited and confused, and when tired I often use words incorrectly. Sometimes a fatigue overwhelms me which makes even thinking impossible until after I have slept. This mental helplessness is quickly induced by talking or by listening to what does not interest me. The nervous exhaustion that comes from overtaxing shows itself in emotionability, in painful pressure around the head, a pulling sensation extending from the eyes to the back of the head, in irritability, acute indigestion, and in a lot of other ways which I know you will understand.

I do not think I am what is called morbid, and I have not despaired of getting well, but when I think that the constructive and productive half of my life is gone, do you wonder that I feel disheartened and desolate? I am so eager to do anything that is within my power that words are inadequate to express my willingness. I am sad that Fate should have filled "Life's early cup with such a draught of woe," but I do not need consolation or encouragement. I need to get strong. I know how to extract the honey from the flower of life, if I can get the strength to stand up to it.

Believe me, with much respect, yours truly,

Dear Madam:—What is your desire, then? Is it to apprise me of your condition and state of mind, or is it to be told how to develop sufficient strength to justify you in setting out on your journey to the Hesperides?

You have given me an unusually clear and interesting account of yourself and of the genesis of your ego, and it is refreshing to get these from a patient instead of a catalogue of symptoms. Your statement that you do not need consolation or encouragement makes it easier also to answer your letter. We physicians spend so much of our time giving both that it becomes as natural to do it as it is to smile on meeting a friend.

An interpretation of your condition is not a difficult matter. Let us suppose that you are by nature a sensitive, impressionable, affectionate creature, that you have more of that indefinite quality called temperament than the average woman. The brutal incident that you relate as having occurred in your ninth year and the atmosphere of frigidity and unloveliness in which you spent the formative years of your life are sufficient to have eradicated, or at least dwarfed, every one of those qualities. Instead of this, the effect of your environment only caused you to throw around yourself a cloak of arrogance and self-sufficiency, in order that it might not be seen how nearly frozen to death you were. For a few years following the period of your physical maturation, your natural clamorings for emotional appeasement, your unconscious bids for affection, were allayed in a vicarious way by the appeal which color and painting made to you and by the physical labor of acquiring the capacity to use them.

The beating which you received, and upon which you lay such stress as a cause of your ill health and unhappiness, was probably a thorn in your emotional nature for a long time, but it had, I think, little or no relationship to your present condition. Moral or physical insults incurred at a time of life when it is impossible or inexpedient to resent them often, it is said, get stored up in the latent consciousness and act as a provocative agency of disease long after the memory has lost track of them. I do not think this is so in your case, particularly as it has withstood what we physicians speak of as the therapeutic test; that is, the attributed results of it have not disappeared after it has been brought up into consciousness and fully discussed. It is generally held that symptoms flowing out of such moral insults are most successfully overcome in this way. Such revival of latent memories, and the submission of them to careful analysis and logical inquiry, constitute an important feature of so-called psychotherapy, which one hears so much about nowadays. What this experience really did was to humiliate you and to convince you that you were neither loved nor appreciated. Instead of forgetting it, you hammered your iron when it was glowing hot, and you have gone on hammering it ever since.

If you had not been so unfortunate as to develop in your twentieth year the infectious disease you mention, it is probable that you would have entered young womanhood with sufficient physical strength and endurance to have frequently put you in the way of meeting that understanding friend whom you so badly needed. In reality, if you had married in your early maturity, and if with matrimony had come an average amount of felicity and "children with clamoring limbs and little hearts that err," you would not have got into the state in which you are now.

I venture to say to you, without inquiry as to whether or not you are a seeker for liberty in the

direction of suffrage, that woman is not a unit; she is only one-half a unit. She may be compared to a house the front of which is built and beautifully finished. Such structure is better than no house at all, but it lacks all the essentials of a comfortable dwelling-place. It needs a roof, it needs care, it needs direction in order to endow it with all the comforts that we expect in the home; and your sex, in order to develop those qualities which are essential to happiness, needs completion and direction. "Every wise woman buildeth her house."

There comes to every woman at the time of early maturity and coincident with it a functional capacity of certain cells or tissues of the body indicative of her growth and of her power to participate in that most wonderful and inexplicable of phenomena, creation. The secretion of these tissues is essential for the physical and moral development of the individual. Naturally, I am not saying to you that these cells cease to functionate if matrimony is denied the individual—it would be absurd to make such a statement—but with matrimony and its entailments come the completion of the human organism, it matters not what the sex of that organism may be. You may construe this as counsel to marry, and although I am unwilling to take it upon myself to advise you to marry without knowing more about you, I want you to know that it is the lack of adequate and satisfactory mating that I believe to be largely responsible for your condition.

It seems to me that you have a large endowment both of the instinct of family and of the social instinct as well. I should judge from your letter that you come honestly by the former, but the latter does not seem to me particularly evident in your father.

And now I wish to add a few words regarding your metal attitude and to counsel you as to the necessity of changing it. You have got yourself out of all perspective with life. It will require much determination and persistence on your part to get the world, or at least that part of it with which you come in contact, into the right focus again. You really have much to be thankful for. You are not hypochondriacal, and you are not a prey to obsession. You have not lost your will-power, and you still have confidence in yourself. You can readily see how much more difficult the situation would be for you if any of these conditions existed. But you take yourself too seriously. You center all thought on yourself, instead of projecting it in the direction of persons, things, and ideals. In my mail this morning I received a tiny booklet entitled "Thought Sickness." The writer, an earnest soul struggling with the problems of existence in a small town in North Carolina, thinks he has discovered the "law" that "governs" the relation of thought to disease, in the same way that Newton discovered the law of gravitation. His "law of cure" is: "Thought or attention to, increases pain and hinders Nature's efforts to cure. When the entire thought output is engaged with something other than self, the natural powers of Nature to cure are exercised to their greatest extent." He has made a discovery that countless millions have made before. Possibly you haven't made it yet? You should set about it, and while so engaged keep a watchful eye out for limitations.

When you combine the rare gift of a just appreciation of your own limitations with a certain knowledge of your sex and its functional destiny, you will, I think, take the first determining step along the road that leads to the goal of health. The individual comes into this world with certain endowments: not alone physical, but also emotional, spiritual, temperamental—call it what you will. His physical endowment permits him to grow to a certain height, which he can neither dwarf nor exceed by effort of his own. He can facilitate and possibly expedite his growth, and he can impair the degree of completeness or perfection to which he is entitled, but he cannot fundamentally increase or diminish the height with which he is endowed. You have an emotional or temperamental endowment which clashed with that of your family, and particularly your father. He either had no capacity to understand a nature such as yours or he had no inclination to attempt to interpret it; therefore he was neither sympathetic to you when you were ill nor appreciative of your spiritual and emotional needs when you were well.

The longer you dwell upon your troubles, the more difficulty you will have in overcoming them. Forget the incident of your youth which seems to you so important. Try to live in the future, not in the past. Cease rehearsing your disagreeable experiences and refrain from dwelling on what you think are their inevitable results. The experience that you had five years ago is an indication that your physical and mental health will find prompt restoration if the opportunity comes to you to fulfil your physiological destiny. In the meantime, "assume a virtue if you have it not," and in proportion as you are able to live your life for others, so will the opportunity be offered you to find your destiny.

Defective vision is said by Taussig of St. Louis to be slightly more common among school girls than boys, and defective hearing more common among the boys. The difference is slight.

Etiology and Pathology of Noninfectious Melena of the Newborn.—A. Bonnet-Laborderie gives us a study of the etiology and pathology of melena of noninfectious origin in the newborn, with an account of a typical case. The diagnosis between the infectious and noninfectious forms is based on the early appearance, curability, localization of hemorrhage in only one organ, the intestine, and the general good condition of the child in the noninfectious form; as contrasted with a late appearance, bad general condition, many sources of hemorrhage, and fatality of the microbian form. The localization of hemorrhage in the intestine depends on the liability of the intestinal mucosa to congestion at birth, with hypertrophy of the spleen and liver, and a sudden abolition of the uteroplacental circulation. After considering the various theories advanced to account for these hemorrhages the author states that he believes them to be due to difficulty of establishing respiration at birth, which causes an increased blood pressure, resulting in extravasations and ulcerations in the stomach and intestines.—*Journal des Sciences Médicales de Lille.*

The Rapid Development of Tumors During Pregnancy.—Michele Monforte describes two cases of tumor observed by himself, in which there was a rapid increase during pregnancy and a diminution in size as soon as labor was over, and gives the histories of three other cases recorded in literature. As to the cause of this increase during pregnancy he analyzed the possible causes of the changes observed. During pregnancy there is a change in the composition of the blood and in its quantity, and an increase of vascular tension, with an increase in the size of the heart. There is a congestion of the abdominal organs, an autointoxication, and influences due to the neurovascular mechanism which have something to do with the increase in size of tumors. A hyperproduction of nutritive elements and of toxic substances takes place, and it is possible that these toxic materials stimulate the cells at the point of the tumor formation and cause a rapid increase of cell formation. The suppression of the menstrual function is a cause of congestion during pregnancy. This removes one of the chief eliminative functions of the female organism. When labor has taken place the hemorrhage, decrease of vascular pressure, slowing of the pulse, and elimination of toxic products causes a regressive action in the tumor cells and a diminution in size. —*Annali di Ostetricia e Ginecologia.*

MEDICAL RECORD.

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THE EPIDEMIOLOGY OF TYPHOID FEVER.

A FEW years ago the question of the mode of spreading of typhoid fever was considered to be settled, and the prevalence of an epidemic of the disease in a community was taken as *prima facie* evidence of a contaminated water supply. The result of this belief was a widespread reform in the methods of supplying our cities with water. Watersheds were investigated, cleaned up, and policed; filtration plants were installed for our rivers; and new intake tunnels were built into our lakes. The result of this movement was indeed striking, and in some instances, notably in Philadelphia and Cleveland, where the cases of typhoid fever had been numbered by the thousands, within a few weeks they become comparative rarities. It was, however, soon learned that while pure water greatly reduced the amount of typhoid fever in a community, it did not entirely eradicate the disease, local epidemics and sporadic cases continuing to crop up here and there even when the water supply was apparently above reproach.

Attention was then turned to sources of contagion other than water. Oysters and other shellfish taken from polluted waters and eaten raw were considered to be responsible in some instances. Impure milk was held up as a source of danger, and many local epidemics were traced definitely to such sources. The house fly came in for a goodly share of attention, and by many has come to be considered the chief source of contagion, particularly in smaller towns and rural districts, where the more primitive type of toilet facilities makes the contamination of the fly with human excreta a simple matter. Within the last two or three years attention has also been turned to the danger of "typhoid carriers." The discovery, however, that typhoid fever may on occasion be conveyed by any one means is far from proving that it is of necessity so carried in all instances, and in every city are found many cases which do not seem to be explicable on any one theory. Washington furnishes an example of a city which has suffered recently from a particularly widespread epidemic, or better endemic, of typhoid fever of obscure origin. Here, in spite of a good water supply and a vigorous sanitary campaign, the mortality rate from the disease, though in no way comparable with that of some of the large cities a few years ago, is among the highest in the country.

The cause of this continuing epidemic of typhoid fever in Washington has been investigated by the Public Health and Marine-Hospital Service, its third report upon the subject having been published recently in the Hygienic Laboratory Bulletin, No. 52. This report covers the studies made by Rosenau, Lumsden, and Kastle into the typhoid situation in the District of Columbia during the year 1908. The work was extensive, covering all cases which could be discovered in the city, and intensive, many blocks of houses being investigated minutely, as to every inhabitant, either sick or well. The results of this painstaking work are possibly to a certain extent disappointing, no one factor being at all definitely proven as the chief cause of the epidemic. A few points are, however, well worthy of mention. The water supply was found not to be responsible for much, if for any, of the disease. By a careful comparison of the prevalence of flies and the cases of typhoid fever, no relation could be determined between the fly curve and the fever curve. Milk was shown to be the source of contagion in several localized epidemics, in one of them the infection having been traced back from two dairies to one farm, whose owner, though in good health, was found to be a "typhoid carrier." Quarantining this farm promptly checked the spread of the epidemic. Personal contact with ill patients was found to be a matter of more importance than it is generally considered to be, and is stated by the investigations to be "one of the major factors in the spread of the disease."

The points, however, in these investigations which seem to be of especial interest, pertain to the subject of "typhoid carriers." Not only did the well-known form of chronic carrier occur, in whom the bacilli remained active for months or years after attacks of the disease, but harborers of the germs were found who gave no history whatever of previous attacks. Some of these, after having carried the germs for long periods without the appearance of symptoms, finally, owing to lowered resistance or some other cause, themselves succumbed to the disease. Still another type of carrier was that in which the organisms were found on examination of the excreta of healthy individuals at one inspection, whereas a few weeks later they were again looked for in vain. These temporary carriers, if they prove to be as common as the present studies would suggest, three such instances having been found in the examination of one thousand healthy persons, may prove to be factors of some considerable importance in the spread of the disease. They would certainly suggest the possibility of contagion by means of a third party himself immune.

CALCIUM AND ECLAMPSIA.

SOME experiments undertaken by W. Blair Bell and Pantland Hicks on the physiology of the female genital organs, described in the *British Medical Journal*, Feb. 27, 1909, have incited A. C. F. Halford of Brisbane to write on the subject of calcium metabolism in the *Australian Medical Gazette*, Nov. 20, 1909. Halford notes that the chief results from the investigations described in our London

contemporary prove that the phenomenon of menstruation bears a close relationship to the calcium content of the blood. Menstrual discharge is found to be very richly charged with calcium, and this excretion coincides with a marked fall in the calcium content of the blood. Further, when a woman becomes pregnant such excretion of calcium necessarily stops and the question arises, how is it employed in the pregnant state. The needs of the embryo in the earlier months will be but small, so that for a few months the mother's calcium content must continue high. In the later months, however, the fetus will draw largely on the calcium salts in the mother's blood for the building up of the skeletal structures, and it is when this demand reaches its height, in the seventh month and after, that symptoms of the preeclamptic stage occur.

According to Halford, the symptoms of low calcium content are identical in many ways with eclamptic phenomena. The most prevailing are edema of the extremities and loose cellular tissues, and convulsions. An exclusive milk dietary is a part of the treatment of this condition, and milk is rich in calcium. After labor calcium will again accumulate in the blood, but it takes three days to rise sufficiently to stimulate excretion by the mammary glands, and the function or site of calcium excretion being now transferred from the uterus to the breasts, the catamenial discharge remains in abeyance while lactation lasts. In short, the theory propounded is that eclamptic symptoms and eclampsia are due to the absence or comparative absence or lack of sufficient calcium in the blood, and conversely that it is essential to the pregnant woman in order to be free from eclampsia and from hemorrhage that the calcium content of the blood continue high.

Halford's treatment for exclampsia and eclamptic symptoms, as well as for the albuminuria of pregnancy, which, in his opinion, may be also due to paucity of calcium content of the blood, is by the administration of calcium salts in generous doses. He has treated a few cases in this manner with encouraging results, or rather it should be said, he thinks he has averted eclampsia by following this procedure. Lactate of calcium has been the form employed both on account of its ready assimilable nature and because it is an organic compound. The dosage was 15 grains every four hours until symptoms abated and then less frequently. The theory advanced by Halford and others reads as if it were based on sound premises. His experience in practice seems to have been satisfactory, and if a wider use of calcium in the treatment of eclampsia is attended with beneficial results, a therapeutic remedy of very considerable value will have been unearthed. It may be stated that in dangerous cases of eclamptic convulsions the author recognizes that to give calcium by the mouth would be too slow a method, and in such cases he recommends the injection intravenously of a liter of warm saline solution containing about ten grains of calcium lactate.

Legal Rights and Tuberculosis.

At the Seventh International Tuberculosis Conference at Philadelphia, September 25, 1908, Samuel G. Dixon read a paper on legal rights and tuberculosis in which the trend of medical opinion is clearly shown. The difficulties in the way of successfully combating tuberculosis have presented themselves recently in various forms, and the only mode of overcoming these obstacles is to prove to the public that pulmonary tuberculosis is a disease which under certain conditions is easily disseminated and to make plain the methods whereby its dangers can be limited or even wholly eradicated. The ordinary individual is not alarmed by the presence of consumption as he is by the outbreak of a violent epidemic of smallpox, typhoid fever, or other infectious and contagious diseases. Consumption does not vividly impress itself upon his comprehension and consciousness as do these maladies and therefore he is apt to be lethargic in regard to its potency as a public menace. Its insidious nature robs it of much of its terror. However, to those who understand tuberculosis from bacteriological and clinical standpoints, it is a far more dangerous disease than the classical epidemic diseases, and it is its very insidiousness that renders it so. Dixon defines the legal rights of the people as comprised in the single word protection—protection to life, to health, and to property—and draws attention to the fact that by an unfortunate twist in the mental conception of our people there are a hundred laws for the protection of property to one for the protection of life and health. Consequently he thinks that it should be our first business as sanitarians to correct this mental obliquity and to enable the public to see things in their correct relations, and he tabulates eleven aphorisms with this end in view. Space is lacking here to refer in detail to these. Indeed, they are obvious to the medical man, and have even been brought to the notice of the layman many times during recent years. Nevertheless it is only by constant recapitulation that the masses can be made to appreciate that if they thoroughly understood what their legal rights are and insisted upon their enforcement, a very long stride would have been made in the direction of staying the spread of consumption. For instance, people have an undoubted right to pure milk, but, as a rule, they do not obtain it. In some cities, New York among them, strong efforts are being put forth to procure a pure milk, but in the majority of towns and in the rural districts generally, a deplorable apathy is manifested on this point. Again the people have a right to demand pure water, but in this case also they are frequently denied this right. Wherever possible consumptives should be segregated, and invariably they should be isolated in public institutions. In the new central prison about to be erected in Ontario a separate wing is to be built for the accommodation of those afflicted with tuberculosis, a departure deserving of the highest commendation. If medical men will but continue to educate the public in regard to the danger of consumption and drive home the fact that the people have certain legal rights which should be insisted upon, the disease must gradually disappear.

Contagion in Hospitals for Children.

In times of epidemics of measles, scarlet fever, and other contagious diseases, the general hospitals for children which for a time may be exempt, sooner or later receive some children who are supposed to be suffering from non-contagious disease, but who are in the incubative period of a contagious affection. These are usually isolated only after the in-

fection has already spread among the occupants of the ward. Periodically after that, at the end of the incubation period of the disease, another and another case appears indefinitely, until it becomes necessary to close the ward for disinfection. Such a disease as measles, which in the home seems to be a simple, benign disease, becomes a serious affection in a hospital where are congregated children already sick with other diseases or who have been operated on, as is shown by its considerable mortality. Scarlatina is still more serious and contagious. Influenza and bronchopneumonia spread as rapidly in children's hospitals and result as fatally. P. Chatin, writing in the *Lyon Médical*, for December 5, 1909, gives his experience in this respect in his service at the Hôpital Charité at Lyons, where he had a service for boys and a ward for infants. Measles got into his wards and at the end of about nineteen days, time after time a new case of measles appeared, until the ward was closed for disinfection. He suggests as a practical measure to prevent such an occurrence the division of one ward into separate compartments with glass partitions reaching a part of the way to the ceiling, but allowing of a circulation of air above the partitions. Every child who enters the hospital is placed in one of these compartments and cared for there until the period of incubation of the contagious diseases is over, that is for about three weeks. In hospitals where this has been done it has proved an effectual means of preventing the bringing in of contagion from without.

News of the Week.

New York State Committee for the Red Cross Society.—The American Red Cross has formed a New York State board, to consist of Governor Hughes as president, Cleveland H. Dodge, Jacob H. Schiff, Mrs. W. K. Draper, George C. Boldt, Robert W. De Forest of New York, Robert C. Pruyn of Albany, Colonel William Cary Sanger of Sangerfield, Alfred T. White of Brooklyn, and Ansley Wilcox of Buffalo. This board is to serve as a standing finance committee for the American Red Cross in the State of New York. Its function is to become the custodian of contributions given for relief purposes by the people of the State, in response to appeals from the Governor or from the Red Cross, in the event of the occurrence of a great disaster. Jacob H. Schiff has been appointed treasurer of the board.

Metropolitan Sanatorium Allowed.—The State Insurance Department has announced that approval has been given by it to the proposal of the Metropolitan Insurance Company to purchase 250 acres of land in Westchester county for the purpose of erecting and operating a sanatorium for the treatment of tuberculosis among its employees.

The Letchworth Village Commission, in retiring after completing their work of organization, passed a resolution expressing their thanks to the State authorities and all others who had aided in the formation of the institution. The work will be now carried on by the following board of managers appointed by Governor Hughes: *Chairman*, Mr. Frank A. Vanderlip; *Secretary*, Mr. Franklin B. Kirkbride (37 Madison Avenue, N. Y.); *Treasurer*, Mr. Leopold Sondheim; L. Pierce Clark, M.D.; Mr. Thomas J. Colton, Miss Casisty E. Mason, Miss Marion R. Taber.

Pollution of State Waters.—Attorney-General O'Malley of New York has rendered an opinion to the State Commissioner of Health in reference to the law regarding sewers emptying into State waters. The provisions of the public health law enacted in 1903 prohibit the discharging of sewers into any waters of the State except on express permission by the State Commissioner of Health. Commissioner Porter has advised the Attorney-General that this law is being violated by a great many municipalities throughout the State and asked the Attorney-General for an interpretation of the expression "waters of the State" as used in the statute. Attorney-General O'Malley holds that this refers to all tidal waters and all lakes and streams which are openly and notoriously used for navigation and also to any other waters which are in fact navigable or dedicated to public use for navigation or for a highway. The Attorney-General points out that the statute specifically provides that suits to restrain violations of this law or for the penalties prescribed are to be brought by the local boards of health.

Molluscum Contagiosum at the University of Pennsylvania.—About 150 students in the University of Pennsylvania have been attacked by molluscum contagiosum acquired it is believed through the gymnasium swimming pool.

Scarlet Fever and Measles in Buffalo.—A severe epidemic of scarlet fever and measles is prevailing in Buffalo. The situation is especially serious because the Common Council is at present deadlocked on the question of a site for a contagious disease hospital.

Measles in Brownsville.—The Brownsville section of Brooklyn, the seat of most of the poliomyelitis cases in Greater New York last summer, is at present having an epidemic of measles. During the first three weeks of January 1,067 cases were reported to the Board of Health.

Compulsory Treatment of Consumptives.—Secretary Probst of the State Board of Health of Ohio has prepared a bill which he will present to the present Legislature making treatment for tuberculosis compulsory and giving health officers power to order the imprisonment of refractory patients. The health officer is to have authority to enter homes where there are consumptives and put them in sanitary condition, and to send patients to hospitals for treatment.

Dr. Joseph S. Evans, instructor in medicine in the University of Pennsylvania, has been elected professor of clinical medicine in the University of Wisconsin.

A Department of Experimental Biology has been created by the Board of Directors of the Rockefeller Institute for Medical Research. Prof. Jacques Loeb of the University of California has been appointed as its head. He will assume charge of the department on July 1 next.

Lectures on Prevention of Disease.—A series of lectures on prevention of disease is to be given at the New York Academy of Medicine, 17 West Forty-third Street, under the joint auspices of the Public Health Education Committee of the Medical Society of the County of New York and the Hygiene Committee of the New York City Federation of Women's Clubs, on Thursdays, from January 20 to April 7, 1910, at 3.30 P.M.

Amalgamation of Medical Schools in Richmond.—At a special meeting of the faculty of the

Medical College of Virginia, held January 8, 1910, a proposition was made by Dr. Stuart McGuire, President of the University College of Medicine, that the two institutions unite and the proposition was accepted. It is understood that the entire faculties of both colleges will resign and a new one be appointed by a joint committee. No time has been set for the change as the action of the faculties must be ratified by the boards of trustees. The action was precipitated by the recent burning of the buildings of the University College of Medicine.

Phipps Institute for the Study, Prevention, and Treatment of Tuberculosis.—Drs. Charles H. Frazier, John H. Musser, David L. Edsall, and A. C. Abbott have been appointed by Provost Harrison of the University of Pennsylvania managers of the Phipps Institute for the purpose of entering upon the construction of the new building with the money contributed by Mr. Phipps.

Temple University, Philadelphia.—Dr. C. E de M. Sajous has been elected professor of therapeutics, materia medica, and pharmacology, Dr. J. F. Schamberg professor of dermatology and physiology, Dr. J. H. McKee professor of pediatrics, Dr. S. D. Ingham clinical professor of neurology, Drs. G. Morton Illman and Rae S. Dorsett associate professors of medicine.

The University of Michigan Medical Department.—The Board of Regents of the University of Michigan has adopted resolutions and appointed a committee to look into the desirability of removing the senior year students in the medical department to Detroit. It is suggested that this may result in the union of the Detroit Medical College with the University of Michigan.

Charitable Bequests.—By the will of Mr. John Stemme of New York, who died on January 10, German charities in New York will benefit to the extent of $80,000. Mr. Stemme left $10,000 to the German Hospital and Dispensary, and $5,000 each to the Wartburg Home for the Aged and Infirm in East New York, St. Mark's Hospital, St. Francis's Hospital, Montefiore Home for Chronic Invalids, Mount Sinai Hospital, German Poliklinik of New York, the Isabella Home, the German Hospital Society in Brooklyn, and the Fritz Reuter Home for the Aged at Union Hill, N. J. By the will of the late Matthew Corr of Philadelphia the following bequests are made: St. Joseph's Orphan Asylum, $10,000; St. Joseph's Hospital, for the endowment of a free bed in the name of the testator, $5,000; St. Mary's Hospital, for the endowment of a free bed in the name of a nephew, Bernard J. Corr, $5,000; St. Agnes Hospital, for the endowment of a free bed in the name of a sister-in-law, Catherine Corr, $5,000; Philadelphia Protectory for Boys, $10,000. By the will of the late Anna A. Porter of Philadelphia the sum of $10,000 is bequeathed to the Methodist Episcopal Hospital. The German Hospital of New York has received a gift of $100,000 from Mrs. Anna Woerishoffer of New York on the condition that a division for the diseases of children be formed to be known as the "Dr. Abraham Jacobi Children's Division."

The Metropolitan Life Insurance Company has received a gift of ninety acres of land and $100,000 for the foundation of its proposed tuberculosis sanatorium. The name of the donor is not made public.

Montefiore Home's New Site.—A new site for the Montefiore Home has been procured in the West Bronx section of New York City, between Columbia Oval and the Williamsbridge reservoir. A plot of about fourteen acres has been purchased by the committee appointed a short time ago to make arrangements for new quarters.

Clinic of the Harvard Medical School.—The free clinic to be run in connection with the Harvard Medical School in its new buildings in the Fenway, in Boston, was opened on January 10, 1910. The clinic is under the supervising charge of Dr. H. P. Howard, Dr. Henry A. Christian, and Dr. David Cheever.

The Portland (Ore.) Free Dispensary was opened on January 7, 1910. It is connected with the University of Oregon.

New Clinic for Jacksonville.—At a meeting held in Jacksonville, Fla., on January 10, 1910, a society was formed for the purpose of organizing a new eye, ear, and throat clinic in that city. Mr. George L. Drew was elected president, and Dr. F. P. Hoover, secretary.

The Rhode Island Anti-Tuberculosis Association is putting forth its principal effort in behalf of a hospital or hospitals for the treatment of advanced cases of tuberculosis. At the present time there are somewhat over 1,000 deaths a year from tuberculosis and facilities for the care of only 120 advanced cases.

The New York Physicians' Mutual Aid Association.—At the forty-first annual meeting of this association, held at the New York Academy of Medicine on the 18th inst., the president's report stated that there were nearly 2,000 members and a principal fund of over $70,000. The following officers were elected for the current year: *President,* Dr. W. F. Mittendorf; *Vice-Presidents,* Drs. Wendell C. Phillips and J. W. Ingalls; *Secretaries,* Drs. A. Edward Davis and Edward S. Peck; *Corresponding Secretary,* Dr. W. B. Jennings; *Treasurer,* Dr. Daniel Lewis; *Trustees,* Drs. Samuel Lloyd, W. B. Hoag, Heinrich Stern, C. E. Bruce, and D. P. Austin.

The North-Western Medical and Surgical Society of New York City, at its annual meeting, elected officers as follows: *President,* Dr. Godfrey R. Pisek; *Vice-President,* Dr. Linnæus E. La Fetra; *Secretary,* Dr. T. Homer Coffen; *Treasurer,* Dr. Henry L. Taylor.

Obituary Notes.—Dr. James H. Richardson of Toronto, Canada, died at his home, January 15, 1910, aged 87 years. Dr. Richardson was the first graduate in medicine of the Toronto University, having received his degree in 1844 from the Toronto School of Medicine, which afterwards was merged into the University. After serving in Guy's Hospital, in London, he returned to Toronto and became professor of anatomy in the University in 1850, a position which he held either in the Toronto School of Medicine or the University of Toronto until 1902, when he became emeritus professor of anatomy. He was for many years surgeon major of the Tenth Royal Grenadiers and of the Queen's Own Rifles. He was appointed on the consulting staff of the Toronto General Hospital at its opening, in 1854, and was the last survivor of the original staff.

Dr. W. Frank Haehnlen of Philadelphia died on January 15, 1910, at the age of 50 years. He was graduated from the University of Pennsylvania with the degrees Ph.D. and M.D. in the year 1882, and he served as resident physician in the Philadel-

phia Hospital in 1882-83. After studying abroad he became lecturer on obstetrics in the University of Pennsylvania. He was gynecologist to the Philadelphia Hospital and at one time physician-in-chief and gynecologist to the Samaritan Hospital. For the past fourteen years he had been professor of obstetrics in the Medico-Chirurgical College and obstetrician to the Maternity Department of the Medico-Chirurgical Hospital. He was a member of the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, the American Medical Association, and the Philadelphia Obstetrical Society.

Dr. Joseph H. Chandler died at Wilmington, Del., on January 15, at the age of 70 years. He was graduated from Jefferson Medical College in the class of 1870. He was the oldest practitioner in the State of Delaware.

Dr. Daniel I. Avery of Lebanon, Mo., died at the home of his brother in White Hall, January 1, 1910. He was a graduate of the Rush Medical College in 1879.

Dr. Dwight Ruben Bement of Mount Ayr, Ia., died suddenly of heart disease on January 10, 1910, aged 70 years. He was a graduate of the Eclectic Medical Institute of Cincinnati, in 1878, and a veteran of the Civil War.

Dr. William Symington Brown of Stonham, Mass., died at his home, January 6, 1910, aged 88 years. He was a graduate of the University of Pennsylvania, in 1855, and was a member of the Middlesex County and Massachusetts Medical Societies. Dr. Brown during the Civil War was assistant surgeon in the Thirty-third, and surgeon in the Fifty-fifth Massachusetts regiments.

Dr. Homson White Cole of Danville, Va., died at his home, January 8, 1910, aged 79 years. He was a graduate of the Jefferson Medical College in 1854, and a member of the Danville Academy of Medicine and the Medical Society of Virginia. He was a veteran of the Confederate army, and for three terms Mayor of Danville.

Dr. Otto Fikenscher of Sibley, Ill., died at Lebanon, Mo., January 6, 1910, aged 37 years. He was a graduate of the Barnes Medical College of St. Louis, in 1897.

Dr. J. H. Gunning of Oakland, Cal., died at his home, January 4, 1910, aged 67 years. Dr. Gunning was a graduate of the New York University and for many years was on the faculty of that institution as professor of anatomy. During the Civil War Dr. Gunning served in the medical corps of the United States Navy.

Dr. William Clary of Bellbuckle, Tenn, died at his home, January 9, 1910, aged 79 years. He was a graduate of the Vermont Academy of Medicine, in 1855, and was a member of the Bedford County Medical Society and the Tennessee State Medical Association.

Dr. J. D. Pryor of Mayfield, Ky., died at the Riverside Hospital, in Paducah, January 7, 1910. He was a graduate of the University of Louisville, in 1890, and was a member and former president of the Groves County Medical Society and the Kentucky State Medical Association.

Dr. Daniel S. Richards of Richmond, Me., died at his home, January 7, 1910, aged 82 years. He was a graduate of the Bowdoin Medical School in 1856.

Dr. John P. Wilson of Poughkeepsie, N. Y., died at his home, January 16, 1910. He was a graduate of the College of Physicians of New York in 1870. For twenty-one years he was Assistant Surgeon of the Twenty-first Regiment N. G. S. N. Y.

Dr. John J. Sherman of Marinette, Wis., died suddenly, at his home, on January 9, 1910, aged 80 years. He was a former Mayor of Marinette.

Dr. Stewart Church of Brooklyn, N. Y., died January 16, 1910, aged 63 years. He was a graduate of the College of Physicians and Surgeons in 1870. He was a member of the Kings County Medical Society and the Medical Society of the State of New York.

Dr. David W. Coon of Trenton, Mo., died at his home, January 10, 1910, aged 55 years. He was a graduate of medicine in 1891, and was a member of the Grundy County Medical Society, the Missouri State Medical Association, and the American Medical Association.

Dr. John Hanson Wheeler of Louisville, Ky., died January 8, 1910, aged 84 years. He was a graduate of the Transylvania University, in Louisville, and a veteran of the Mexican War.

Dr. Joseph V. Latourneau of Laconia, N. H., died at his home, January 13, 1910, aged 48 years. He was a graduate of the Medical Department of Laval University, in Montreal, in 1889.

Dr. Albert Reed Barrett of Philadelphia died at Scranton, Pa., on January 18, at the age of 69 years, as the result of an operation performed for the relief of an affection of the stomach acquired during the Civil War. During the war he served with the Fifth New York Volunteers and with Rerdan's sharpshooters. Later he became a bank clerk, studying medicine during the evenings, and he was graduated from the medical department of the University of Nashville in the class of 1877. Somewhat later he became a bank examiner for the Government and more recently he has acted as expert accountant.

Dr. Joseph A. McFerran died at Laurel, Del., on January 8, at the age of 83 years. He was graduated from Jefferson Medical College in the Class of 1847. He practised his profession for many years in the city of Philadelphia and he was Visiting Physician to the Philadelphia Hospital from 1880 to 1884.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

SLEEPING SICKNESS—PNEUMONIA AND POINTS IN ITS CLINICAL HISTORY—HYSTERECTOMY—FIBROID FROM GÄRTNER'S DUCT—OBITUARY.

London, January 7, 1910.

The report of Sir Hesketh Bell on the measures taken for dealing with sleeping sickness in Uganda testifies to the "courage bordering on heroism" of those engaged in the investigation of the disease. It has to admit that no discovery of therapeutic value has been made; all that can be claimed is that drugs have reduced suffering and perhaps prolonged lives. It is believed that for the last three years no European resident has taken the disease, but the mortality among the natives is terrible. In 1900 there were 8,430 deaths; in 1903 no less than 30,441. During six years an aggregate of 92,544 has been reached in the Kingdom of Uganda alone. In Busoga, where statistics are not available, the mortality is probably quite as high. If Unyoro and the Nile district were to be included, it might be taken that the total mortality in the Uganda Protectorate to the end of 1906 considerably exceeded 200,000. So long as means are taken to maintain a rigid *tabu* of all fly infested districts no risk of recrudescence is anticipated. During 1907 the deaths

were about 5,000; during 1908 only 3,662. For the first six months of 1909 only 459 deaths from the disease took place in the Kingdom of Uganda.

The most important administrative measures are stated to be the removal of the inhabitants from areas infested by the tsetse fly and the establishment of segregation camps, where those infected may live under medical supervision. Owing to the exuberance of the vegetation the clearance of infected districts is very costly, but it has been found that the planting of citronella grass has been efficient in keeping down the rank undergrowths, as well as in driving away several kinds of noxious insects. The researches of Sir D. Bruce and Dr. Kleine are mentioned as the most important recent contributions to our knowledge of the disease, showing the means of infection of the tsetse, that it cannot transmit the disease until after seventeen days, but probably retains its infectivity for two years.

At the Polyclinic Dr. Percy Kidd gave an exceedingly interesting lecture on some of the points in the clinical history of pneumonia. The subject is large enough and in a sense it is familiar, but it may also be said that so many differences and even peculiarities are met with in its course that the careful practitioner is often temporarily nonplussed. Even the lecturer, with his extensive experience as physician to the London Hospital, mentioned points which he had observed but rarely. He referred only to the lobar form due to the invasion of the pneumococcus. The relation to influenza he held to be that it prepared the soil for the microbe, and the tendency to diagnose a combination of the two diseases is a mistake, the pneumonia being usually, if not always, the only infection.

This error is very likely to occur when the physical signs set in late, say on the fourth day, or even the fifth, which may happen, and then it is thought that the pneumonia has supervened on influenza, especially should the latter be epidemic at the time. This may be the sequence of events in some cases, but Dr. Kidd thinks less frequently than many suppose. Pneumonia may certainly follow influenza and is a grave complication, often attributed to getting up too soon; but the difficulty of diagnosis and prognosis lies in the insidious onset and late development of physical signs in certain cases, and these cases are not particularly rare, but a large proportion have been erroneously called "influenzal pneumonia."

Though severe rigors are mostly supposed to warn us of a severe infection, this is not a rule, and Dr. Kidd related several examples—one a striking one in which four severe rigors ushered in pneumonia of the right lower lobe in a man of 27 and the disease ended in crisis thirty-six hours later.

Abdominal pain is known as a mode of invasion, mostly in children, sometimes in adults, as in a case admitted to the London Hospital in a boy of 16 for pain and tenderness in the right iliac fossa and therefore at first placed in the surgical wards, but transferred to Dr. Kidd's care when the surgeons found absence of rigidity of the abdominal wall. There was consolidation of both lobes of the right side and favorable issue occurred by crisis on the twelfth day.

Among rare onsets symptoms of meningitis are apt to mislead, but such cases are not uncommon in children.

Hemoptysis is a very rare initial symptom—that is, free hemorrage, not the well-known scanty, stained expectoration. The lecturer then touched on the irregularities of the fever and then referred briefly to physical signs. On these there is one point I should like to give, viz., that in resolving cases crepitus redux is oftener absent than present. Now, as resolution is effected by absorption of the liquefied alveolar exudation, we might expect to hear it, and the fact that we so often do not throws doubt on the alveolar origin and suggests that crepitus redux and crepitant râle are really produced in the small bronchi.

Complications were considered by the lecturer as expressions of a secondary infection, and in other cases the pneumonia itself as secondary. True mixed infections are very rare. When bronchitis complicates the case a prolonged course and defervescence by lysis may be expected. Laryngitis is not a frequent complication. Albuminuria, delirium, diarrhea, and embolism were mentioned and cases briefly related.

Further, as to what appear mixed infections, Dr. Kidd had more than once observed lobar pneumonia coming on during the course of typhoid, but in only a single case, which he related, had he met with it at the very start. He related another in which it seemed probable that there was a combination of rheumatic fever and pneumonia.

Relapsing pneumonia is rare if we restrict the term to complete suspension of pyrexia with resolution and afterwards a reappearance of early symptoms and repetition of the process. Such a case is one of reinfection—probably from some focus in the lung.

Delayed resolution sometimes occurs, but exploratory puncture mostly reveals fluid as the cause of the prolonged dullness. If not, patients should leave the bed and move about a little.

Fibrosis has been much discussed. Some are febrile and progress to a fatal termination. Cavities may be formed and foul sputum result. In other cases fibrosis may take place very insidiously, apparently arising out of delayed resolution, without fever or constitutional disturbance, and the patient recovers with a fibroid lung. In either case the possibility of the implantation of tubercle bacilli is not likely to be forgotten.

In the Obstetrical Section of the Royal Society of Medicine Dr. Turner of Ryde detailed a case of hysterectomy sixty-three hours after labor for a necrosed suppurating subperitoneal fibroid in a primipara, aged 32, who had been married thirteen months. The fibroid was diagnosed when she was pregnant about two months, was attached to the uterus by a very broad base, and could not be removed without terminating the pregnancy, so it was decided to let it go until term and operate later. Post-partum hemorrhage had necessitated stripping off the membranes and then a small intramural fibroid was felt. On the third day temperature and pulse rose and with other symptoms progressing sloughing of the tumor was diagnosed and hysterectomy performed. Examination of the tumor indicated that necrotic change must have begun long before labor. Some remarks were made by several members as to the best course in such cases, but all seemed to agree that Dr. Turner had followed the right course.

Dr. Lewers then read an account of a case of tumor of the right broad ligament, springing from the uterus and probably developed from Gärtner's duct, in a primipara of 47, who had noticed a swelling, interference with micturition, etc., for about a month. On opening the abdomen the cyst covered by the ligament was seen and punctured, two pints of thick, dark fluid being removed. Enucleation was easy up to the right side of the uterus at the level of the os. Here it was attached by a pedicle an inch in diameter. This was divided with scissors and the left appendages showing signs of disease were removed. The uterus was retroverted, otherwise normal. Uninterrupted recovery followed. The microscopic examination supported the conclusion that the tumor arose from the intrauterine portion of Gärtner's duct.

This view was confirmed by Dr. Maxwell, who said at first sight it looked like an intraligamentous fibroid which was undergoing cystic degeneration, but the microscopic sections warranted the view that it was developmental and arose in the duct.

The Hon. Arthur Hill Trevor de Montmorency, M.D., T.C.D., died on New Year's day. He was the youngest son of Viscount Mountmorres, born in 1846, educated at Trinity College, and graduated, both in arts and medicine, B.A. 1868, M.B. 1873, and M.D. two years later. He was also L.R.C.S.L. 1873.

The death is announced of Dr. John Holmes Joy, J.P., aged 68, coroner for East Staffordshire. He took M.A., M.D., and T.C.D. in 1865. He was district surgeon to the N. W. Railway and formerly president of the Midland Medical Society. He was also magistrate for the counties of Warwick and Staffordshire. He wrote some papers on hernia and on prolapse of the bowel.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

SUPPRESSING AN OUTBREAK OF CHOLERA—INTESTINAL PARASITES—MEETING OF THE PHILIPPINE MEDICAL SOCIETY—RAISING OF THE QUARANTINE AGAINST AMOY.

MANILA, P. I., November 26, 1909.

DURING the past week an explosive outbreak of cholera occurred in Cebu, which for a time threatened to assume pandemic proportions, and even at this writing this danger is not altogether past. For the ten days immediately preceding November 12 Cebu was believed to be entirely free from cholera. On this latter date

ten cases suddenly occurred, the next day the number rose to 43, the day following to 44, and on the 15th the number of cases reached 73. On investigation it was soon found that the cases were mostly confined to one section of the city. This pointed to a local water infection. Samples taken from several wells showed vibrios to be present. Energetic measures were at once taken to combat the outbreak. A 3 per cent. carbolic acid solution was made of the water in all the wells in the infected district, and this was then pumped out, and by the means of hose as large an area as possible of the ground surface near the wells was flooded with this carbolic solution. This no doubt did much to eliminate any ground pollution that may have existed. The wells were then closed. Distilled water was distributed. Hospitals were established and the sick isolated therein. Public closets were hastily built and these, as well as all private closets in use, were disinfected at frequent intervals. A burial corps was organized. A house-to-house inspection was made at least once daily; all infected houses were promptly disinfected. All of these measures were fairly under way on the 14th, and on the 16th the daily number of cases dropped to 42, on the 17th to 36, on the 18th there were 18, and on the 19th the number was reduced to 5.

The success which attended this campaign again shows in a most forcible manner what can be accomplished by modern prophylactic medicine when its principles are intelligently applied. The island of Cebu, with its population of over 800,000, is one of the most densely populated sections in the Philippines, and unless this outbreak had been most promptly controlled the ravages which cholera would have caused among a people the great majority of whom eat with their fingers and drink unsterilized surface water can well be imagined. In this instance it was impossible to quarantine the contacts and many of them are known to have proceeded to the nearby towns. Two towns have already been reported as being infected, but owing to the timely advance warning which was sent out the first cases were promptly found and isolated and no great spread is anticipated.

The complete figures of the commission which the Bureau of Health put into the field in June at Las Piñas, Rizal Province, for the purpose of ascertaining the percentage of intestinal parasite infections, particularly the hookworm, terminated its labors September 30, and the complete figures are now available. The commission was headed by Medical Inspector Rissler of the Bureau of Health. Six thousand and eighteen persons were examined. Of these 31.30 per cent. were adult males, 42.22 adult females, and the balance, or 26.48 per cent., were children. The total number of positives for some form of parasite was 89.84 per cent. The infections in their order of frequency were as follows: Ascaris, 77.22 per cent.; trichuris, 53.42 per cent.; hookworm, 11.15 per cent.; oxyuris vermicularis, 4.95 per cent.; monads, 3.85 per cent.; strongyloides, 2.24 per cent.; ameba, .4 per cent.,; balantidium coli, .15 per cent., and taenia, .066 per cent. Of the total number 394 males, 241 females, and 42 children had hookworm infections. From the foregoing it is apparent that the percentage of infections is almost twice as great among males as among females. Probably the most striking thing in connection with these figures is the fact of the total number of over six thousand persons examined only 10.16 per cent. were free from parasites and that over half of the people harbored two or more different parasites. Another factor of interest is that the total number of hookworm infections is about the same as that found by the Tay Tay Commission, of which mention has several times been made in these columns. This in spite of the fact that the Tay Tay residents live upon clay soil and the Las Piñas residents upon sandy soil.

The regular monthly meeting of the Manila Medical Society was held at the Philippine Medical School at 8:30 on the evening of November 1. The following papers were read: "An Improved Operation for Hallux Valgus, with Exhibition of Cases," by Captain Keller, U. S. A.; "Remarks on the Surgery of Cerebral Birth Hemorrhage," by Dr. Gilman; "Importance of Early Diagnosis of Carcinoma and Exhibition of Specimens of Carcinoma of Cervix Uteri," by Dr. Guazon; "Remarks on Compound Fracture," by Dr. Schiffbauer; "Successful Surgical Treatment of Acute Free and General Peritonitis," by Dr. McDill.

On account of the fact that both plague and cholera have disappeared, according to the report made by Passed Assistant Surgeon Foster of the Public Health Marine Service, who is stationed at Amoy, the special quarantine restrictions which have heretofore been imposed upon vessels coming from Amoy to the Philippines have been removed.

Progress of Medical Science.

Boston Medical and Surgical Journal, January 13, 1910.

Antityphoid Inoculations Conducted at the Massachusetts General Hospital.—L. H. Spooner details his experiments at this institution for the past few years. One hundred and three people have been inoculated; 74 were hospital nurses, 9 house officers, and 6 ward tenders; 14 were inoculated at the naval hospital. Of the entire number, 6 reacted in solutions of 1 to 10; 14 in 1 to 25; 56 in 1 to 50; 26 in 1 to 100, and 1 in 1 to 500. Since inoculations have been started no cases of fever have been contracted among the hospital officers, nurses, or ward tenders, or in those inoculated at the naval hospital. It is impossible to say how strong an immunity is acquired through the inoculations or how long it will last. About 4 per cent. of all typhoid patients become chronic carriers of the disease. No matter, therefore, how careful we may be as to our supervision of water and milk supplies, there will always be danger of the disease arising through these media. Those like hospital residents who are brought into close and prolonged contact with the malady should submit to inoculation, as should also those who plan a journey into regions known to be infected. Finally, inoculation is likely to become advisable and more or less general in districts where the disease is epidemic. It would seem to be appropriate for other members of a family in which the disease is already present. It is possible that carriers may be eliminated by some method yet to be discovered, but this is at present a matter with rather a hopeless outlook.

Opsonic Therapy in Pyorrhea Alveolaris.—L. S. Medalia has carried out this plan of therapy at the Tufts Medical School for the past three years. His general conclusions are as follows: (1) The opsonic index as a means of diagnosis, although not absolutely mathematically correct, gives us a clue as to the probable bacterial infecting agent in obscure cases. (2) Where it is possible to obtain cultures, the bacteriological findings establish the diagnosis without having to resort to the index. (3) In certain simple infections where the probable infecting agent is known the treatment may be begun immediately with stock vaccine without waiting for cultural or opsonic findings. (4) In a large majority of cases the stock vaccines will give good results excepting in cases of colon or streptococcus infections, where autogenous vaccine is necessary. (5) The use of the opsonic index in treatment is not absolutely necessary, but is to be recommended to determine from time to time the state of progress of the patient under treatment. (6) Vaccine therapy is very satisfactory in cases of staphylococcic and pneumococcic infections, especially the former, is successful in the majority of cases of colon and streptococcus infections, is of value in tuberculosis of the lungs where the secondary infection could be determined and treated with its specific vaccine, has been found to be of great value in gonorrheal arthritis and of some value in acute urethritis and other localized infections due to the gonococcus. (7) The proper application of the opsonic method of treatment in Riggs' disease has yielded most satisfactory results, and a great deal is hoped from its application in the future.

Reproduction of Pain as a Means of Making Differential Diagnosis.—H. T. Hutchins says that one must know normal sensibilities before pathological ones can be appreciated, and all examinations made with the definite purpose of acquiring this essential knowledge will in time prove of the greatest value. Thus, pain in the vermiform appendix is reproduced by making pressure along the descending colon in the direction of reverse peristalsis, thus forcing the gas back toward the cecum and appendix, distending these organs; confining the gas by pressure of the left hand, a sharp tap with the right hand over the distended colon will reproduce the patient's pain on the cecum and appendix in cases of acute and chronic appendicitis. This method has differentiated between an appendix abscess and a retroperitoneal perinephritic abscess. A device has been perfected for inflating the stomach and duodenum in an attempt to reproduce pain in ulcer conditions. The abdomen is opened under gas or local anesthesia; a small opening is made into the stomach, the device (gastroscope) introduced, and the organ distended with

air through the instrument; a gaseous distension of the organs is brought about, and the conscious patient is able to identify any reproduction of pain which may occur. The trouble is thus located, a general anesthetic given, and the necessary operation performed. The renal pelvis may be artificially dilated with bland fluid for the sake of differentiating pain, and for a similar purpose different portions of the urethra may be distended. The same principle may be applied to locate the lesion in cystitis, etc. Pain in all these conditions is our most common and leading symptom. The reproduction of a pain whose nature and origin we thoroughly understand is a helpful step toward a correct diagnosis. But we must first know the normal sensibilities of the various organs. Gentle manipulations of the various pelvic organs give us familiarity with them, along with a knowledge of their shape, size, position, and consistency. When we chance to cause pain we should note its exact nature and location and inquire whether the patient has ever experienced that particular pain before. In a differential diagnosis between pain in the ovaries, appendix, bladder, or ureter such knowledge is of the utmost importance, and the more we learn the more readily will we be able to differentiate disease arising in each viscus. If we can reproduce the patient's former pain we can judge on what organ it has arisen, and differentiate more accurately diseases with symptoms closely resembling one another.

New York Medical Journal, January 15, 1910.

On the Presence of Acid-Fast Bacilli in Distilled Water.—R. C. Rosenberger replies to his critics who asserted that his alleged discovery of tubercle bacilli in the blood was merely the discovery of acid-fast bacilli in the distilled water used in laboratories. He has examined sixteen specimens of such water taken from various Philadelphia laboratories. In none of them were acid-fast bacilli discovered, nor bacteria of any other kind. Similar results followed examination of various waters in the tuberculosis department of one of the Philadelphia hospitals. Nor was it possible to find any traces of the so-called citrate bacillus. In fact, his rejoinder is a complete denial of the justness of the statements of his critics. He refers to his former studies, claiming them to be accurate. He has also found tubercle bacilli in the blood of apparently healthy persons, and confirmed the discovery in at least one case, the truth of the statement being borne out by the subsequent course of the case. He is still of the opinion that tubercle bacilli are present in the blood of every case of tuberculous disease of the lungs or other viscera. Many other observers have, he claims, confirmed his findings of bacilli in the blood, but have hesitated to publish their findings on account of the great hue and cry raised by certain of his critics. If bacilli were not in the blood, he says, how would they appear in the urine and feces without demonstrable lesions of the kidney or intestine? Examination of the blood for bacilli requires laboratory skill and experience. He makes a protest against the loss of confidence in distilled water. If prepared in the way directed and supposed to be sterile and subjected to the usual tests, it is not pure, pray, what is pure? Where the water is freshly distilled and placed in sterile and clean receptacles there need be no fear of any contamination whatever, and especially from an acid-fast organism. When the distilled water is mixed with sodium citrate, sterilized in the autoclave, and blood taken in an aseptic manner is introduced into this sterile solution, as no one at the present time believes in spontaneous generation, there is no other deduction to make than that the organism is in the blood. It has been claimed that acid-fast bacilli are often present on the hands of the investigator, but this can readily be explained if contamination occurred with some tuberculous material, or if a person suffering with tuberculosis were carelessly to wipe the mouth with the hand and thus infect that member. Slides are often examined carelessly, but minute attention to all details is called for in such work, as the author has in mind. He refers to the literature which has been written in criticism of his position.

Inoculations of Bacterial Vaccines for Acute Rheumatism.—G. A. Persson has employed this form of therapy in 68 cases. Of the *Streptococcus rheumaticus* cases, 32 were cured, 8 improved, and 7 unimproved; of *Staphylococcus pyogenes aureus* cases, 7 were improved and 4 unimproved; of colon bacillus cases, 1 was improved and 3 were unimproved. The bacterial vaccine which was used in all these cases was prepared in the following manner: A desired microorganism was grown in a media consisting of eighty parts of sea water with a specific gravity of 10.15 which had been sterilized by filtration, and twenty parts of a five per cent. solution of nucleanic acid, allowed to develop in the incubator for forty-eight hours, when proper dilution with the sterilized sea water was made to form a suspension of 20,000,000 germs to the cubic centimeter. It was then exposed to thermal death point for thirty minutes. Each patient received a daily inoculation of 1 c.c. or 20,000,000 germs. The author discusses the various theories of rheumatism. He believes that it is an infection, but adds that there is at present no general agreement as to the exact nature of the infection. Current theories include the specific bacillus theory, not yet absolutely confirmed, the septicemic theory, the disease being due to some staphylococcus or streptococcus, the diplococcus theory, and lastly, that the disease is due to some unknown cause. The main arguments for and against each of these theories are summarized. The author does not stand committed to any one of these views. He says that a point well worthy of emphasis is the fact that immunity is to-day but an accidental condition produced by an unknown force at work in strange environments. When this force is harnessed by man's ingenuity and with scientific guidance can be directed into the avenues of pathological changes in the human body, this condition will no longer be accidental, but will come within the power of the physician to wrap nature's cloak of protection in gentle folds about the susceptible individual and place his suffering patient upon that high level of physiological perfection which we to-day call immunity.

Journal of the American Medical Association, January 15, 1910.

Radical Treatment of Epithelioma of the Lip.—J. C. Stewart discusses the radical treatment of lip cancer. He states that local removal of lip cancer should never be done, because it is impossible to exclude lymphatic involvement in any case. Radical operation embodying the principles laid down is the only sure way to obtain the best results for our patients, our own reputations, and the credit of the surgical treatment of cancer. Even in recurrent cases much can be done, and these patients should, when the extensive involvement of irremovable soft parts does not preclude, be given the benefit of a carefully executed operation on the same lines. The article is illustrated.

Palatopharyngeal Adhesions.—A full discussion of this very troublesome complication is given by J. O. Roe. These palatopharyngeal adhesions may be, he says, (1) congenital; (2) simple inflammatory—catarrhal; (3) due to excoriation of the mucous membrane by acrid discharges; (4) local manifestations of the exanthemata; (5) local manifestations of constitutional diseases, syphilis, tuberculosis, and so-called scrofula; (6) due to traumatism. The largest number are due to syphilis, and a distinctive difference between adhesions due to this cause and the others mentioned is that the former is usually characterized by marked cicatricial contraction from extensive destruction of tissue, while the others are simple adhesions without marked distortion. These adhesions would be much more frequent, doubtless, were it not for the constant movement of the muscles of the parts in breathing, swallowing, and speaking and other actions of the body, and also the separation of the parts by mucus discharging from the posterior nares. The rapidity with which adhesions form when the ulceration is healing is remarkable. Complete union of the pharynx with the palate is exceptional; there is almost invariably a small opening. The degree to which the ears and hearing become affected varies according to the amount of involvement of the Eustachian tube, and the voice sometimes may be comparatively unaffected. The characteristics of the adhesions differ according to the various causes, those from syphilis being dense and fibrous, while those from purely inflammatory conditions usually contain little fibrous tissue and are mainly muscular, and sometimes there is simply an adhesion of the mucous surfaces. In case of destructive ulceration the muscular structures may be extensively altered and replaced by connective tissue in parts. In the treatment of these conditions it is important to delay any operative procedures until all ulceration or inflammation has subsided. Early recognition of the constitutional conditions causing adhesions is important, but after ulceration has occurred, as in syphilis, it can only be arrested in spite of constitutional treatment. Since the laryngoscope and rhinoscope have come into use the etiology and characteristic conditions have been generally well known. The chief difficulty, however, does not exist in the operation of freeing the adhesions, but in keeping them free. The usual method of operating is with the knife, but the readiness with which cicatricial tissue reunites has led some operators to perform dissection of this cicatrix, some-

times with success. The galvanic cautery has not given good results, and in 1883 Smith and Delavan proposed the use of monochloracetic acid, which heals up under the scab after its use for cauterization. The immediate result is good, but contraction may occur later. Other methods, such as drawing the palate away and fastening it to prevent contact, the use of permanent obturators worn for considerable periods, etc., have been employed. The most decided step in advance, Roe says, was made by Nichols in 1890, when he proposed the plan of introducing silk sutures at the side of the palate and allowing the sutures to remain *in situ* until a healed channel had formed around them; the palate is then liberated between these two channels, great care being taken not to wound the outer wall of the channel. Roe has employed this method in three cases with gratifying results, modifying it only by the use of a silver wire instead of the silk. In a fourth case it failed, and he devised a plan of covering the raw surfaces at the outer angles with flaps of mucous membrane taken from the neighboring parts at the sides. These flaps were made of sufficient length to cover the entire extent, vertically, of the liberated surfaces and were stitched in place by sutures passed directly through the palate.

Renal Activity and Its Tests.—S. W. Schapira criticises the older and still ordinarily used tests for impairment of kidney function—the search for albumin and casts, the determination of urea, of the amount of chlorids and of uric acid and phosphates—as not giving reliable information. The amount of urine is of some value in determining chronic kidney disease, and cryoscopy, while of some utility, is influenced by the amount of water ingested and is impracticable under too many circumstances for general use. The tests that he here discusses and has experimented with himself for a number of years are based on the principle of introducing foreign substances into the human body and noting the time of their elimination by the kidneys. The results of his studies lead him to the following conclusions: "1. They confirm the views of those who believe that little value can be placed in the presence of casts and albumin alone, as evidence of kidney disease, for my statistics show that one in every fifteen persons walking the streets has albumin or albumin and casts in the urine. 2. The most accurate test for permeability of the kidneys is phloridzin in connection with ureter catheterization, although it is sometimes a very tedious process. Next of importance is the indigo carmin, which is a very quick test, and last, methylene blue. 3. The relationship of transient glycosuria to impaired kidney function when found in one kidney is deserving of study and investigation. 4. My investigations tend to show that the diagnosis of kidney disease by clinical tests and clinical symptoms in most instances is not borne out by the examination with phloridzin, methylene blue, and indigo carmin."

Acquired Intestinal Diverticula.—The theories of the formation of acquired intestinal diverticula are discussed by Guthrie McConnell, who says that the importance of these dilatations of the intestinal wall has been only recently fully appreciated. A number of instances have been reported in which they have produced serious symptoms. From the study of a case in which multiple diverticula were found in the intestine at autopsy, and from the review of the literature of the subject, he concludes that they are formed late in life as a result of localized weakened areas in the muscular tissue of the gut. There does not appear to be sufficient evidence that they are due to any congenital abnormalities of the muscularis, and they have never been reported as found in children. The theory that they are the result of a relaxation of the intestinal wall at the point where the blood vessels enter also seems unproved, particularly as they have been found on the convex surface of the wall, and they also contain muscular tissue which would not be present if the diverticula were simply hernial protrusions of the mucosa and submucosa. The theory, therefore, of Beer and Telling seems most reasonable.

Urine Examination.—J. E. Dale has used the following routine in urinary examinations for the past six years and recommends it as useful as a systematic method for detecting the rarer urinary proteins. He claims no originality in any single step of the method, but only that it is a convenient grouping of well-known reactions. Any examination for these bodies presumes a chemically pure acetic acid and clear urine. If the urine is turbid it will be well to add a little magnesium carbonate in fine powder, allow it to stand a few minutes and filter. "1. A portion of the clear urine in a test-tube is acidified with acetic acid; a clouding indicates nucleoalbumin. If a precipitate forms, it should be filtered. 2. (A) A portion of the filtrate of No. 1 (or if No. 1 be negative, the clear acidified urine) is added slowly to a portion of a solution of common salt, a precipitate may be any of the following—any albumose (except deuteroalbumose), histon, or globin. (B) If a precipitate is not formed, the addition of urine is continued until it is in excess of the salt solution; the upper third is shaken and boiled; a clouding indicates serum albumin. (C) If a precipitate is formed, it should be filtered, care being taken that the urine has not been added beyond the point at which it is saturated by the salt solution. The filtrate should be boiled. A clouding indicates serum albumin. (D) If a positive reaction is had in A, it is my practice first to saturate a portion of the original urine with saturated salt solution without adding acetic acid to determine whether a precipitate is formed in neutral solution, and, second, to determine whether the body present is one of which loosely combined sulphur is a characteristic, using Boston's method (equal parts of urine and saturated solution of salt, rendered strongly alkaline with potassium hydrate, are boiled in the upper third, and 10 per cent. lead acetate added, drop by drop, while boiling continues, a heavy black precipitate showing loosely combined sulphur). No. 3. A few drops of the original urine are added, a drop at a time, to a considerable quantity of clear water. Milky streaks in the track of the drops indicate globulin (Robert's method). No. 4. (A) A portion of the original urine is acidified with acetic acid and filtered; the filtrate is then rendered faintly alkaline with ammonium hydrate and boiled for a few minutes, then filtered. The filtrate may contain peptone or deuteroalbumose. (B) The second filtrate from A is saturated with ammonium sulphate and boiled. A white precipitate indicates deuteroalbumose (yellow or brownish ammonium urate). (C) B is filtered and filtrate examined for peptone; if deuteroalbumose has been found, the saturation with ammonium sulphate must be complete and the boiling decided to assure its separation." He gives the reasons for the steps outlined above and says that, while the description may seem complicated, it is really simple, and in the vast majority of cases nothing, unless it be serum albumin, is likely to be found. The presence of the rarer albuminoids is indicated, but the details of their identification, especially of the albumoses, are not given, as being beyond the scope of the paper.

Trichiniasis.—J. L. Hirsch reports a house epidemic of trichiniasis caused by eating raw ham and involving five adult members of a family of eight, the other three not having partaken of the ham. The first symptoms showed themselves about the sixth or eighth day after the injection, probably at the time when the larvæ had fully developed. Edema of the eyelids was observed in all, and in three it was the first symptom. All had abdominal cramps, very severe in two. Nausea and vomiting was observed in two cases. Troublesome constipation was the rule; there was no diarrhea. Muscle pains were a prominent symptom. In two cases the temperature was constantly high. In the others there were intermissions. None of the patients had chills. Pulse and respiration followed the same course as the temperature. The urine was negative, and no parasites were found in the stools. Urticaria was present in one case in an aggravated form which lasted three days. In only two cases was there a leucocytosis, and that in moderate degree. There was, however, in all an eosinophilia, varying from 18 to 45 per cent., but not in relation to the severity of the infection. As regards treatment, the author thinks that free purgation, if sufficiently early, may do some good, but very little after the worm has penetrated the mucosa. Relief of the muscle and abdominal pains with opiates and hypnotics to secure sleep is about all that can be done until Nature takes care of the parasite. All the patients recovered, the duration of the attack varying from two to six weeks.

The Lancet, January 8, 1910.

Some Cases of Congenital Intestinal Obstruction.—In the experience of N. I. Spriggs, he has come across the following cases: Septum in ileum, atresia of ileum, 2 cases, atresia of ileum with loss of continuity of bowel, multiple atresia of the jejunoileum, atresia of the duodenum, and obstruction due to abnormal arrangement of the mesentery. He says that congenital intestinal obstruction is most often complete, as happened in all his cases except the last, and that it is also generally single. The position of the break is most often in the ileum, especially in its lower portion. The obstruction is most often in the shape of a septum, often obliquely placed, while more rarely there is a longer or shorter fibrous band connecting the ends of the bowel at the site of obstruction. Below the obstruction the bowel is in a very contracted condition; above the obstruction the bowel is naturally very much

dilated. The content of the contracted bowel is a very little, thick, and tenacious mucus. As to etiology, there are two main views, the developmental and the inflammatory. Other views assume the presence of a fetal volvulus, while still other supposed causes of the condition are intussusception, contraction from ulceration, embolism, or thrombosis of the mesenteric vessels and enlarged valvulæ conniventes. No one theory can cover all cases. In most instances the obstruction has not been diagnosed. Vomiting is usually the most marked feature and is present from birth. Constipation is generally absolute, while abdominal distention develops in the course of a day or two. Intussusception, volvulus, internal hernia, etc., may occur within a day or two of birth. The prognosis is absolutely bad. Enteroanastomosis has been done six times. No case of recovery has been recorded. It is doubtful whether operative intervention should be attempted. Two lines of treatment are open if it is decided to operate. First, to perform enterostomy above the obstruction and so drain the bowel, and, second, to do some kind of enteroanastomosis, thus connecting up the bowel above with that below the obstruction. The latter is the operation of choice if when the infant is seen it is in good condition. If the child is very feeble, simple drainage of the distended bowel should be undertaken as early as possible with only local anesthesia. If the obstruction is not too high up in the small intestine, so that there is a considerable absorbing surface left functionating, the infant may recover somewhat in the course of a few days, and then enteroanastomosis may be undertaken with a better chance of success. In the case of duodenal obstruction, simple drainage cannot be performed, and gastroenterostomy is the only line of treatment. The author gives the details of the cases which have come under his own observation and the autopsy findings (illustrated) in each case.

The Nature and Treatment of Angina Pectoris.—Ten cases are reported by A. Morrison. He says that we have not as yet a complete knowledge of the anatomy of this condition. Endocarditic cases may be found in the young, while degenerative cases generally affect later life. Thrombosis of a coronary artery may be associated with a persistent and severe cardiac colic. The condition may arise from a partial cramp of the cardiac musculature. It may be a general psychical disorder supervening on local anginous symptoms. Hence the character and situation of the conditions which originate angina vary, and if like other viscera the heart is endowed with low sensibility to handling and other modes of external irritation, it may in the presence of a lesion of its internal surfaces or severe stimulation of its nervous endowment, by compression or otherwise, reveal evidences of sensibility as well marked as do other viscera in their interior and under circumstances which may be regarded as analagous. The author believes that in all marked cases of angina pectoris the site of referred pain is one or other portions of the heart itself. Peripheral vascular spasm as a preliminary event is rare. It may occur as a secondary and aggravating event, as also may a condition of vascular laxity due to inhibited ventricular systole, the consequence, he believes, of pneumogastric shock. The attack of angina in valvular disease is frequently relieved by the nitrites. In non-valvular angina we need morphine and atropine, or even a general anesthetic. All forms of over-exertion must be avoided. Good results sometimes follow the iodides and mercurials. The attacks with valvular disease frequently occur during period of defective compensation when we are not dealing with a hypermyotic heart. In this series the blood content of the heart plays a part. The treatment, therefore, of this condition of comparative cardiac failure on recognized lines is that indicated during periods of greater anginous distress. In the case of the hypermyotic heart when anginous symptoms supervene, tend to increase, and become persistent, further measures may become necessary. The cause of death in angina pectoris is, according to the author, the inhibition of cardiac action by the shock of pain. The heart may rapidly cease to beat and die in diastole, or death may be postponed somewhat longer, the organ passing into a feeble tachycardia very suggestive of the fibrillary tremor in the cardiac action of animals killed experimentally by intensive or repeated electrical shocks.

Recent Researches on the Anatomy of the Heart.—A. Keith and I. Mackenzie refer to a paper of the former, in which a little peculiar mass of muscle and nerve scarcely bigger than a grain of wheat was described as constantly found at the termination of the superior vena cava in the right auricle and to which he gave the name of the sino-auricular node. He supposed this mass to be the starting point of the heart's contraction. Recent experiments on various of the lower animals tend to show that these masses are really neuromuscular contacts. As one ascends the scale of animals this concentration of tissue becomes more marked. In the mammalian heart the sinoauricular nodal tissue is concentrated on the right auricle chiefly along the sinonodal junction and in front and on each side of the superior vena cava. The node is situated in the septal wall of the right auricle. The single strand of muscular communication now known as the auriculoventricular bundle is peculiar to the mammalian heart. One of the chief results of the author's investigations has been to impress on them the necessity of studying the special musculature of the heart in relation to the abundant nerve supply of that organ. The excitable regions of the heart are those where the nerves come into a specially direct connection with the specialized tissue they have called nodal. The nerve plexuses at these sites are so zigzag that they could not possibly sever all nerve connections between the auricle and ventricle. They believe that an entirely new description of the cardiac nerves is necessary and that there must be a fundamental differentiation into those nerves which supply the venous base or commencement of the heart supplied from the lower cervical sympathetics and those which end in the terminal end or arterial base of the heart.

British Medical Journal, January 8, 1910.

Lime Water in the Treatment of Verruca Plana.—D. Kennard reports the case of a young woman who had at least from 300 to 400 warts on the back of each hand, but none on the face or other part of the body. The various calcium and arsenical preparations were given without effect. Cauterants also failed. She was sent to an eminent skin specialist, whose various remedies were also useless. Finally he tried scraping each wart and applying pure carbolic acid. This had the desired effect on each wart treated, but in the meantime fresh warts appeared, and the patient returned to the author quite discouraged. Local treatment appeared useless, as fresh crops kept coming out. Finally he fell back on an old remedy which has fallen into disuse. He ordered the patient to take half a pint of lime water daily for a week. In the course of four days each wart disappeared, and for the last two months since this treatment was tried, no fresh outbreak has occurred.

Excessive Liability of European Women in Africa to Trypanosomiasis; Its Cause and Prevention.—Sir Patrick Manson calls attention to the small number of European women in Africa, but also to their excessive liability to trypanosomiasis. He attributes this to their continuance of wearing the same kind of clothes as at home. Of five cases of the disease, three gave a history of being first bitten on the leg. Immediately on being bitten the part attacked became swollen and painful, and within a few days the usual constitutional symptoms of fever and eruption appeared. In one case the infecting bite was on the finger. These facts indicate that the petticoat and skirt should be discarded for some other type of garment and one more resembling the male trousers. Skirts and petticoats should be discarded in Africa, and a bloomer costume or loose trousers of some sort should be worn, the tops being securely tied around the boots, as well as loose sleeves securely fastened around the wrists. Men, too, should have their jacket sleeves thus fastened. Thus, in the author's opinion, the great risk to which a European woman is exposed in her usual attire in Africa may be avoided.

The Frequency of Adenocarcinoma of the Body in Fibroid Tumors of the Uterus.—The experience of J. M. Munro Kerr is based on the results found in 200 abdominal hysterectomies. In this series he has found malignant disease on nine occasions, sarcoma two, adenocarcinoma of the uterine body six, and carcinoma of the cervix one. Regarding the six cases of adenocarcinoma, in four the fibroid tumors were of large dimensions, and in two small and multiple. On consulting the writings of other operators he finds records of very similar experiences. An interesting fact in connection with these cases of malignant degeneration is the relative frequency of the occurrence in the late decades of life. As a rule it is the fiftieth year before the malignancy is reached. The question of temporizing in these growths suggests itself. In case of adenocarcinoma curettage of the uterus and examination of the scrapings will give us definite information. But sometimes the uterine cavity is difficult to explore by reason of its distortion by the tumors and in sarcoma curettage is valueless as the malignant degeneration rarely

commences in the endometrium. Pain is always suspicious and in the author's experience it is especially common in adenocarcinoma which has invaded fibroids as compared with cases in which the lesion attacks an otherwise normal uterus. An increase of bleeding is also very common and often there is a distinct increase in the swelling. Lastly there is the important fact that in a large proportion of cases malignancy does not occur till the fortieth year, when the uterus is of little physiological value and when one has naturally very little compunction in removing it. By the history, age of the patient, and curettage, we were able generally to recognize malignancy and can therefore allow a certain number of fibromyomata to remain unoperated upon. Hemorrhage and pressure signs indicate immediate intervention, but what we wish to arrive at is an opinion on the fact that intervention is necessary even if these ordinarily recognized signs are not present. We wish to try to recognize the cases in which malignant degeneration or invasion has already begun.

Berliner klinische Wochenschrift, December 19, 1909.

The Medical Treatment of Gastric Ulcer.—Weïntraud says that one may expect good results from the surgical treatment of gastric ulcer in cases with chronic recurrent hemorrhages by interval operation; in cases of gastric motor insufficiency from pyloric ulcer or scar, in pyloric stenoses and hour-glass stomach, and in cases with subphrenic abscesses. That the usual simple cases, *i.e.* cases without peritoneal involvement, usually recover well, is shown by the author's series of 134 cases. Although two-thirds had definite bleeding and a smaller number had hematemesis sufficiently severe to make it appear that the patient was in a critical condition, not a single case died of the hemorrhages. Regardless of appearances, the author gave a good prognosis, and allowed an operation to be performed only when there was some direct indication for it.

Deutsche medizinische Wochenschrift, December 23 and 30, 1909.

Experimental Sleeping Sickness.—Spielmeyer has made careful examinations of the central nervous system of two dogs which were inoculated with the *Trypanosoma gambiensis,* from which he concludes that the brain of such animals show exactly the same lesions as are found in sleeping sickness in man, and are considered characteristic for the latter disease. In one case the author was dealing with an early case; in the other with one in the very advanced stages of the central nervous system process. The anatomical picture, especially in the early case, reminds one very much of the findings in progressive paralysis of the insane. In the second case, in which death occurred a year and a half after the original inoculation, the trypanosoma seemed to disappear from the blood several weeks before the onset of the symptoms referable to the central nervous system.

Review of 2,000 Operations for Appendicitis.—Schnitzler discusses his studies of 2,000 operations which he has performed for appendicitis. He concludes with the following summary. Appendicitis, which is not increasing in frequency, is, as a rule, of enterogenous origin. The hematogenous occurrence of the disease is a rare exception. Even the cases secondary to tonsillitis are usually not of hematogenous origin. Fecal stones are of very great influence, not only in the course of the attack, but also as a cause of the disease. The diagnosis of chronic appendicitis without acute attacks is very uncertain. Among the most common causes of error in diagnosis, to which especial attention must be paid, is the fact that latent tuberculosis, especially of the lungs, not infrequently causes pain and tenderness in the iliocecal region. Operation within forty-eight hours is to be recommended in every case which shows any single severe symptom. Cases seen in the later course of the disease must be considered on their merits. Large abscesses must be incised through the shortest channel; those in Douglas' cul-de-sac should be opened through the rectum. The interval operation is to be advised if a single definite attack has been experienced. It is also recommended after the most severe attacks, for the idea that in serious attacks the appendix is destroyed is false.

Functional Diagnosis of the Intestines.—Brugsch says that the functional diagnosis of the intestines includes the activity of the bile, pancreatic secretions, and the secretions of the intestinal wall itself, besides the motility of the bowels. In intestinal diagnosis we are able to employ the end products only, as found in the stools, the portions of the food which have not been absorbed. The purpose of functional diagnosis is not only to find what part of the food has failed in digestion and absorption, but what particular portion of the intestines or its contributing organs is responsible for the failure. The first point is to estimate what proportion of the ingested food has been utilized. This is done by giving a simple nitrogenous, fat, and carbohydrate diet of definite quantities preceded and followed by 0.3 gm. of carmine. The diet used consists of two liters of milk, fifty grams of butter, and 100-200 grams of white bread. This is easily analyzed and the various constituents may be increased at will. A normal man on this diet wastes not over 5-6 per cent. of nitrogen, 10 per cent. of fat, and no carbohydrate. If the fat is increased or large amounts of meat added this percentage increases somewhat, but not in proportion to the amount taken. In practice this analysis of the chemical constituents of the stools is difficult and tedious, and is used only when the microscopic examination shows increased fat, or fatty acids, meat remains, or undigested starch. As to the diagnostic value of such an examination, animal experiments and clinical observations have shown that in obstruction of the bile duct, 40 per cent. of the fat is lost, but not over 11 per cent. of the nitrogen. If the pancreas is removed, no fat is utilized and only 44 per cent. of the nitrogen. In a dog ligating the pancreatic duct causes no injury to the absorption power, until the pancreas has atrophied. The same has been shown clinically that benign obstruction of the pancreatic duct does not reduce the absorption ratio of the food, fat stools appearing only with atrophy, abscess, or cancer. In these conditions fat waste usually reaches 60 per cent. and nitrogen waste 20 per cent. Over 50 per cent. of waste of fat in the absence of jaundice suggests pancreatic diseases, if amyloid disease and tuberculosis of the gut can be ruled out. Small fat and nitrogen waste in the presence of icterus does not rule out a benign obstruction of the pancreatic duct. Very marked fat waste speaks for pancreatic disease. The demonstration of the ferments, trypsin, erepsin, nuclease, and invertase in the stools are also of value. The trypsin is estimated by extracting the stool with a 1:1000 soda solution, and testing by Fuld's method. The nuclease may be tested by putting the patient on a purin-free diet, estimating the uric acid in the urine, and then after feeding a definite amount of nucleic acid estimating the uric acid increase. The author considers the Cammidge test to be too indefinite in the results for clinical value.

Two Cases of Nævus Vasculosus Cured by the X-Ray.—Schmidt, after reporting two cases, concludes that vascular nevi may be cured by the *x*-ray. There is no fundamental difference between the action of the *x*-rays and radium upon vascular new growths. The *x*-ray has the advantage that a larger area may be treated at one sitting. Among the unpleasant complications of both the *x*-ray and radium treatments should be mentioned the subsequent formation of pigmented patches and telangiectases. This, however, may be absolutely prevented if the erythema forming dose is not surpassed at any one sitting, and if the next treatment is not begun until this has completely healed. Shallow nevi may be cured without scar formation; angioma only with a scar. Electrolysis and the Finsen light are of avail only with very small angiomata and shallow nevi. In all large flat nevi, and especially in tumor forming nevi the *x*-ray is indicated.

Utero-Annexial Sclerosis Outside the Menopause.—Roux de Brignolles describes utero-annexial sclerosis as a disease which occurs in young women during the period of genital activity, occurring even in young girls, as well as during the menopause. Its cause is a repeated congestion of the ovaries at unphysiological intervals. The result is a chronic affection characterized by sclerocystic changes, prolapses and induration of the uterus and ovaries, accompanied by painful phenomena which make the life of the patient so miserable that the only relief consists in removal of the hopelessly diseased organs. Pain is severe both at and between the menstrual periods, accompanied by intercostal and spinal neuralgias, menorrhagias and metrorrhagias, extreme nervousness and irritability, constipation or membranous enteritis, and leucorrhea. Either the patient becomes a nervous invalid, irritable and exacting, or a phlegmatic, characterless individual, refraining from all effort for fear of increasing her sufferings. In either case she is unable to think of anything but herself and her sufferings. The uterus becomes prolapsed and enlarged, and the ovaries prolapsed or adherent. The cause of this condition is not usually infection. It may result from any condition that causes congestion of the genitals, such as constipation, uterine displacements, or tumors. The only permanent relief comes through removal of the diseased organs.—*La Gynecologie.*

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

104th Annual Meeting, Held at Albany, January 24, 25, and 26, 1910.

THE PRESIDENT, DR. CHARLES G. STOCKTON OF BUFFALO, IN THE CHAIR.

(Special Report to the MEDICAL RECORD).

Monday, January 24—First Day.

Report of the Secretary.—Dr. WISNER R. TOWNSEND of New York reported that the membership, December 31, 1909, was 6,740; 1908, 6,505. There were dropped for non-payment of dues, December 31, 1909, 370; 1908, 374. The membership after removal of delinquents, December 31, 1909, 6,370; 1908, 6,221. The number of deaths in 1908 was 72; in 1909, 98. In 1908 there were 31 resignations; in 1909, 16. The new and reinstated members in 1908 numbered 641; in 1909, 729. The Council at its May meeting passed a resolution permitting members who joined their County Societies after October 1, 1909, to have their State assessments credited to 1910, if they so desired. One hundred and forty-four took advantage of this provision, so that the membership of 6,370 will be increased on January 1 to 6,514, a gain of 348 over the membership on January 1, 1909. The increase in Society membership for the years 1908 and 1909 was encouraging.

Report of the Committee on Publication.—The Directory issued during the month of October contained 266 pages less than the one issued the previous year. This reduction in size was accomplished by the use of a different type and by omitting some of the data of Connecticut and New Jersey. This did not lessen the value of the book to the New York physicians; the New York data were more complete than in former editions.

Report of the Committee on Public Health.—This Committee recommended that the Medical Society of the State of New York declare its opinion that the public health was endangered by the pollution of water courses, and that the legislature should at once so amend the health laws as to make such pollution amenable to the control of the Commissioner of Public Health under proper safeguards. The Committee also recommended that the Society respectfully request the President of the United States and the Secretary of Agriculture to secure an amendment to the National Food and Drug Act by which the use of antiseptic drugs in canned fruits and vegetables and in all preparations from fruits and vegetables designed for human consumption shall be prohibited. Also that the inspection of the commercial food kitchens of the United States by government officers for the purpose of insuring the use of sound materials, cleanliness of methods, and compliance with the law concerning adulterants and the use of preservatives be made obligatory. The Committee also recommended that this Society urge upon Congress and the Senate of the United States the organization under a single bureau, to be known as The Bureau of Public Health, of all the offices and agencies now having duties in any way connected with the preservation of the public health, except only those offices having to do with the protection of the health of the army and navy. With such a bureau established it would be more easily possible to properly correlate the Public Health Departments of the nation, the States and individual communities in the States. Such a correlation was desirable and necessary, for many of the problems confronting many local Boards of Health had a scope which was interstate and national in extent. Without waiting, however, for the consummation of such a plan in its entirety, it seemed desirable to secure in the State of New York a closer relation between the local health authorities and the State Commission of Health.

Report of the Committee on Legislation.—During the year 1909 there were introduced into the Legislature about 225 measures relating to medicine, public health, and sanitation. The Committee on Legislation during the year devoted its energies principally to assisting the Committee on Experimental Medicine in opposing the bills introduced to restrict animal experimentation.

Report of the Counsel.—JAMES TAYLOR LEWIS, ESQ., reported that no year in the history of organized malpractice defense had been so fruitful of results in the stamping out of blackmailing cases as the present one. During no year had the counsel met with such enthusiastic support by the medical fraternity as during the one just ended. Dr. Lewis began the defense of malpractice actions on September 1, 1900. Since that time over 250 cases had come before him, and of that number 138 had been actually tried, none finally lost and one was now on appeal. Not one dollar of damages had ever been paid. This was a result not even hoped for, and the success of organized malpractice defense in the hands of State Societies had been demonstrated. It was interesting to note that during the past year a great majority of the cases begun were by women plaintiffs.

Election of Officers.—*President*, Dr. Charles Jewett of Brooklyn; *First Vice-President*, Dr. Charles Stover of Amsterdam; *Second Vice-President*, Dr. J. W. Grosvenor of Buffalo; *Third Vice-President*, Dr. C. W. Brown of Elmira; *Secretary*, Dr. Wisner R. Townsend of New York; *Treasurer*, Dr. Alexander Lambert of New York.

The next annual meeting will be held at Albany during the third week in April, 1911.

Tuesday, January 25—Second Day.

President's Address.—Dr. CHARLES G. STOCKTON of Buffalo delivered this address. He called attention to the willingness of the people to obey quarantine and other laws, and to follow a certain course of life if the opportunity was given them. There had appeared a greater degree of confidence between the physician and the patient than had ever existed before. It should be remembered that the extent they commanded the public confidence, the greater they assumed the burden of responsibility. The more complete the organization of the profession, the more satisfactory would be the morale of the profession. The decline in sickness had made it difficult for physicians in certain localities to maintain themselves in the social class in which they belonged. This at times offered an excuse for a spirit of commercialism which occasionally showed itself. The patient must trust the physician, and the physician should not allow this confidence to be weakened. The principle of the profession should be: "I will keep faith with my patient." The theory of consultation had suffered from a solution of continuity. Trust should be fostered among the patients, and the best interests of the patient should be kept in sight at all times. A man entered the medical profession to-day not because it was easy, but because it was hard. One had no right to complain of their times or their conditions, but should rejoice that there was an opportunity for battling against obvious evils. There need be no fear that preventive medicine would ever remove the field of labor. It was evident that preventive medicine required the best effort they could put forth, as it at most only meant transferring the activity from one side of the field to the other. The attempt to make medicine luxurious, or to free it from its weight of responsibilities, would defeat its own end.

The Wassermann and Noguchi Complement-Fixation Tests in Leprosy.—Dr. HOWARD FOX of New York reviewed the literature upon the Wassermann reaction in leprosy and then gave the results of his examination in

60 cases, 15 seen in New York and 45 at the Louisiana Leper Home. His conclusions were as follows: (1) A positive Wassermann reaction was frequently obtained in cases of leprosy giving no history or symptoms of syphilis. (2) The reaction was at times very strong, the inhibition of hemolysis being complete. (3) The reaction occurred chiefly in the tubercular and mixed forms of the disease, especially in the advanced and active cases. (4) In cases of maculoanesthetic and purely trophic type, the reaction was generally negative. (5) The value of the test was not affected in the slightest by the results found in leprosy.

Splenomedullary Leukemia: Its Treatment by Roentgen Therapy, with Report of a Case.—Dr. Homer E. Smith of Norwich and Dr. L. A. Van Wagner of Sherburne presented this communication. They reported a case which apparently recovered under the *x*-ray treatment, but which ultimately relapsed. The patient was a woman, fifty-one years old, and she had a leucocytosis of 580,000. She was treated by the Roentgen ray and a solution of the bromide of gold and arsenic. After nine months of treatment the leucocytes numbered 8,030. The question was, would the relapse have occurred if the Roengten ray treatment had been continued. In the use of this treatment they believed that the bulk of their failures was due to the method employed, and not to the agent itself. In the present-day status of Roentgen ray treatment of this disease, it was shown that 25 per cent. of the cases reacted favorably.

Dr. Alexander Lambert of New York said that many of these patients with splenomedullary leukemia who were apparently cured by the employment of the *x*-ray relapsed and speedily died.

Dr. Henry L. Elsner of Syracuse said he was forced to the conclusion that even with *x*-ray therapy they were not going to cure the disease.

Dr. Allen A. Jones of Buffalo said that if these cases were carefully studied, it would be found that there would be a rise and fall in the number of leucocytes while the patient was under no special plan of treatment whatever.

The Diagnostic Value of Eosinophilia.—Dr. Ira S. Wile of New York believed that the differential leucocyte count was the most valuable single hematological procedure. Eosinophilia was a relative leucocytosis wherein the circulating eosinophiles were increased, whether the total number of leucocytes was increased or a leucopenia existed. Eosinophilia was merely a symptom and should be interpreted in the light of full clinical findings at the time the blood smears were secured. From 1 per cent. to 4 per cent. was normal for adults, and from 1 per cent. to 2 per cent, in childhood. Trichiniasis had a high eosinophilia, though it was not pathognomonic, A high count was an early symptom in uncinariasis. If an eosinophilia accompanied an anemia, an examination of the stools for intestinal parasites should be made. Eosinophilia was common in many dermatoses such as pemphigus, leprosy, eczema, etc. The reported eosinophilia seen in pellagra was probably due to intercurrent affections. Any improvement in tuberculosis was accompanied by an eosinophilic increase. Eosinophilia differentiated bronchial asthma from cardiac and renal asthma. Eosinophilia pointed toward malignancy in tumor formations. It might be caused by many drugs, such as camphor, potassium iodide, sodium salicylate, etc. In dementia precox, the administration of thyroidectin seemed to increase the number of eosinophiles. Pus and gangrene might occur despite eosinophilia if the toxic absorption was retarded. The determination of eosinophilia was within the power of every clinician, and Dr. Wile believed it demanded greater attention than was now being given to it.

Some Remarks on Anemias.—Dr. Charles O. Boswell of Rochester read this paper and recited the causes of primary and secondary anemias and gave a brief description of the blood pictures occurring in the various states. Chlorosis was becoming a very rare disease, while there was a gradual increase in the number of cases of pernicious anemia. Cabot believed that chlorosis was gradually dying out. He believed that three years was the extreme life in pernicious anemia.

Dr. Egbert LeFevre of New York called attention to a type of pernicious anemia which went through the stages of a secondary anemia and gradually passed into this pernicious type with an ideal blood picture.

Dr. A. Jacobi of New York said he seldom gave iron or arsenic for a long period of time without the addition of manganese. Chlorosis he did not believe to be as rare as the reader of the paper implied. These cases were not hospital cases and, therefore, ought not to be judged by hospital men.

The United States Pharmacopeia; Its Present Status and Coming Revision.—Dr. Eli H. Long of Buffalo told of the importance of the coming revision of the United States pharmacopeia and the relation of physicians thereto, This was primarily a book of standards, and its scope, by reason of that fact, was quite definitely fixed. It had never been a book of practical daily use to physicians, and there were difficulties in the way of its becoming such owing to the limitations of its scope. The practical value of this book to the general practitioner and student would further be increased if incompatibles could be mentioned in connection with each substance and preparation. To the same end the chemical tests of substances might possibly be curtailed. Among the needed improvements should be the omission therefrom of all obsolete drugs and those of slight value. The number of the preparations and of salts could be reduced with advantage.

Work of the Public Health Educational Committee.—Dr. Morton of New York told of what the women physicians of New York State had done in formulating plans for work in clubs, social settlements, and other places for the public good. She emphasized the importance of unity of purpose and the cooperation of effort. This work was being undertaken in many states of this country, and elsewhere. The object was to lessen suffering and to save life.

In Memoriam of Dr. Hamilton D. Wey of Elmira.—Dr. Henry L. Elsner delivered this memorial address.

Elements of Prognosis in Valvular Diseases of the Heart.—Dr. R. Abrahams of New York told of the inherent power of the heart to resist and moderate the effects of defective valves. Heredity and anemia had a great influence over prognosis in valvular diseases of the heart, especially in aortic insufficiency. Among the associated diseases which make a very serious prognosis in valvular disease he drew attention to pulmonary tuberculosis.

Dilatation of the Heart.—Dr. Wesley T. Mulligan of Rochester gave some case histories which were illustrative of dilatation of the heart due to various causes, together with their management. The most important changes in the muscle cells were granular, hyaline, and fatty degeneration. If the heart responds well when digitalis was given, the prognosis was favorable.

Dr. Allen A. Jones of Buffalo believed that anemia was a very important factor, especially in advanced years, in estimating the prognosis in valvular diseases of the heart. The condition of the myocardium was also all important in casting a prognosis, as well as what valves were involved. He believed that nervous strains long continued or frequently repeated was as important a cause of dilatation of the heart as physical strain.

The Clinical Significance of Subfebrile Temperature in Pulmonary Tuberculosis.—Dr. Arthur T. Laird of Albany read this paper. The normal temperature,

as well as the variations in health, was considered. With regard to subfebrile temperatures, there were other causes than tuberculosis. In tuberculosis the patients are very sensitive to all causes which tend to elevate the fever. If tuberculosis was suspected, the use of tuberculin and the *x-ray* would aid in substantiating the diagnosis. He emphasized the need for preventaria. A rise of the temperature, remaining high, not assignable to any complications indicates activity of the disease. He reported the histories of cases of pulmonary tuberculosis with long continued subfebrile temperatures. Subfebrile temperature, while not a pathogomonic symptom, was one of the cardinal symptoms of pulmonary tuberculosis.

A Contribution to the Study of Tremors.—Dr. M. NEUSTAEDTER of New York described the clinical and pathological features of the diseases associated with tremors. He also described a new method of obtaining a characteristic curve as an aid to diagnosis. A so-called "tremorgram" was recored upon a blackened recording drum, which revolved at medium speed. Dr. Neustaedter had made tremorgrams in 420 cases of diseases, some of which he presented. Among others tremorgrams were shown in dementia præcox, paralysis agitans, chorea, hysteria, etc. There was a difference between the tremors, and every form of tremor was distinctive of certain forms of disease.

Lumbar Puncture in General Practice.—Dr. NELSON G. RUSSELL of Albany read this paper. As a diagnostic and therapeutic agent no words were necessary. The technique of the procedure was described. He drew attention to the means of examination available in general practice and the practical application of the findings. The turbidity of the spinal fluid was usually due to the presence of cells. Illustrative cases were cited. In closing he argued for the more general use of lumbar puncture by the general practitioner when cerebrospinal disease was suspected.

Experimental Epidemic Poliomyelitis.—Drs. SIMON FLEXNER and PAUL A. LEWIS of New York gave an account of their experiments with epidemic poliomyelitis in monkeys. Their first efforts to transmit the disease to lower animals were made in 1907, at which time cerebrospinal fluid obtained by lumbar puncture was introduced into the spinal canal and peritoneal cavity in monkeys and in other animals. They were limited to this fluid because they did not secure material from a fatal case. The results were negative. Since September last they had had suitable material from two cases of poliomyelitis in human beings. The lumbar cord from one case and the entire spinal cord from another were used in these experiments. The gross and microscopic lesions were characteristic in both. The brain was chosen as the site of inoculation, which was made under ether anesthesia through small trephine openings. The injected material consisted of emulsions in salt solution of the spinal cord from the children and later of emulsions of the spinal cord of monkeys developing the disease. The microscopic study of the spinal cord of monkeys affected with the disease had shown without exception lesions similar to those of poliomyelitis in man. In some cases the lesions in the cords of monkeys could be detected with the naked eye. Up to the present time the two viruses had been carried successfully through eleven series of monkeys, and it was highly probable that the transmission could be carried on indefinitely. Not only was the spinal cord active but the cortex of the brain and other organs might also harbor the active virus. Not all monkeys developed the disease even when the inoculation was made into the brain. The virus of poliomyelitis was not difficult of transmission to monkeys as both specimens of spinal cord furnishing the original virus sufficed for the transmission of the disease successively. It could be stated definitely that it was not necessary that the virus be introduced into the brain, but that successive transmission was possible by way of the peritoneal cavity, by vascular injection, by subcutaneous injection, and by intraneural injection. There might be still other avenues for the entrance of the virus into the central nervous system. At the present time it would seem that it was more difficult to effect infection by way of the skin, the respiratory passages, and the digestive tract. Whatever the avenue of entrance traversed the virus became established in the spinal cord and medulla and set up characteristic lesions. Not all the monkeys which developed paralysis died; a certain number recovered in a large measure, but a residue of paralysis tended to remain which resembled the paralytic effects persisting in human beings. They had failed to discover bacteria either in film preparations or in cultures that could account for the disease. The viruses of vaccinia and rabies, neither of which had been certainly demonstrated in films or sections or cultivated artificially, withstood the action of glycerin, while bacteria withstood it far less well. Therefore, they used glycerinated virus from the spinal cords of monkeys affected with epidemic poliomyelitis with which they produced the disease in healthy monkeys. In order to determine whether this effect was due to the living virus or to an adherent toxic body the cord of these monkeys was injected into healthy monkeys, which latter developed paralysis after inoculation. The lesions in these monkeys were also characteristic. From a series of experiments undertaken to determine the probable size of the organism producing epidemic poliomyelitis, it appeared that the infecting agent of epidemic poliomyelitis belonged to the class of minute and filterable viruses that had not thus far been demonstrated with certainty under the microscope. The disease had been produced in a monkey by injecting an emulsion of the regional glands communicating with a nodule set up by a subcutaneous injection of the virus that had induced paralysis. Blood taken from a monkey at the height of the disease, defibrinated, and injected into the circulation of a healthy monkey was capable of causing the disease. The spinal cord from a human case of poliomyelitis retained its virulence when kept constantly frozen at 2° to 4° C. for a period of 40 days and also when kept for at least 50 days at a temperature of about 4° C. The spinal cord of a monkey still transmitted the disease after having been suspended for at least seven days over caustic potash in a dessicator. The virus had been cultivated in bouillon containing 10 per cent. rabbit's serum and also in a human ascitic fluid bouillon. None of the cultures contained bacteria that could be seen under the microscope, or cultivated in nutrient agar, and the dark field microscope showed no definite bodies. Experimental poliomyelitis in monkeys was a very severe disease, producing death in fully 40 per cent. of the inoculated animals that developed paralysis. They had reinoculated several of the recovered monkeys and had noted in some instances failure of the virus to act, while it caused paralysis in the control monkeys. They did not find that the course of an intracerebral inoculation could be modified by the simultaneous injection beneath the skin of a virus altered by heating to 55° to 57° C. for one hour or to 60° C. for one-half hour. Many guinea pigs and rabbits, one horse, two calves, three goats, three pigs, three sheep, six rats, six mice, six dogs, and four cats had had active virus introduced into the brain without causing any appreciable effect whatever. It might be possible that the nasopharynx bore the same relation to the spread of epidemic poliomyelitis as it did to epidemic cerebrospinal meningitis.

Adequacy of the Present-Day Treatment of Syphilis Tested by the Occurrence of Syphilitic Nervous Diseases.—Dr. JOSEPH COLLINS of New York said that certain nervous diseases, such as paresis, tabes, myelitis, pachymenin-

gitis, and endarteritis flowed out of syphilis oftentimes long after infection. Many of those patients in whom such diseases occurred had had what was taught to be adequate treatment for syphilis. The occurrence of them proved its inadequacy. Probably the chief reason why the syphilitic virus was not oftener negatived by treatment, and such nervous diseases prevented, was the widespread belief that iodide of potassium was an antisyphilitic agency. The utility of mercury in the treatment of syphilitic nervous disease offered proof that when properly administered mercury might be an adequate antisyphilitic. Dr. Collins said that the object of his communication was (1) to point out that the occurrence of nervous diseases that flowed out of syphilis indicated the fact that the present-day treatment of syphilis was inadequate; (2) that the teachings which promulgated the belief that such treatment was adequate were pernicious and far reaching in their injuriousness; and (3) that iodide of potassium was not in a strict sense an antisyphilitic agency in so much as it had not been shown to have a specific action upon the spirochete. In conclusion Dr. Collins said that he wished to state his opinion, which was based entirely upon his experience and the consideration which he had given to the disease and its sequela from a theoretical standpoint, that they should be able materially to diminish the occurrence of syphilitic nervous diseases by advocating the use of mercury as a specific for syphilis, and deprecating the use of iodide of potassium save as an absorbifacient of gummatous conditions. It was no part of his purpose to decry the therapeutic properties of the salts of iodine. He appreciated the therapeutic possibilities of iodine, but he was convinced that the therapy of organic disease, save gummatous formations, would be more satisfactory if the salts of iodine were no longer in use.

The Effects of Alcohol as Observed in Dermatology.—Dr. L. Duncan Bulkley of New York read this paper. Alcohol, he said, was a poison and when taken pure in sufficient quantities pretty promptly destroyed life. Experimentation had shown that alcohol was prejudicial to cell life, vegetable, and animal, with degenerative changes in almost all of the tissues of the body, and it was reasonable to expect that the skin was also affected. Experimentation had also shown that when animals were intoxicated with alcohol, they were more or less susceptible to bacterial infection, and resistant to experimental immunization. Chronic alcoholism produced a fatty metamorphosis in the cells of many organs, and degeneration in the nervous system; disturbances in the capillary circulation was a constant effect of alcohol. Alcohol was given off unoxidized by the kidneys, lungs, and skin. Alcohol circulated in the blood as such and profoundly affected metabolism. All these elements had a distinct bearing upon many affections of the skin not so much perhaps in their production as in their aggravation and continuance. Syphilis was always badly affected by alcohol and the latter was responsible for many of the evil results often seen in this disease, both in the skin and in the nervous system. The syphilitic should be an abstainer from alcohol from the moment of his infection. Acne constantly showed the effect of drinks containing alcohol, the condition varying more or less according to the character of the beverage. The acne rosacea of tipplers was well known, and this was often followed by a permanent dilatation of the capillaries of the face and hypertrophy of the nose, resulting even in rhinophyma. In beer and ale drinkers the eruption was of a more pustular character, often with large lesions. Eczema was often profoundly affected by alcoholic beverages, which might render the disease incurable while they were persisted in, even in moderation. Psoriasis was greatly aggravated by the indulgence in alcoholics and was caused to itch by such indulgences; the use of alcohol might also induce a fresh attack after a long period of freedom from the eruption. In cases of even moderate drinkers the disease yielded much more quickly under total abstinence. Dr. Bulkley also quoted illustrations from the literature of the injurious effects of alcohol in connection with diseased conditions of the skin and confirmed the references he gave by personal obesrvation, although particular cases were not cited for want of time. He treated of the value of alcohol externally in many diseased conditions of the skin, starting from its well-known importance in connection with aseptic and antiseptic surgery. He quoted many observers in regard to the beneficial effects of the alcohol preparations in the various inflammatory conditions, such as herpes, etc.

Joint Tuberculosis, with Special Reference to the Pathology and Treatment.—Dr. Leonard W. Ely of New York gave a description of some of the changes that he had observed in about sixty joints in the laboratory, together with conclusions drawn from a study of them. There were two types, (1) primary bony, and (2) primary synovial. Syphilitic joint disease possibly occurred but had not yet been proved. "Villous arteritis" was no pathological entity, but simply a symptom of chronic inflammation. Partial operations tended to aggravate the disease. The healing of tuberculous joints was usually by connective tissue formation. The general principles of treatment were almost always conservative in children, and radical in adults. Dr. Ely then described a new plan of operation, which was based upon the pathological findings and upon clinical experience, and which was applicable, especially to the hip and knee. It rested upon the principle of imitating nature and securing bony anchylosis in the joint without removing all the diseased tissue. Two cases of joint disease were cited in which this idea had been followed out.

Dr. Reginald H. Sayre of New York believed that incision was often a useful procedure in children with tuberculous joints, but was not always necessary. With rest and quiet many operations in such conditions would not be required. With the patient in good condition, with a temperature below 100° F., and with a good appetite, he believed it would be far better to leave these cases alone rather than to attempt any operative interference.

Dr. Ely said one should not give up the non-operative treatment of these cases until the viscera became involved. He reported one case of tuberculous synovitis which had existed for seven years. Then a little operation was performed and some tuberculous tabs were removed. This joint then started with the new growth, which required an exsection of that joint some two months later.

The Rheumatisms: Their Etiology and Pathology.—Dr. Egbert Le Fèvre of New York said that the term "rheumatic" was used to include many diseased conditions. He reviewed the theories regarding rheumatism and considered the infective theory and the experimental and clinical data to support the hypothesis. It was the general consensus of opinion that rheumatism was a microbic disease, as much so as pneumonia, typhoid or tuberculosis. Acute articular rheumatism was a disease of adolescence and early maturity. The action of the salicylates could only be explained by the supposition that they act either directly upon the microorganism or against the toxins of such an organism. The early recognition of this disease and the institution of systematic treatment was as important as in tuberculosis. The chronic forms of arthritis, classified under the head of rheumatism, presented great difficulties in study. He called attention to the classification of the chronic forms and the clinical types in relation to etiology.

Osteitis Deformans (Paget's Disease), with Report of Two Cases.—Dr. Henry L. Elsner of Syracuse read this paper. After going into the history and general considerations of the disease, he called attention to the

rare occurrence of it, and the resemblance to other bone changes. The clinical picture of the disease, as described by Paget, had not materially changed according to recent reports. Dr. Elsner reported the histories of two cases that came under his personal observation. The main features were the shortening of the patient in one case and an enormous enlargement of the right half of the calvarium. The right ilium was also greatly enlarged, as was the left clavicle and femur. There were no pressure symptoms. The second was a girl of seventeen years. She presented a characteristic appearance, as shown in the pictures. There was a peculiar broadening of the jaws, with an enlargement of the left parietal bone. The sternum, right clavicle and right ilium, were enlarged. There was an increase in length of the arm resembling in position and length the arm of an ape. The multiplicity of the bones involved was a constant characteristic. An interesting point in connection with these cases of osteitis deformans was the frequency of malignant growths as a complication. Eye changes, mostly of vascular character, were quite common. The luetic origin of this disease has been denied. The *x*-ray pictures justified the diagnosis.

Lantern-Slide Demonstration of X-Ray Pictures of Osteitis Deformans and Stomach and Intestinal Diseases.—Dr. Clarence E. Coon of Syracuse gave this demonstration.

(*To be continued.*)

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held December 21, 1909.

Dr. F. P. Solley in the Chair.

A Case of Pernicious Anemia.—Dr. George Reese Satterlee presented this case from the Washington Heights Hospital. The patient was a male, 67 years old, a painter by occupation, widowed. His family history was unimportant. He had not worked for three years. He ate and slept very irregularly, was constipated, had a good appetite as a rule, once drank coffee to excess, and was a moderate drinker. He gave an indefinite history of syphilis contracted forty years ago. He had all the diseases of childhood. He had also had yellow fever, typhoid fever, and malaria. He had three attacks of grippe and one of pneumonia. Following an attack of grippe one year ago he began to grow weak. About six weeks before his admission to the hospital he noticed a change in the color of his skin and a puffiness under the eyes, and recently edema of the feet. He was admitted to the hospital November 23, 1908. He was fairly well nourished and his musculature was lax. The skin was waxy, with a yellowish tint. The sclerae were yellowish. The pupils were small and reacted to light. The mucous membranes were pale. The tonsils were enlarged, and there were small petechiæ on the under surface of the tongue. The cervical, axillary, and inguinal lymph nodes were palpable. The liver and spleen were not palpable. The tibia was slightly tender to pressure. Edema of the feet was fairly well marked. There were no exaggerated reflexes. There was an atheroma of the right brachial artery more marked than of the left, and the blood pressure was lower on the right side. There was a loud and harsh apical systolic murmur. The pulmonic second sound was slightly accentuated. On November 26 colonic irrigations were given and repeated every day. On November 29 his general condition became much worse, and it seemed as if the patient would die. It was decided to give lecithin hypodermically, which was done in daily doses of 5 centigrams ampules for twelve days. After December 11 the patient failed rapidly, became edematous, had petechial hemorrhages in the skin, and blood in the urine and feces. There was also tenderness on pressure over the tibiæ. He had a very marked bronchitis. The spleen was just palpable; the liver was enlarged and tender. The microscopical examination of the red-blood cells showed quite a distinct destruction of their stroma, due to a hemolysis which was possibly caused by the administration of lecithin. On December 12 Fowler's solution of arsenic was given, 15 minims per day. The temperature was subnormal during this time. On December 15 the patient talked incoherently. On December 17 he had attacks of dyspnea lasting five minutes, for which oxygen was given; the red-blood cell count was 320,000, and hemoglobin 17 per cent., the lowest condition of the blood while the patient was under observation. On December 20 his condition was very much improved, and there was no more dyspnea; on the 27th his general condition had improved very much, and the edema of the feet was much less. After ten days of increasing doses of Fowler's solution the red-blood cell count had increased from 320,000 to 1,200,000. On December 28 the patient was given all the fresh air and light that was possible. From December 28 to the end of March he improved steadily under small daily doses of strychnine and Fowler's solution; he was then sent to the mountains for six months. The patient was again admitted to the hospital in the beginning of August of the same year. He had felt well up to a month previous, when he vomited, had diarrhea, was weak, had jaundice, and lost his appetite. He then presented much the same picture as on his previous admission, with marked intestinal distention and hemorrhagic petechiæ in the skin of the extremities. On August 7 he had diarrhea, with a few red-blood cells in the feces. On the 12th he was given Fowler's solution of arsenic, 30 minims daily, and strychnine. He had no appetite. On the 18th he had a very severe diarrhea, and undigested food and a few red-blood cells appeared in the feces. His temperature now rose for the first time, reaching 104.6° F. He was given bismuth subnitrate internally and opium and starch enemas. Fowler's solution was now stopped. On August 28 he again vomited and the red-blooded cells sank to 960,000 and the hemoglobin to 30 per cent. Fowler's solution and the strychine were stopped. His condition improved up to September 4, when diarrhea again became severe. On September 24 Fowler's solution was given, 42 minims a day. On September 30 colon irrigations were given, but in spite of this treatment his condition grew worse, and the red-blood cells decreased to 540,000 by October 6. A very severe bronchitis developed, which lasted two weeks. On October 28 it was decided to allow the patient to go to his home in the city, where he had been since, taking no medicine, but all the fresh air and good food possible. He had been under constant observation, and blood counts had been made every week, showing a rapid improvement until December 18, when the red-blood cells numbered 4,119,000 and the hemoglobin was 55 per cent. The patient was apparently a well man. His mentality was somewhat sluggish, but his grip was strong and he could walk as fast as the average man, and apart from a rather poor appetite, said he felt perfectly well. The blood picture, however, showed the undoubted characteristics of pernicious anemia. The whole course of this man's history showed how little effect medication had on the diseased condition itself, and showed that aside from careful nursing during the crises, fresh air, sunshine, and good food were the best "medicines." The interest in this case centered in the blood count. On November 30 the red cells numbered 1,200,000; leucocytes, 7,400; polymorphonuclears, 67 per cent.; lymphocytes, 28 per cent.; large mononuclears, 23 per cent.; eosinophiles 1 per cent.; basophiles, 1 per cent. The hemoglobin was 28 per cent., and there was a color index of 1.08. On December 19 the red-cell count was 320,000 and the hemoglobin was but 17 per cent. Improvement then followed. On January 4 the red-blood cells num-

bered 1,760,000 and the hemoglobin was 40 per cent. On February 27 the red cells numbered 4,000,000 and the hemoglobin was 82 per cent., with a color index of over 1. On March 15 the red cells numbered 3,500,000, the hemoglobin was 80 per cent., and the color index was plus 1. The patient then left the hospital and was away six months. On August 9 the red cells numbered 975,000 and the hemoglobin was 25 per cent., with an index of 0.8. On August 23 the red-blood cells numbered 1,170.000; on the 28th, 960,000, and the hemoglobin 30 per cent.; on August 31, the red-blood cells numbered 1,160,000 and the hemoglobin was 43 per cent. On September 4 the red cells had increased to 1,400,000 and the hemoglobin was 45 per cent. From then on the red-blood cells gradually diminished in number, and on September 17 a moderate number of nucleated red cells appeared after a long absence. On October 1 the cells numbered 890,000 and the hemoglobin was 40 per cent.; on October 6 the reds numbered 540,000 and there was 30 per cent. hemoglobin; on October 10 the reds numbered 700,000 and the hemoglobin was 32 per cent.; on October 19, just before the patient was discharged, the reds numbered 580,000 and there was 30 per cent. hemoglobin. A gradual improvement in his condition had been noted until December 11, when the red cells numbered 4,260,000, and on the 18th 4,119,000, with hemoglobin 55 per cent. and an index of 0.8. The leucocyte count was always low; there was a high percentage of lymphocytes. The urine never showed any large amounts of indican and rarely more than a trace of albumen and a few hyaline casts, but red-blood cells were nearly always present. The stools often contained red-blood cells and undigested food. Von Pirquet's cutaneous tuberculin reaction was negative.

Parasitology of Uncinariasis.—Dr. Francis Carter Wood presented a bottle containing hookworms and also some slides which showed male and female forms. They were American species. The interest in the question of hookworm disease that had developed during the last few years in this country was largely due to the discovery of its wide distribution, especially in the Southern States. Of course, it had been known for a long time that European tunnel workers and brick makers, as well as a large proportion of the population of Egypt, suffered from a peculiar chlorosis or anemia which was associated with this little parasite. This European worm was found to be adherent to the submucosa of the duodenum, and it was called *Ankylostoma duodenale,* or hookworm. There was no question but that the disease had been known for two or three hundred years, but only as a form of anemia. The parasites had only been recognized since 1843, and completely studied in the last few years. It was known that tunnel workers and brick makers were often afflicted with the disease, and then it was noticed also that coal miners suffered as well. Examination for the eggs of the parasites was made ten or fifteen years ago. Dr. Wood called attention to the suppression of the epidemic of hookworm disease in Porto Rico and to Mr. Rockefeller's munificence in giving one million dollars towards stamping out the disease in the South. There was no intermediate host. The parasite was readily distinguished by its morphology. The female was rather straight, while the male was more curved and had a broader caudal extremity. The differences between the two varieties of *Ankylostoma duodenale* had been well described by Dr. Stiles, and related chiefly to the small structures of the mouth portion. The European species had a series of hooks across the mouth; the American species had a small, round mouth with very small papillæ on edge. The eggs helped also in making a differentiation from the fact that in the European species the egg did not go beyond the stages of segmentation in the fresh stools; whereas in the American species they became completely segmented and might reach the embryonic stage. The eggs were oval and thin shelled, and contained four or eight cells. In the American species there were from 16 to 32 cells, or a larva might be present in the cell. The European eggs would not hatch until warmed; they then hatched in from 24 hours to 5 days, depending upon the air. The eggs of the American species, on the other hand, hatched rather rapidly. The differential diagnosis between the larvæ of *Uncinaria americana* and the larvæ of *Strongyloides intestinalis* was difficult, but it could usually be made by noting that the mouth of the uncinaria was long and narrow, while that of the strongyloides larva was broad. A further development of the parasite took place in the soil or fecal masses. If the feces were allowed to dry, or if mixed with charcoal and allowed to stand in a warm place, the parasites would grow, become larger, and crawl. With a pipette they then could be collected, examined, fixed, and even photographed. This was the rhabditiform stage in which the larvæ took food, grew, and shed their skin. But in this stage they were not infectious to man. The next or filariform stage, however, was the dangerous one to human beings. This occupied a period of from two, three, or five weeks. The probability was that both the American and European species had the same life history. The mode of infection was twofold. It was originally taught that hookworm disease was caused by swallowing water or by eating clay which contained the parasites; as was well known some people in the Southern States ate clay. This was what was termed the direct mouth infection. It was observed that the disease seemed to be connected with a peculiar skin eruption. This suggested that possibly the embryo might get in through the skin. Experimentally, it was soon shown to be a fact. Probably in a very large proportion of the cases of hookworm disease the parasites got in through the skin, especially the skin of the feet. In the warm climates, when the moisture was abundant there was a contamination of the feet with the soil which bore these larvæ. In such cases, of course, it was simple enough to check the disease by providing shoes. Embryos had been known to remain under the skin for four or five years. Not all the parasites got into the circulation. The parasite bored into the mucous membrane with the mouth end, which penetrated to the submucosa of the duodenum, and the animal was nourished by the epithelium as well as by the blood. There could not be any autoinfection. The parasites probably died out in time. Dr. Wood stated that he had seen as many as thirty-five or forty cases of hookworm disease during the past three or four years, all hospital or clinic cases.

A Case of Hookworm Infection Occurring in New York.—Dr. Harlow Brooks read this paper. (See page 191.)

Dr. Joseph F. Siler, Medical Corps, United States Army, said that recently it had been his good fortune to have a rather interesting experience with hookworm disease. Many Southern recruits passed through the recruiting depot at Fort Slocum, N. Y., at which point they were examined physically by medical officers. It had been noted that these men in general were somewhat below the average as to physique. An examination of stools in 124 recruits from the South had shown 109 cases of infection with *Necator Americanus.* These recruits were principally from North and South Carolina, Georgia, and Florida. Recruiting was done at different points throughout the country by officers of the cavalry, infantry, and artillery (laymen), and these recruiting officers rejected approximately 50 per cent. of the men who applied. The remaining 50 per cent. of applicants were forwarded to the recruiting depots for examination by medical officers, and as the recruits at Slocum were the better class of men and 85 per cent. of these men were infected, this high percentage was an index as to the widespread infection throughout the South. The infections at Slocum were mild in character;

only two men were rejected because of pronounced anemia. Major Chamberlain of the Medical Corps in examining recruits at Jackson Barracks, La., confirmed these findings, and brought out the fact that the parasite could live within the intestinal canal for at least three or four years. The percentage of infection at Slocum was somewhat high, but it was believed that in many rural sections of the South it was at least 50 per cent. The treatment at Fort Slocum was the routine one, with thymol, but this agent was used in larger doses than those referred to by Dr. Brooks. Fifteen grains were given every hour for four doses, and this treatment was repeated at the end of a week should stool examination still show ova. In regard to the question as to the use of alcohol with thymol, Manson referred to patients having been killed because of the use of alcohol during the administration of thymol. The routine treatment at Slocum was as follows: A dose of salts was given, which was followed by a limited diet; then 15 grains of thymol was given every hour for four doses; following this a saline was given if necessary. About 80 per cent. of the hookworms were expelled after the first treatment. It was usually necessary to repeat this treatment every week for at least a month to free the patient entirely of infection. In the *Journal of Tropical Medicine* were frequent references to another treatment which eliminated the toxic feature. This treatment consisted in the use of eucalyptus oil and castor oil given twice daily for a week or ten days. It was claimed that this treatment was practically as good as the thymol. It was interesting to note in the recent report to the surgeon-general of the army that while hookworm disease was prevalent among recruits, it had no particular bearing on the health of the army, as the chance of reinfection in army posts was practically *nil*.

Election of Officers.—*Chairman,* Dr. C. N. B. Camac; *Secretary,* Dr. H. S. Patterson.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

West Virginia State Board of Health.

July 13, 14, *and* 15, 1909.

ANATOMY AND EMBRYOLOGY.

1. Give the general characteristics of a vertebra. Describe the atlas.
2. Describe the branches of the arch of the aorta.
3. Describe the course of the fibers in the optic commissure.
4. Name and describe the ducts of the liver.
5. Give origin and insertion of sartorius muscle; give function.
6. Give blood supply of leg, mentioning venous compensation.
7. Give foramen of exit of the cranial nerves.
8. Name muscles of deglutition.
9. Tell what you know of fetal development from the time of contact of the spermatozoon with the ovum during the first six weeks of development.
10. Describe the palmar arches and mention their surgical significance.

PHYSIOLOGY AND HISTOLOGY.

1. Give origin and functions of the bile.
2. Give functions of the liver.
3. Give the amount of saliva secreted in twenty-four hours in the adult; also give functions of the saliva.
4. Give the amount of blood (in pounds) in the body and state the functions of the red corpuscles.
5. Give the amount of water and solids in the body of a person weighing 145 pounds.
6. Name the organs of digestion in the order in which they belong.
7. Locate, describe, and give functions of the spleen.
8. Locate, describe, and give functions of the pancreas.
9. Describe a Peyer's patch and tell where it is found.
10. Describe a lobule of the liver.

CHEMISTRY AND MEDICAL JURISPRUDENCE.

1. What is an element, and how many are there?
2. Give chemical antidote for silver nitrate, mercury bichloride, tincture of iodine; what is formed?
3. Give Fehling's test for sugar. What is the chemical change as shown by reaction?
4. Would you treat burns with acids or alkalies, and why?
5. Define electrolysis.
6. Define oxidation; where does it occur in the body?
7. What are some of the certain signs of death?
8. Differentiate between dementia and hysteria.
9. Having visited a case, can the physician quit before its termination?
10. What are the legal requirements to practise medicine in West Virginia?

MATERIA MEDICA AND THERAPEUTICS.

1. Mention the therapeutic uses of ergot. Give the physiological action.
2. Name four coal-tar products used to reduce temperature; give dose of each.
3. Correct the following prescription:

   Atrophia sulphate, gr. i ss.
   Potassium iodid, 5ss.
   Infusa Digitalis, qs. ad. oz. ii.
   M-Sig. Teaspoonful in water four times daily.

4. Name four alkaloids of opium; give dose of each. Name three indications for their use. What is the effect of a full dose of opium on respiration?
5. How many grains of cocaine are contained in an ounce of a 20 per cent. solution? How many drops would you give an adult hypodermically?
6. Give dose of tincture of aconite root, tincture of digitalis, tincture of hyoscyamus (last edition of the Pharmacopœia). What active principles are found in each? Give dose.
7. State therapeutic uses of Pulvis jalapæ compositus and give composition.
8. Mention eight drugs the use of any one of which may cause skin eruptions.
9. Give the composition and the chief use of lotio hydrargyri nigra.
10. What are the therapeutic uses of ammonium muriaticum?

BACTERIOLOGY AND HYGIENE.

1. What is mixed infection? Illustrate.
2. Mention four of the most useful culture media. What should the reaction of a culture medium be?
3. Name the microorganism of erysipelas? What tissues does this microorganism chiefly effect?
4. Describe the method of staining sputum containing tubercle bacilli.
5. How do cells multiply?
6. Describe the modern system of ventilation.
7. What reasons can you give for not using personal clothing or toilet articles used by other people?
8. What diseases are known to be carried by animals and insects?
9. How would you manage a case of scarlet fever to prevent its spread, and what precautions would you take to avoid conveying it on your own clothing or person?
10. Give in detail the hygienic rules to be followed in every case of tuberculosis.

SURGERY.

1. What is inflammation? How does it extend? How does it terminate?
2. What is an abscess? Define acute and chronic abscess.
3. What is a carbuncle? Give treatment.
4. Define septicemia. Define pyemia.
5. Make a diagnosis between apoplexy, uremic coma, intoxication, and head injury.
6. What is lupus? Treatment?
7. Treatment of epistaxis?
8. Name and describe the different kinds of posture.
9. Describe and treat Colles's fracture.
10. What is orchitis? Treatment?

OBSTETRICS AND GYNECOLOGY.

1. In what way does the fetus receive its nourishment? Describe the placenta.
2. Cause, symptoms, and treatment of puerperal septicemia.
3. What are the dangers of a prolonged labor after the first stage is completed?
4. Menopause: What is it? Symptoms and treatment? Is it a physiological or pathological condition?

5. How long would you remain with patient after delivery, and why?
6. Explain the action of the abdominal muscles in labor.
7. What changes take place in the female at puberty?
8. How would you proceed in case of puerperal eclampsia? Cause?
9. Describe operation for perineal laceration. When and why should it be done?
10. Give early symptoms and treatment of cancer of the cervix uteri.

PRACTICE OF MEDICINE AND PEDIATRICS.

1. Give the cause and treatment of deficiency in excretion of urea.
2. Diagnose, treat, and give the cause of cholera infantum in an infant.
3. Etiology, symptoms, and treatment of acute lobar pneumonia.
4. Give the causes, symptoms, and treatment of Bright's disease.
5. Give the cause, symptoms, and treatment of hemiplegia in a person over sixty years of age.
6. Tonsillitis: Differentiate from diphtheria; give symptoms and treatment.
7. Intussusception: Define, diagnose, and treat.
8. Symptoms and treatment of empyema.
9. Give the etiology, pathology, duration, and treatment of typhoid fever.
10. Etiology, symptoms, and treatment of hysteria.

SPECIAL PRACTICE.

1. Give symptoms and diagnosis of chronic pleurisy with effusion.
2. Give symptoms and methods for early diagnosis of hip-joint disease.
3. Describe simple chronic laryngitis, giving diagnosis and treatment.
4. Diagnose and treat laryngeal diphtheria.
5. Give etiology, symptoms, diagnosis, and treatment of frontal sinus infection.
6. Diagnose and treat atrophic nasopharyngitis.
7. Describe the normal eye-ground as seen through the ophthalmoscope.
8. Describe eye conditions associated with chronic Bright's disease and diabetes mellitus.
9. Describe the normal knee-jerk. Give diagnostic significance of loss and exaggeration.
10. What is multiple neuritis? Give etiology and treatment.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

West Virginia State Board of Health.

July 13, 14, *and* 15, 1909.

ANATOMY AND EMBRYOLOGY.

1. The *general characters of a vertebra* are: Body or Centrum, and Neural arch. The latter consists of two pedicles, two laminæ, and seven processes (four articular, two transverse, and one spinous). For *atlas*, see Cunningham's "Anatomy" (1909), page 79; or Gray's "Anatomy" (1908), page 50.
2. See Cunningham's "Anatomy" (1909), page 800; or Gray's "Anatomy" (1908), page 595.
3. See Cunningham's "Anatomy" (1909), page 676; or Gray's "Anatomy" (1908), page 1038.
4. See Cunningham's "Anatomy" (1909), page 1118; or Gray's "Anatomy" (1908), page 1349.
5. *Origin:* Anterior superior spine of ilium and part of notch below. *Insertion:* Inner side of tibia near tubercle. *Function:* Flex leg on thigh, and thigh on pelvis; and rotate thigh outward.
6. See Cunningham's "Anatomy" (1909), pages 863 and 897; or Gray's "Anatomy" (1908), pages 707 and 756.
7. First through foramina in cribriform plate of ethmoid. Second, through optic foramen. Third, through sphenoidal fissure. Fourth, through sphenoidal fissure. Fifth, through sphenoidal fissure, foramen rotundum, and foramen ovale. Sixth, through sphenoidal fissure. Seventh, through stylomastoid foramen. Eighth, through internal auditory meatus. Ninth, tenth, and eleventh, through jugular foramen. Twelfth, through anterior condyloid foramen.
8. Hyoglossi, styloglossi, palatoglossi, palatopharyngei, azygos uvulæ, tensores palati, levatores palati, stylopharyngei, stylohyoids, geniohyoids, mylohyoids, thyrohyoids, digastrics, constrictors of the pharynx, and intrinsic muscles of tongue.
9. See Cunningham's "Anatomy" (1909), page 16; or Gray's "Anatomy" (1908), page 1559.
10. The *superficial palmar arch* is formed by the ulnar artery, and is completed by the ulnar artery anastomosing with a branch of the radial (superficial volar or princeps pollicis). It gives off the four digital branches. The surface marking is a line drawn transversely across the palm from a point where the web of the thumb joins the palm. The *deep palmar arch* is formed by the radial artery, and is completed by the radial artery anastomosing with a deep branch of the ulnar. Its branches are the palmar interosseous, perforating, and palmar recurrent arteries. The surface marking is a line drawn transversely across the palm, one-half inch nearer the wrist than the superficial arch. Wounds in this region are dangerous on account of the difficulty in checking the hemorrhage, and also on account of the important structures of the palm that may be damaged. In incision in the palm the line of these arteries should be avoided as far as possible.

PHYSIOLOGY AND HISTOLOGY.

1. The bile originates in the liver. The functions of the bile are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach, and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.
2. The functions of the liver are: (1) The secretion of bile; (2) the formation of glycogen; (3) the formation of urea and uric acid; (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.
3. Probably from two and one-half to three pounds of saliva are secreted daily by an adult. *The functions of the saliva* are: (1) To moisten the mouth; (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste; (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition, and (6) to change starches into dextrin and sugar.
4. The blood is about one-thirteenth of the body weight. The function of the red corpuscles is to carry oxygen to the tissues.
5. Water being about two-thirds and solids one-third, there will be about 97 pounds water and 48 pounds solids.
6. Mouth (with tongue, teeth, and salivary glands), pharynx, esophagus, stomach, small intestine (duodenum, jejunum, ileum), large intestsine (cecum, ascending colon, transverse colon, descending colon, sigmoid flexure, and rectum), with liver and pancreas.
7. The *function of the spleen:* The following theories have been held: (1) It is a source of production of the white blood corpuscles; (2) it is a source of production of the red blood corpuscles during fetal life; (3) it is a place where the red blood corpuscles are destroyed; (4) uric acid is produced in the spleen; (5) an enzyme is produced in the spleen and is carried by the blood to the pancreas, where it converts the trypsinogen into trypsin. For location and description, see Cunningham's "Anatomy" (1909), page 1210; or Gray's "Anatomy" (1908), page 1361.
8. The *functions of the pancreas* are: (*a*) The secretion of the pancreatic juice, which (1) changes proteids into proteoses and peptones, and afterward decomposes them into leucin and tyrosin; (2) converts starch into maltose; (3) emulsifies and saponifies fats, and (4) causes milk to curdle. (*b*) The manufacture of an internal secretion. For location and description, see Cunningham's "Anatomy" (1909), page 1124; or Gray's "Anatomy" (1908), page 1355.
9. See Cunningham's "Anatomy" (1909), page 1064; or Gray's "Anatomy" (1908), page 1304.
10. A lobule of the liver is about 1-20 to 1-12 inch in diameter. It has a darkish red center and a lighter circumference. The center is occupied by an intralobular vein which collects the blood from the capillaries of the lobule, and flows into the sublobular vein, which latter opens into the hepatic vein. Around the lobules are the interlobular veins; these are branches of the portal system; capillaries passing from the circumference to the center of the lobule connect the interlobular and intralobular veins. Between the network of capillaries in the lobule the heptaic cells are packed.

CHEMISTRY AND MEDICAL JURISPRUDENCE.

1. An *element* is a substance which cannot, by any known

means, be split up into two or more other kinds of substance. There are 80 or 81 elements.

2. (1) For silver nitrate, sodium chloride; (2) for mercury bichloride, white of egg; (3) for tincture of iodine, no chemical antidote; but starch is given. There are formed (1) silver chloride, (2) mercury albuminate, (3) a blue color.

3. *Fehling's test:* Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out. [The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c., and solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.] The copper sulphate is reduced to copper oxide.

5. *Electrolysis* is the process of electrical conduction accompanied by the separation of the constituents of the electrolyte or the decomposition of a chemical compound by passing an electric current through it.

6. By *oxidation* is meant the act of union of oxygen with another element or compound. It occurs in all (or nearly all) the tissues of the body, chiefly in the lungs.

7. The complete and permanent cessation of respiration and circulation, rigor mortis, loss of body heat, pallor of the body, putrefaction.

8. *Dementia* is a condition of mental enfeeblement which gradually increases until absolute mental decay ensues. *Hysteria* is a morbid condition of the nervous system which may show every variety of nervous system due to deranged function of the cerebral and spinal centers, and associated with lowered will power and exaggerated emotional tendencies.

9. Yes; a physician can quit, provided he gives ample notice of his intention, so that the patient can obtain the services of another physician.

10. Graduation from a reputable medical college, recognized as such by the State Board of Health, and a certificate giving license to practise, issued by the said State Board of Health.

MATERIA MEDICA AND THERAPEUTICS.

1. Ergot. *Therapeutic uses:* To promote uterine contractions during third stage of labor; fibroids, menorrhagia, postpartum hemorrhage. Some forms of amenorrhea and dysmenorrhea, dysentery, arterial hemorrhage, congestive headaches, laxity of sphincters, of bladder or rectum, hemorrhoids, aneurysm, diabetes, urinary incontinence, direct paralysis of the sphincter vesicæ, atonic spermatorrhea. *Physiological action:* Ergot stimulates and causes contraction of involuntary muscle fibers, hence it is a vasoconstrictor, hemostatic, and oxytocic. It is also a cardiac sedative; it raises the blood pressure, it increases peristalsis, and is an emmenagogue.

2. Acetanilide, gr. iv; antipyrin, gr. iv; phenacetin, gr. viijss; exalgin, gr. ij.

3. ℞ Atropinæ sulphatis, gr. 1/6.
Potassii iodide, ʒss.
Infusi digitalis q. s. ad ʒij. M.
Sig: One teaspoonful in water four times a day.

4. Morphine, gr. 1/5; codeine, gr. 1/2; narcotine (hydrochlorid), gr. v; the other alkaloids are not used medicinally. *Indications:* To relieve pain; to produce sleep; to alloy irritation. Respiration is slowed.

5. Ninety-six grains. About one and a half minims; but I would not use a 20 per cent. solution.

6.

TINCTURE OF	DOSE	ACTIVE PRINCIPLES	DOSE
Aconite.	♏x.	Aconitine.	gr. 1/400.
Digitalis.	♏xv.	Digitalin.	gr. 1/150.
		Digitalein.	gr. 1/100.
		Digitin.	.....
		Digitonin.	gr. 1/200
		Digitoxin.	gr. 1/150.
Hyoscyamus.	♏xv.	Hyoscyamine.	gr. 1/128.
		Hyoscine.	gr. 1/128.

7. As a hydragogue purge, in dropsy and cerebral congestion. It is composed of 35 parts of jalap and 65 parts of potassium bitartrate.

8. Belladonna, quinine, bromides, chloral, copeiba, cubebs, morphine, mercury.

9. It is made by adding one dram of calomel to a pint of lime water. It is chiefly used as a wash for syphilitic sores.

10. It stimulates the respiratory mucous membranes, and so is used in bronchitis and pneumonia; also in torpid and other liver conditions and ovarian neuralgia.

BACTERIOLOGY AND HYGIENE.

1. A mixed infection is one in which more than one kind of microorganism is present—as *tetanus bacillus*, which thrives in the presence of saprophytic organisms which absorb the oxygen.

2. Gelatin, agar, blood-serum, bouillon. The reaction should be faintly alkaline or neutral.

3. *Streptococcus erysipelatis:* It chiefly affects the skin and connective tissues (lymph spaces and cellular tissues).

4. The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

5. Cells multiply by: (1) Amitosis, and (2) karyokinesis.

6. "In the *plenum* system the air is drawn into a box, in which the revolving blades of a fan are located, and it is then driven into a central conduit and from there through appropriate shafts to the spaces for which it is intended. In the *vacuum* system the air is extracted from the various rooms through pipes leading to a central shaft, where it is drawn into the fan and discharged outwardly."

7. (1) It is a dirty habit; (2) it is also a dangerous habit, as disease may be conveyed in this way.

8. Malaria, yellow fever, filariasis, bubonic plague, typhoid, cholera, leprosy, tuberculosis, smallpox, ringworm, sleeping-sickness, hook-worm disease, diphtheria, measles, scarlet fever, pneumonia, intestinal parasites, glanders, echinococcus, anthrax, rabies.

9. Complete isolation and quarantine, followed by rigid disinfection; special care must be taken during period of desquamation. On entering the room the physician should put on a sterilized gown over his clothes, and leave the gown behind him when he leaves; he should also wash his hands with a disinfectant.

10. "The patient's quarters should be free from dust, and admit of spending many hours daily in the open air in all weathers, properly sheltered, and, if very ill, lying wrapped in a hammock or reclining chair. His bedroom should be well aired at night, draughts being avoided. The room should be uncarpeted and free from hangings. It should be often cleaned and periodically disinfected. All sputum should be collected in paper spit-cups, which should be burned daily. Smoking should be forbidden. Harm is done by any exercise which results in fatigue, and while fever exists it should not be attempted at all. Patients should be taught the necessity of practising lung gymnastics and breathing only through the nose, which should be kept clear and free from occlusion by secretions, or an hypertrophied catarrhal mucosa. . . . The clothing should be woolen, but not too heavy, or sweating is increased; and a flannel nightgown and loosely knit leggings should be worn at night in cool weather. The skin should be cleansed by daily sponge-baths of lukewarm alcohol and water."

SURGERY.

1. *Inflammation* is the succession of changes which occur in a part as the result of some kind of injury, provided that this injury is not sufficient to immediately destroy the vitality of the part. It extends by the blood vessels, lymphatics, and continuity of tissue. It terminates in return of the tissues to health (by resolution or organization or new growth), or by death of tissue (by suppuration, ulceration, or gangrene).

2. An abscess is a circumscribed collection of a pus in a cavity of new formation. Acute abscesses are marked by inflammatory symptoms, pain, and heat, and by rapid development; chronic abscesses, by the absence of pain and heat, and by their sluggish course.

3. A carbuncle is a localized inflammation of the subcutaneous tissue, with fibrinous exudation and multiple necrotic foci. *Treatment:* Tonics, stimulants, good diet,

free, crucial incisions with curetting of the sloughs, and swabbing with pure carbolic acid.

4. *Septicemia* is a condition due to microorganisms multiplying in the blood, and is characterized by high temperature, but not relieved by getting rid of the original source of infection. *Pyemia* is due to particles of blood clot carrying microorganisms to parts distant from the original source and there setting up metastatic abscesses.

5.

COMA FROM INTRACRANIAL INJURY	APOPLECTIC COMA	UREMIC COMA	ALCOHOLIC COMA
Deep coma; may have history of onset after fall or injury. Evidence of fracture of vertex or base.	Deep coma; sudden onset. If any injury, only a scalp wound.	Deep coma. Slow onset, unless convulsions have preceded the coma.	Can be aroused by supraorbital pressure unless very profound.
Pupil dilated on side of lesion. Choked disc.	Pupils unequal or dilated. Contracted in hemorrhage into the pons.	Albuminuric retinitis.	Pupils normal or somewhat dilated.
Pulse very slow.	Pulse full and slow, often arteriosclerotic, high-tension pulse.	Pulse rapid.	Pulse more rapid than normal and full.
Respiration slow and stertorous.	Respiration slow and irregular.	Respiration frequent and irregular.	Regular respiration.
Temperature higher—101°.	Temperature higher on paralyzed side, but lower in rectum.		May be low or normal.
Urine normal or contains trace of albumin.	Urine contains trace of albumin, but may be same as in uremia.	Urine shows albumin, casts, and low urea percentage.	Normal.
Hemiplegia on opposite side to that of injury. If contusion of brain is also present, may have generalized convulsions.	Hemiplegia with convulsions on one side.		

6. *Lupus vulgaris* is a tuberculous infection of the skin; it is generally found upon the face, particularly the nose and cheeks. It begins as pinkish nodule which is painless, and spreads to other nodules, and generally ends in ulceration, with destruction of mucous membrane or cartilage.

Treatment: In the early stages the small nodule may be excised. If not seen till later, curettage with a sharp spoon, followed by cauterization with pure carbolic acid, has been recommended. This can be repeated at intervals of three or four weeks, if necessary. Finsen light and tuberculin have also been used.

7. *To arrest epistaxis:* (1) Try to cauterize the bleeding point; (2) plug the nasal cavity with gauze soaked in adrenalin; (3) inject into the nares a solution of peroxide of hydrogen; (4) plugging the nares, anteriorly and posteriorly; (5) an inflating plug may be used.

8. Postures. *Dorsal,* one in which the patient lies on the back; *knee-chest, or genupectoral,* one in which the patient rests upon the knees and chest, the arms being crossed above the head; *knee-elbow, or genucubital,* one in which the patient lies upon the knees and elbows, the head resting upon the hands; *lithotomy,* one in which the patient lies on the back with the legs flexed on the thighs, and the thighs flexed on the abdomen and abducted; *Sim's,* one in which the patient lies on the left side, with the right knee and thigh drawn up and the left arm placed along the back; the chest is inclined forward so that the patient rests upon it; *Edebahl's,* one in which the patient lies on the back, with the legs flexed on the thighs and the thighs on the abdomen, the hips being elevated and the thigh strongly abducted; *Trendelenburg's,* one in which the patient lies on the back, on a plane inclined about 45°, the feet and legs hanging over the end of the table.

9. *Colles' fracture* is a fracture of the lower end of the radius; it is generally transverse, and is usually within an inch or an inch and a half of the articular surface. There is a characteristic deformity caused by the lower fragment, and the carpus forming a prominence on the dorsal surface; at the same time there is a projection on the palmar surface just above the wrist, caused by the upper fragment. The hand is abducted and pronated, and the styloid process of the ulna becomes very prominent. It is generally caused by a fall on the outstretched palm. For *treatment,* see Rose and Carless' "Surgery" (1908), page 522; or DeCosta's "Surgery" (1908), page 507.

10. *Orchitis* is inflammation of the testicle. *Treatment:* Rest in bed; elevation of the parts; hot or cold applications; pain is to be relieved by opiates or leeches; lead water and laudanum should be applied; salines or cathartics are to be administered. Sometimes strapping the testicle is of service; so, too, is the application of ichthyol and lanolin.

OBSTETRICS AND GYNECOLOGY.

1. *Nutrition of fetus:* "(1) At first the ovum absorbs nutriment simply through the vitelline membrane, while passing through the Fallopian tube. The nutrient material is supplied by the secretion of the tube itself, or may consist in part of seminal fluid introduced from without. (2) The vitellus is absorbed by the entoderm lining the umbilical vesicle and alimentary canal, and later it is absorbed and conveyed into the body of the embryo by the blood-vessels of the area vasculosa. (3) When the contents of the umbilical vesicle are exhausted the chorial villi appear and take up nourishment from the uterine decidua, with which they are in contact. (4) With the disappearance of villi in the chorion leve, the villi of the decidual serotina develop into the placenta, where they take up nutriment from the maternal blood with which they are surrounded."

At full term the *placenta* is a soft, spongy mass, roughly saucer-shaped, from six to nine inches in diameter, about three-quarters of an inch in thickness at the central point, and weighs about one pound.

2. See Williams' "Obstetrics" (1909), page 852; or Hirst's "Obstetrics" (1909), page 764.

3. Asphyxiation of fetus; inspiration-pneumonia of fetus; death or exhaustion of mother; pressure necrosis formation of fistulæ; sepsis; and post-partum hemorrhage.

4. *Menopause* is the period when menstruation ceases; it usually occurs between the fortieth and fiftieth years; it is attended by disturbances of digestion, flashes of heat, nervous troubles; treatment is symptomatic, dietetic, and hygienic. It is a physiological condition normally, but may become pathological.

5. At least one hour; longer if necessary; for fear of post-partum hemorrhage; the uterine contraction should be good and the pulse below 100 before the physician leaves.

6. See Williams' "Obstetrics" (1909), page 286; or Hirst's "Obstetrics" (1909), page 333.

7. Development of the reproductive organs, enlargement of the breast, hair on pubis and axilla; the form becomes rounded, the hips widen, menstruation occurs; there are certain mental and emotional changes, and "the development of those womanly beauties physiologically designed to attract the male."

8. Puerperal eclampsia. *Preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ. *Curative treatment:* (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible. The *causes* may be: Uremia, albuminuria, imperfect elimination of carbon dioxide by the lungs, medicinal poisons, septic infection; predisposing causes are

renal disease and imperfect elimination by the skin, bowels, and kidneys.

9. See Williams' "Obstetrics" (1909), page 325; or Hirst's "Obstetrics" (1909), pages 609 and 868.

10. CANCER OF THE CERVIX. *Early symptoms:* Pain, hemorrhage, offensive discharge, wasting; the cervix is enlarged and breaks down. *Treatment:* Removal of the uterus.

PRACTICE OF MEDICINE AND PEDIATRICS.

1. *Causes:* Carcinoma, cirrhosis of liver, acute febrile jaundice, nephritis, Addison's disease, lead poisoning. *Treatment:* Purgatives (elatorium, calomel, compound jolap powder), hot bath, amylnitrite, liquid diet. And see answer to OBSTETRICS, 8.

2. See French's "Practice" (1907), page 782; or Osler's "Practice" (1909), page 507.

3. See French's "Practice" (1907), page 151; or Osler's "Practice" (1909), page 165.

4. See French's "Practice" (1907), page 892; or Osler's "Practice" (1909), page 686.

5. See French's "Practice" (1907), page 1071; or Osler's "Practice" (1909), page 966.

6. In *diphtheria* the onset is more gradual; the temperature rises to about 101° to 103° F.; the tonsils are not much enlarged; there is an exudate of a thick, grayish membrane which is very adherent, is removed only with difficulty, and leaves a bleeding surface; this membrane soon reforms and may be found on the fauces and pharynx as well as on the tonsils; in the exudate the Klebs-Loeffler bacilli may be found. In *fallicular tonsillitis* the onset is more sudden; the temperature may be a little higher than that of diphtheria; there is no membrane, but the tonsils are read and swollen, and in the crypts are seen white, cheesy spots or plugs, which consist of broken-down epithelium, and are easily brushed away; Klebs-Loeffler bacilli are never found. See French's "Practice" (1907), page 719; or Osler's "Practice" (1909), page 445.

7.

STRANGULATION	INTUSSUSCEPTION.	TWISTS (VOLVULUS)
Subjective Symptoms.	*Subjective Symptoms.*	*Subjective Symptoms.*
1. Generally occurs after age of 20.	1. Most frequent in childhood.	1. Most frequent after age of 30.
2. Pain localized, rapid collapse.	2. Constant tenesmus.	2. Pain diffuse.
3. Pain intense, paroxysmal in character.	3. Pain develops suddenly and is continuous.	3. Pain paroxysmal; recurs less often than in strangulation.
4. Constipation complete.	4. Frequent diarrhea, passage of bloody mucous.	4. Constipation complete.
Objective Symptoms.	*Objective Symptoms.*	*Objective Symptoms.*
1. Temperature often subnormal.	1. Temperature normal or subnormal.	1. Temperature slightly elevated.
2. Pulse very weak.	2. Same as in strangulation.	2. Same as in strangulation.
3. Stercoraceous vomiting comes on early.	3. Same as in strangulation.	3. Same as in strangulation.
4. Location in small intestine.	4. Localization in small intestine; bowel frequently protrudes at rectum.	4. Location, small intestine; abdomen often protrudes, in certain areas, giving dullness on percussion.

—See French's "Practice" (1907), page 799; or Osler's "Practice" (1909), page 519.

8. EMPYEMA. *Symptoms:* High and irregular fever, sweats, chill, diminished breath sounds and vocal femitus, impaired mobility of chest, dullness on affected side, heart displaced to opposite side, leucocytosis. Absolute diagnosis is made by aspiration, showing the fluid to be pus. *Treatment:* Aspiration, drainage, irrigation, resection of ribs (Estlander's operation), or resection of chest wall (Schede's operation).

9. See French's "Practice" (1907), page 65; or Osler's "Practice" (1909), page 57.

10. See French's "Practice" (1907), page 1140; or Osler's "Practice" (1909), page 1076.

SPECIAL PRACTICE.

1. See French's "Practice" (1907), page 701; or Osler's "Practice" (1909), page 655.

2. *The early symptoms of hip-joint disease* are: Night cries (in a child); lameness in the morning; a slight limp; tendency to become tired on slight exertion; wasting; spasm; pain; swelling; and deformity (either real or apparent).

3. Simple chronic laryngitis may follow an acute attack, and be due to the same causes. *The symptoms* are tickling in the throat, hoarseness, persistent cough, and thick, tenacious, mucoid expectoration. Physical examination reveals congestion and granulations on the mucous membrane. *The general treatment* is largely dietetic, stimulant, and hygienic. The local treatment consists in removing erosions or enlarged follicles under cocaine by means of silver nitrate or the galvanocautery, and the use of stimulating inhalations and applications. Silver nitrate (gr. 10-20 to ℥i), glycerite of tannin, or boroglycerid (50 per cent.) may be used as application. Alkaline sprays and nasal douches may be employed. Guaiac may be administered in lozenge form.

4. See French's "Practice" (1907), page 188; or Osler's "Practice" (1909), page 202.

5. FRONTAL SINUS INFECTION. *Etiology:* Extension from ethmoid cells, or obstruction of the nasofrontal duct; or hypertrophic inflammation of the mucosa or growths within the nose. *Symptoms and diagnosis:* Throbbing pain in frontal cells, discharge of offensive mucopurulent pus from one or both sides; transillumination will be diminished on the affected side. *Treatment* consists in laying open the cavity, through an incision along the inner part of the eyebrow, and trephining. The wall is curetted, the infundibulum enlarged, and a drainage tube left in it for two or three days. The cavity is then washed out daily through the nose till all discharge has ceased.

6. ATROPHIC NASOPHARYNGITIS. *Symptams:* Characteristic burning, itching sensation, and an extremely dry feeling in the throat. There is usually a dry hacking cough, very little expectoration except what accumulates in the post-nasal space, and is removed by hawking it up. The secretions of the glands are changed in quality; they become thick and tend to stick to the pharynx, forming dry crusts and scabs which are very hard to remove. The membrane may look dry, parched, and glazed, with here and there a nodular condition. If the secretions are examined, a great variety of bacteria may be found. *Treatment:* Remove any constitutional causes as quickly as possible. Get the general health into good condition, and keep the parts thoroughly clean with a gargle or spray. If there are any congested spots, correct these by applications of nitrate of silver. Give cathartics if necessary, and attend to the digestive tract and to the hygienic surroundings.

7. "In carrying out a complete examination of the fundus the two landmarks which should be first found are the optic nerve and the macula (yellow spot). The former appears as an oval pinkish-white disk. A pit with sloping sides is in the center (physiological excavation), with the mottled appearance of the lamina cribrosa at its bottom. A white ring of varying breadth (scleral ring) surrounds the disk, and outside of this more or less pigment (choroidal ring). From the nerve comes the central artery of the retina as a single trunk, or already divided, and it then divides and subdivides on the retina. The veins follow in general the same course as the arteries. The color, amount of blood supply, sharpness of outline, and swelling of the disk should not escape notice. The presence of an excavation with sharp sides, over which the vessels seem to fall (cupped disk), may denote glaucoma. The other landmark—the macula—which is very difficult to see when the pupil is small, is an area of deeper color than the surrounding fundus, and shows a pit in its center with a bright reflex (fovea centralis). The retinal vessels should be followed from the nerve over the fundus and changes in them noted. The general appearance of the fundus is variable with the amount of pigment, depending on the complexion of the individual."

8. In *chronic Bright's disease* there may be albuminuric retinitis, with serious swelling of the disk and surrounding retina, hemorrhagic extravasations, dilatation of capillaries and veins, with fatty or hyaline degeneration of the vessel walls. In *diabetes mellitus* the vessels of the retina may be dilated, the retina may atrophy, the fundus is light yellow in color; amblyopia, presbyopia, and loss of accommodation may occur.

9. When the thigh is supported and the leg flexed at the

knee, a tap on the tendon just below the patella causes the leg to be suddenly extended. It is *lost* in locomotor ataxia, transverse myelitis, poliomyelitis, peripheral neuritis, spinal meningitis, epilepsy, and chorea. It is *exaggerated* in apoplexy, sclerosis, paraplegia, unilateral lesions of spinal cord, tetanus, cerebellar ataxia.

10. MULTIPLE NEURITIS is a neuritis (inflammation of bundles of nerve fibers) in which several nerves are involved. *Etiology:* Poisons of infectious diseases, or organic or mineral poisons, cachectic conditions, exposure to cold, overexertion. *Treatment:* Rest in bed, morphine or hot applications, strychnine, arsenic, and heat (and remove) the cause.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

DIE TOPISCHE DIAGNOSE DER CHRONISCHEN GONORRHOE. Von Dr. RUDOLPH PICKER. 8vo; paper;; 54 pages; illustrated; 1 mark 60 pfennigs. Oscar Coblentz, Berlin, Germany.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY. 8vo; cloth; 876 pages; illustrated. Published by the Association, 1909.

COMMISSIONER OF EDUCATION, REPORT, 1909. 8vo; cloth; 598 pages. Government Printing Office, Washington, D. C.

COLLECTANEA JACOBI, in 8 volumes. 8vo; cloth. Contributions to Pediatrics, 3 vols.; Contributions to Therapeutics, 1 vol.; Contributions to Pathology, 1 vol.; Medical Addresses, 1 vol.; Miscellaneous Addresses and Writings, 2 vols. Price $15. The Critic and Guide Company, New York.

TWENTY-FIFTH ANNUAL REPORT OF THE HENRY PHIPPS INSTITUTE. 4to; paper; illustrated; 403 pages. Henry Phipps Institute, Philadelphia, Pa.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION. 8vo; cloth; 634 pages; illustrated. Published by the Association, 1909.

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KLINIK FÜR PSYCHISCHE UND NERVOSE KRANKHEITEN. Von ROBERT SOMMER, Dr. Med. et Phil. 8vo; paper; 276 pages; 12 marks. Carl Marhold, Halle, Germany.

A PRACTICAL STUDY OF MALARIA. By WILLIAM H. DEADERICK, M.D. 8vo; cloth; 402 pages; illustrated; $4.50 net. W. B. Saunders Co., Philadelphia, Pa.

RECENT ADVANCES IN PHYSICAL AND INORGANIC CHEMISTRY. By A. W. STEWART, D.Sc. 8vo; cloth; $2.50; 267 pages; illustrated. Longmans, Green & Co., New York.

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BACTERIOLOGY FOR NURSES. By ISABEL MCISAAC. 12mo; cloth; 179 pages; illustrated; $1.25 net. The Macmillan Co., New York.

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DIE DIAGNOSE UND THERAPIE DES KOPFSCHMERZES. Von Dr. Med. FRANZ WINDSCHEID. 8vo; 68 pages; M. 2.00. Carl Marhold, Halle, Germany.

DIE PSYCHISCHE KRANKENBEHANDLUNG. Von BERTHOLD KERN. 58 pages; 8vo; paper; 1 mark 20. August Hirschwald Berlin, Germany.

PHYSICIAN'S POCKET ACCOUNT BOOK. By J. J. TAYLOR, M.D. 16mo; leather; 216 pages; $1. The Medical Council, Philadelphia, Pa.

A PRACTICAL TREATISE ON OPHTHALMOLOGY. By L. WEBSTER FOX, M.D., LL.D. 8vo; cloth; 807 pages; illustrated. D. Appleton & Co., New York.

DISEASES OF CHILDREN. By ABRAHAM JACOBI, M.D., LL.D. 8vo; cloth; 828 pages; illustrated. D. Appleton & Co., New York.

THE INSANITY LAW OF THE STATE OF NEW YORK. By FRANK P. HOFFMAN. 12mo; paper; 93 pages; $1. Henry Stowell & Sons, Troy, N. Y.

FISIOLOGIA GENERAL. Por los Doctores A. PI Y SUÑER Y L. RODRIGO LAVIN. 818 pages; 8vo. Gustavo Gili, Barcelona.

HEALTH IN THE HOME. By E. MARGUERITE LINDLAY. New and Revised Edition. 414 pages; 12mo; illustrated. The Health Culture Co., Passaic, N. J.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of January 22, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	595	164
Diphtheria	384	37
Measles	1,082	24
Scarlet Fever	598	31
Smallpox	—	—
Varicella	168	—
Typhoid Fever	39	5
Whooping Cough	28	6
Cerebrospinal Meningitis	4	12
Malarial Fever	—	—
Totals	2,898	279

Typhobacillosis of Landouzy and Rare Late Localization of Acute Tuberculous Infection in the Child.—E. Weill and G. Mouriquand describe the type of tuberculous infection that was termed by Landouzy typhobacillosis, in which the early general symptoms are like those of typhoid, the fever corresponding at first to the typhoid curve, but in which the rose spots do not appear and the Widal reaction is negative. In such cases the pulse curve is independent of the temperature. The temperature becomes oscillating and irregular, finally emaciation and weakness become extreme in spite of a great appetite, and at last lesions develop in the lungs, peritoneum, or meninges. The temperature is not always high. A pleurisy frequently is the first lung sign. The prognosis of such cases is bad from the first on account of the location of the lesions. The author gives illustrative cases of all the different types of these late lesions.—*La Presse Médicole.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 21, 1910:

		Cases.	Deaths.
CHOLERA			
India, Bombay	Dec. 1–21	..	6
Calcutta	Nov. 21–Dec. 11	..	63
Rangoon	Dec. 5–11	..	4
Java, Batavia	Nov. 21–Dec. 1	103	46
Persia, Astara	Dec. 6–9	4	4
Siam, Bangkok	Oct. 28–Nov. 27	3	3
YELLOW FEVER.			
Brazil, Para	Dec. 19–25	13	10
PLAGUE			
Brazil, Para	Dec. 19–25	1	1
Pernambuco	Nov. 1–15	..	3
Egypt, Alexandria	Dec. 9–15	1	1
Port Said	Nov. 30–Dec. 22	2	1
Provinces—			
Assiout	Dec. 17–22	7	3
Beni Souef	Dec. 19–22	9	2
Menouf	Dec. 5–15	3	2
Japan, Kobe	Dec. 5–18	11	10
Russia, Astrakhan	Dec. 5–24	42	38 revised report.
Uralsk, district	Dec. 5–24	160	144 revised report
Siam, Bangkok	Oct. 28–Nov. 27	5	5
Turkey in Asia, Beirut	Nov. 29–Dec. 14	3	..
SMALLPOX.			
Algeria, general	Dec. 1–15	22	..
Brazil, Pernambuco	Nov. 1–15	..	42
China, Amoy	Nov. 28–Dec. 4	..	1
Egypt, general	Nov. 26–Dec. 9	112	28
Alexandria	Dec. 3–9	..	1
Cairo	Dec. 17–23	1	..
France, Paris	Dec. 19–25	4	..
Germany, general	Dec. 19–25	5	1 in vicinity
Konigsberg	Dec. 12–18	1	..
Great Britain, Liverpool	Dec. 19–25	1	..
London	Dec. 19–25	4	..
Greece, Athens	Dec. 5–11	..	1
India, Bombay	Dec. 16–21	..	8
Calcutta	Dec. 5–11	..	2
Rangoon	Dec. 5–11	..	3
Italy, general	Dec. 20–26	2	..
Malta, Valetta	Dec. 12–18	1	..
Mexico, Aguascalientes	Dec. 26–Jan. 8	..	2
Chihuahua	Jan. 3–9	1	..
Portugal, Lisbon	Dec. 19–25	12	Oct. 16, one death.
Russia, Libau	Dec. 13–26	8	..
Riga	Dec. 13–18	17	Oct. 1–31, five deaths.
St. Petersburg	Dec. 12–18	53	12
Warsaw	Oct. 31–Nov. 6	..	15
Spain, Almeria	Nov. 1–30	..	5
Tripoli, Tripoli	Dec. 12–25	5	1
Turkey in Asia, Bagdad	Nov. 28–Dec. 11	..	Present.

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Original Articles.

THE PATHOLOGICAL PRODROMES OF TABOPARESIS.*

SYPHILIS; MENINGITIS; THE GENESIS OF THE CRANIAL NERVE IMPLICATIONS.

By TOM A. WILLIAMS, M.B., C.M. (Edin.)

WASHINGTON, D. C.

ONE of the main contentions against the ideas of Nageotte as to the pathogenesis of tabes dorsalis has been the supposed unessentialness of the chronic meningitis he invoked as the necessary antecedent of locomotor ataxia. As to his 11 cases all showing marked meningeal exudates, the objection is made that they were really exceptions; for other observers had failed to find lesions in the meninges. Nageotte believed that an incomplete examination was the cause of this; but, in turn, it was objected that if his theory were correct, meningeal inflammation should have been found around the cranial nerves, which are so often implicated symptomatically early in tabetics.

Very few of Nageotte's opponents go so far as to deny that persistent lymphocytosis really indicates meningitis; and it is pretty generally conceded to be pathognomonic of meningeal irritation at least. We need not quarrel about terms, for the commencement of the inflammatory process may be designated by the term irritation; hence the difficulty is merely one of stage, measured by degree. Moreover, the appearance revealed under the microscope, after the death of the patient who has shown persistent lymphocytosis, of considerable meningeal infiltration with small round cells as well as with commencing and even complete organization of chronic inflammation proves that lymphocytosis does not occur by a mere multiplication in the blood of the white cells, as in leukemia.

I am now speaking of the abundant lymphocytoses so characteristic of syphilis. The lymphocytosis sometimes found during mumps and even that occurring so often in herpes zoster are less abundant and disappear quite rapidly. For the purpose of this discussion, we are dealing only with such marked exudates as almost crowd the field; that is to say, occurring in blocks or chains, and indicative of severe meningeal reaction. Hence the demonstration does not depend upon the refined and difficult laboratory methods, and is within the reach of any practitioner.

*Through the kindness of Dr. Clovis Vincent, the writer is enabled to place before American readers the results of an investigation Dr. Vincent has been pursuing during the last five years in the clinics of the Parisian Hospitals La Pitié, La Salpétrière, and St. Louis, and in the laboratories of Babinski and Nageotte, Raymond, and Chauffard. The reader will see that the results of Dr. Vincent's research afford still further corroboration of the ideas so long held by Babinski and Nageotte that all the symptoms of taboparesis ensue upon a chronic meningitis of syphilitic nature. The data here expounded clearly show the untenability of the dystrophic theory of taboparesis.

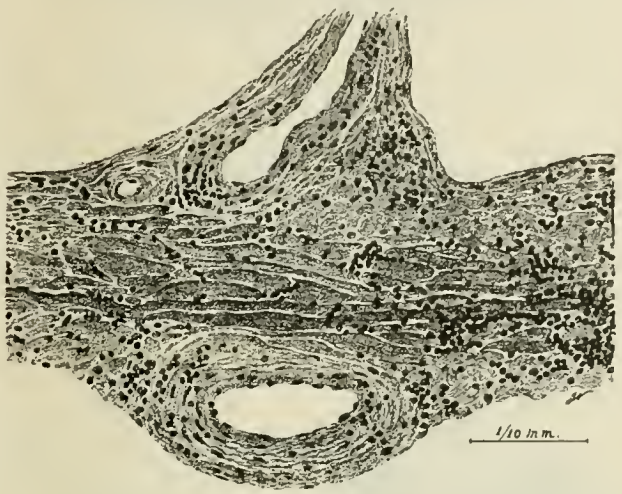

FIG. 1.—Showing the type of meningitis in taboparesis. It shows the pia mater over the posterior region of the spinal cord at a dorsal segment magnified 205 diameters and stained with haematoxyline and eosine. Note thickened connective tissue and the infiltration of lymphocytes and epithelioid cells; also a thickened blood vessel entering the spinal cord along a septum. (From Nageotte.)

The cells in the syphilitic meningitis differ also in kind, being surrounded by a narrow zone which easily colors with orange. Moreover, the polynuclear neutrophile cells may also occur; but the most characteristic cells are the basophile young plasma cells, which, it must be remembered, are very unusual in the really normal connective tissue, and are pathognomonic of chronic morbid reaction. The kidney-shaped mononuclears and the active macrophages and the eosinophiles may also be present.

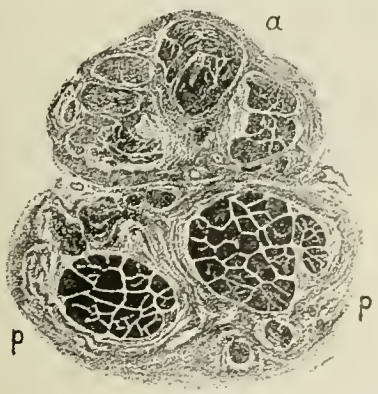

FIG. 2.—Extensive and marked perineuritis which has not yet implicated the fibers of the posterior root bundles (p p), but has seriously invaded those of the anterior root (a). Many of these latter are quite degenerated, sbown by their disorganization and failure to stain. A radicular nerve of a taboparetic, the second sacral. X 10. (From Nageotte.)

Now, although such appearance always occurs in syphilis of the nervous system, yet we cannot affirm that they are syphilitic in nature until we find the

Treponema pallidum, or find some antibody to it. The reaction devised by Wassermann is not at present believed to be really specific in the sense in which Bordet and Gengou first devised the principle. For absolute rigor we must therefore fall back upon the law of invariable succession.

Fig. 3.—Sections of spinal cord of a tabetic (Case IX), showing a degeneration of the posterior columns of Goll and Burdach along their whole extent with conservation of the cornu-commisural zone, and some other endogenous fibers only (Weigert), A, cervical region; B, lower dorsal; C, fourth lumbar segment; D, sacral region.

A most important advance in our knowledge of this succession has been made by the researches of Vincent. He has had occasion to puncture the arachnoid sac of a large number of patients with and without syphilitic history, the latter sometimes showing only a single symptom, such as paralysis of the third, sixth, seventh, or eighth nerve. He has also punctured the subarachnoid cavity just after the onset of symptoms. In all of these he has found considerable lymphocytosis, and it seems absurd to suppose that a reaction of this nature is not indicative of chronic meningitis antedating for a considerable period the nervous symptoms for which the patient consulted, which had lasted only a few days in some instances.

Another powerful argument is the fact that considerable lymphoid infiltration has been found in the connective tissue surrounding nerves whose functions were apparently unaffected during life, and similarly the pia mater also presented extensive exudates where no mental symptoms had appeared.

But for absolute proof one would require the most systematic punctures of all syphilitics long before they present the tertiary nervous symptoms; and Vincent has reported five cases of this kind. In all the first three patients, nerve symptoms have already shown themselves; in one, diffuse meningoencephalitis; in the second, a double hemiplegia; in the third, a neuritis of both eighth nerves.

Case I.—A man, 42, in April, 1898, felt tired and had occasional headache. Treated for syphilis twelve years before. There were no signs of disease of the nervous system, except that the right pupil was smaller than the left, and contracted less freely and extensively to light, both direct and consensual. It was this sign which compelled the lumbar puncture, although he had no change in speech, loss of memory, disorientation, or change of humor, and had been at work up to the day before. Enormous lymphocytosis was found. The patient was again seen six months later. He was emaciated, stuttered, could not repeat correctly the test phrases, his tongue and face trembled, he was untidy, forgetful, not being able to find his way home; in short, all psychic and somatic signs pointing to general paralysis. The right pupil reflex, however, was in the same state as at the first examination. Thus, lymphocytosis was a sign indicating chronic meningitis preceding general paralysis.

Case II.—Man, 52. Syphilis, 1892. Treated three months by injection, and two years and one-half with mercurial pills; later potassium iodide. During the secondary period he had had articular pains except when heated by movement. Later a severe permanent headache, diurnal in type (he worked at night as a baker). Slight alcoholic gastritis had troubled him, but was easily cured in 1898. The joint and head pains persisted, so the meninges were punctured, and the liquid was found to abound in both lymphocytes and polynuclears. Two further punctures revealed the same lymphocytosis, but no objective nerve symptoms were present, until one night in October, while at work, he

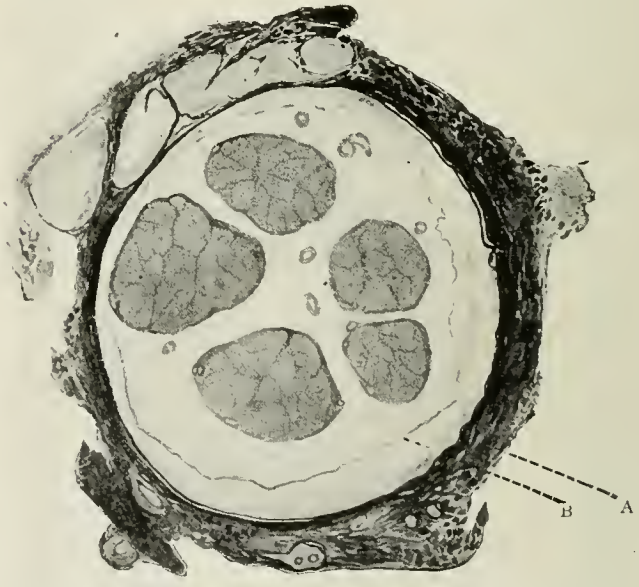

Fig. 4.—Transverse section of normal hypoglossal nerve after its fascicles have collected into the common meningeal sheath which surrounds them before they enter the anterior condyloid foramen. This situation is the homologue of the "radicular zone" of the spinal roots. Note the thin single layer of arachnoid matter and the equality of size of the nerve fibers and medullary rings which are alongside one another (Van Gieson stain). A, dural sheath; B, arachnoid sheath.

had a fit, followed by a complete paralysis of the face and all four limbs. He could not even swallow. Liquids were given through the nose. He had ptosis, saw double, and the tongue was clumsy. On

mercurial treatment, he began to walk and swallow. Three months later the left deep reflexes were greater than those on the right, which presented the platysma sign. The association movement of the thigh and pelvis was impaired on the right side.

Fig. 5.—Similar section of hypoglossal nerve of this patient, see Case IX, showing thickening of the arachnoid. Round fasciculus (1) and also on the inferior aspect of fasciculus (2), connective tissue areolæ are separating the nerve fibers into groups (Van Gieson stain).

Swallowing and speaking were still affected. There was no irideplegia, but lymphocytes were still abundant. There was apparently a partial thrombosis of the basilar or its branches, for the pyramidal and geniculate tracts were implicated, as well as the cranial nerves. Thus for at least a year chronic syphilitic meningitis, as evidenced by lymphocytosis, had been present before cerebrospinal syphilis declared itself symptomatically.

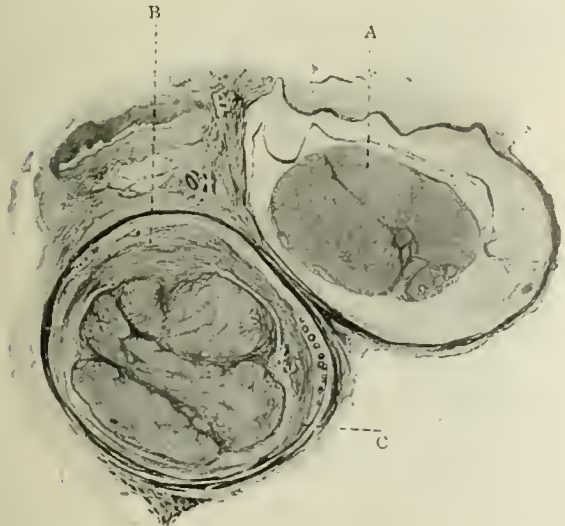

Fig. 6.—Section of same nerve nearer its exit. Fasciculus A now shows only a slight endoneuritis. Its arachnoid sheath is now almost normal in thickness; while fasciculus B shows intense endoneuritis and a greatly thickened arachnoid (Van Gieson stain).

Case III.—The third case of this series was that of a child aged 8. After a chancre of the lip in March, 1897, and without any secondary symptoms, beginning in May, she contracted in turn a gumma of the clavicle, and an interstitial keratitis. It is probable, therefore, that even then meningitis was present, for Vincent has never seen a case of interstitial keratitis unaccompanied at one time or another with lymphocytosis. But the girl recovered under mercurial treatment until in March, 1898, she suddenly became deaf. Tinnitus was also present; and, on examination, the labyrinthine origin of the trouble was evident, though there was no vertigo nor other sign of organic nervous disease. In spite of the treatment, the deafness increased, and in July was complete. Enormous lymphocytosis was present during all this period, and the Wassermann reaction was positive. Thus again a lesion of the nervous system appears as the third stage of a process of which the first was syphilis, and the second meningitis.

Case IV.—In the next two cases this third stage has not yet occurred. The first is that of a man of 35, having had syphilis in 1901. He received inunctions for the first two years, taking iodide between the series. He then ceased treatment for two years, after which he recommenced on account of three miscarriages by his wife in 1903, 1904, and 1905, the last one a living child with hereditary syphilis. It seems evident then that in spite of the treatment there has been no interruption in the disease between the initial chancre and the results following; for in 1907 a lumbar puncture showed abundant lymphocytosis. Yet all his nervous functions were unimpaired with the exception of a certain instability in face and speech which he has always had, but he continues at work, although he has had some trouble with his wife, and appears a little eccentric.

Case V.—A man, 24, had syphilis in 1904, without secondaries. He commenced using gray oil from the time he saw the chancre, treating himself, but soon ceased on account of the pain, and substituted a daily dose of 10 centigrams protiodide of

Fig. 7.—Still lower, fasciculus A is much atrophied; fasciculus B still shows endoneuritis, but little arachnoiditis now remains. These three figures clearly show in these two fascicules, an inflammatory area which arises, increases, shows a maximum and decreases; it deserves the name of transverse radicular neuritis (Van Gieson stain).

mercury. This he continued for three years. Then, believing himself cured, he married. However, 27 months after the chancre headache began and lasted almost continuously for 8 months. Though worse at

night, it was thought to be in turn influenzal, neurasthenic, and neuralgic. On examination, no signs of organic nervous disease were discovered, but punctures showed a tremendous lymphocytosis, such as appears in the most active cases of general paralysis. Indeed, the diagnosis could have been made with the naked eye, the liquid showing a peculiar opalescence characteristic of an abundance of cells. In addition to the usual cells there were some polynuclear and eosinophile, and also some plasma cells. He was at once treated by intravenous injections of mercuric cyanide every other day to the number of thirty in all. The headache quickly disappeared, but he was then given six injections of gray oil and four series of six injections of emul-

Fig. 8.—Section just above that of Fig. 5 (B is cut longitudinally as it bends), stained with hematein and eosin to show the infiltration of round cells and the progressive thickening of the arachnoid as it descends to embrace the nerves; note the granulomata. C, artery and vein; D, arachnoid, growing thicker as it ascends.

sified calomel. He might have been considered as cured but for the appearance of a pharnygeal gumma 6 months later, and but for the persistence of the intense meningitis shown by the lymphocytosis.

The future of these patients will contribute to the solution of a medical problem of great importance, for if it is ever shown that specific treatment can remove chronic meningitis, it will be necessary to puncture systematically all cases of syphilis, so that the meningeal trouble may be detected in its incipiency and before causing irreparable lesions of the nervous system.

But it had been known since the researches of Ravaut in 1903 that meningitis often occurs in the secondary period, and is sometimes even followed by lesions of the nervous system, facial palsy and neuralgia being the most common, so that it is very important to know whether the tertiary meningitis

Fig. 9.—A perivenous granuloma of Fig. 8 under a high power; note the commencing organization of the cellular elements. A, artery; B, vein.

really has been preceded by a latent secondary one. The following cases are instructive in this regard:

Case VI.—A single woman of 30 had a chancre in 1900. Facial paralysis six months later. In December, 1902, only a slight spasm remained. At that time considerable lymphocytosis was present. After four series of gray oil injections, the lymphocystosis was still present. It was not until four years had elapsed that there was any considerable amelioration. There were only five or six lymphocytes in each field, and this improvement

Fig. 10.—Fascicule A (Azoulay stain); note in *a* some fibers uncolored or small, and the progressive diminution of colored fibers, in *b*, *c*, and *d*.

still continues; so that she may be regarded as out of danger for the time being at least.

Case VII.—A single woman, 28; had roseola in 1901, and numerous secondaries. In 1903 trigeminal neuralgia, more especially frontal, which was

followed by a double hemorrhagic retinitis. An enormous lymphocytosis was present. A year later, right hemiplegia and aphasia appeared, the symptoms of which were practically well a year after She was punctured periodically until October, 1908,

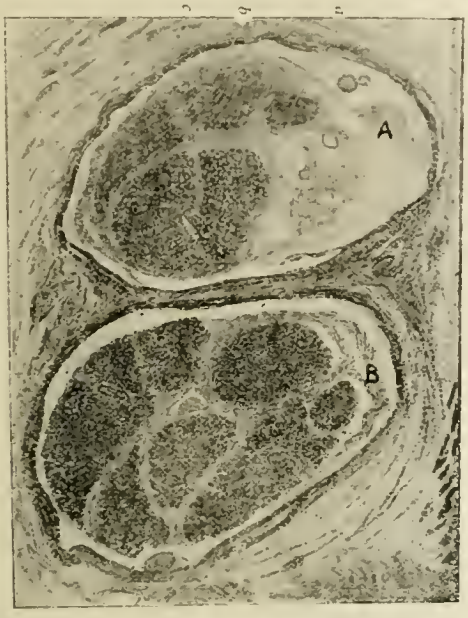

Fig. 11.—Part of the pneumogastric nerve of same Case IX, showing endoneuritis and arachnoid hyperplasia; very little myeline remains in fascicles *a*, *b* and *c* (Von Gieson).

and always showed an enormous quantity of cellular elements and albumin in the arachnoid fluid.

It seems very probable, therefore, that syphilis of the nervous system sometimes may be traced directly back to the general infection following the chancre, and that chronic meningitis is merely the persistent state of the secondary period; for it must be remembered that nervous accidents may occur in the secondary period, and that examination of these reveals always a lymphocytosis, as in the case described by Sézary (Soc. de Biologie, 1908, April). It was a man of 40, who a month after the chancre showed general psoriasis, and forty days later, hemiplegia, aphasia, and death. Two lumbar punctures at a month's interval showed abundant lymphocytosis, the first having been made before the nervous symptoms had appeared.

Case VIII.—Another case is that of Dutheil (*Thèse de Paris*, 1909). It was a man of 43, who five weeks after the chancre had severe papulotubercular syphilides, showing lymphocytosis. Mercury had to be given up on account of stomatitis. Twenty-six days after he fell into a comatose state and could hardly swallow. Eight days later right hemiplegia, with Babinski sign and aphasia, and death so rapidly that no cerebral softening was found post mortem.

In both cases the same striking sequence is present of syphilitic meningitis and organic nervous disease. The rapid succession shows the relation all the more strikingly, and thus there would not appear to be the essential difference formerly supposed between secondary and tertiary manifestations.

The sceptic, however, will still require pathological confirmation of this thesis, and, although this has been given as regards the spinal root by Nageotte's researches, confirmation with regard to the cranial nerves has not been presented. Now, however, the case which follows furnishes irrefragible proof of each of the foregoing points.

Case IX.—A man of 38 entered the Salpétrière in 1907 for weakness of the lower limbs. He had syphilis in 1891, inadequately treated. He drank a great deal. In 1904 he began to have vertiginous turns and feelings of suffocation in the night. Later began girdle pains, which he thought were colic. On examination he was failing, emaciated, and appeared 60 years of age. It was a typical case of advanced tabes, with abolition of all deep reflexes and a conservation of those of the skin. He was very ataxic. The muscles were diffusely atrophied, especially in the peroneal region, and power was diminished in the pelvic girdle; but a reaction of degeneration occurred only in the right extensor communis digitorum. Sensory symptoms consisted of lightning pains, complete loss of sense of attitude (less marked in the arms), slight hypoalgesia, while the sense of touch was not impaired. There was incontinence of urine. The right pupil was larger than the left, and neither reacted to light nor accommodation. There was intermittent diplopia, due to paresis of the right internal rectus. The fundus showed a lesion. There were attacks of suffocation beginning suddenly, with cold sweats, during which occurred asphyxia, and sometimes loss of consciousness. He had also laryngeal crises, and there was paralysis of the abductors. There were no other cranial nerve symptoms.

The intelligence seemed intact, as he read the papers each day and spoke reasonably to his wife, advised the patient in the neighboring bed, and was very grateful for the care he received. This is particularly striking in view of the fact that the autopsy showed a diffuse cortical meningeal involvment; but it was merely the first stage, for the process had not invaded the pial septa; and there was no encephalitis to constitute the picture of the general paralytic brain. The process, however, had penetrated the medulla, as will be seen.

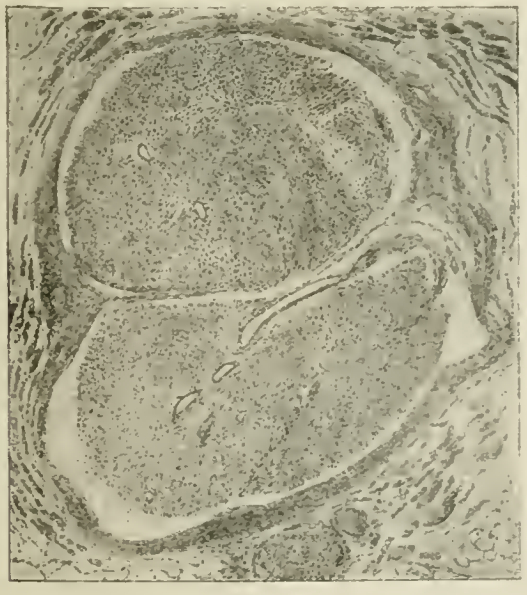

Fig. 12.—The same with hematin-eosin showing round-cell infiltration of nerve and meninges.

Autopsy.—The whole neuraxis showed an extensive meningitis. There was a very opalescent aspect of the pia mater, especially along the vessels on the convexity. At the base of the brain, on the

contrary, an enormously thickened layer of arachnoid clothed the chiasm in the interpeduncular space, and extended along the optic nerves. This was even more marked over the pons, a fibrous mat being furrowed by the facial and auditory nerves. The appearance of the cerebellum was like that of the cord. There was extensive meningitis along the posterior surface of the dorsal cord. There was a trimeningeal symphysis extending to the lumbar enlargement. No lesion of the nerve centers could be observed with the naked eye. Thus we see basillar meningitis, the first stage of general paralysis, and meningitis of developing tabes, placed before us by the same patient.

Microscopical Appearances.—The cord showed the (Fig. 3) typical appearances of tabes, with the almost complete integrity of the endogenous tracts and short exogenous fibers. The tabes is not only lumbarsacral, but also dorsal and cervical. The transverse radiculitis was present in every respect like that described by Nageotte. The cortex showed lymphocyte infiltrations of the pia matter with endoperiarteritis; but the intracerebral vessels were free, and the tangential fibers and pyramidal cells were not implicated.

The left hypoglossal and right pneumogastric were damaged at the autopsy; but, although there had been no clinical evidence of its implication, in spite of the repeated careful examination of the face and of the tongue, the right hypoglossus showed all the stages between complete health and entire destruction. The absence of clinical symptoms could be accounted for in view of the fact that only about 1-16 of the fibers were atrophied. The loss of function of the muscles supplied by these was masked by the presence of the remaining healthy fibers; for there is great interlacement of the muscle fibers of the tongue. In the oculomotor on the contrary the muscles are separated, and have to be in a state of equilibrium to their antagonists. A very small lesion will disturb the exactness of this adjustment; and a diplopia appears at a stage when mere inspection could not detect the muscular disability.

As the chain of threads of the hypoglossus emerges from its sulcus in the medulla, they normally converge and become the nerve. Its constituents become surrounded by meninges which form a funnel-shaped canal. There may be one, two, or more of these, each containing several fasciculi, which assume polygonal form from their contact with one another. Between the fasiculi is a slender network of arachnoid, containing a few vessels. The whole is surrounded at a distance by the perietal arachnoid, which again is separated from the dural sheath which surrounds this; there is very little connective tissue between, and finally the individual nerve fibers are pressed one against the other, almost free from connective tissue, which is only visible with a very high power. See figure 1 of normal hypoglossal nerve.

On comparing this with the nerve from this patient (Fig. 2), one sees an enormous increase of connective tissue within and around the fasciculi-endoneuritis. Moreover, the proliferation of the perifascicular arachnoid has joined it at one spot with the thickened arachnoid sheath, constituting perineuritis. The activity of the lesion is shown by the lymphoid character of the exudates.

In this patient there were four hypoglossal fasciculi, two of them large; and it is very interesting to study the difference of level at which these were respectively implicated in the meningeal process. The most striking fact of all, however, was that the inflammatory processes entirely ceased before the two fasciculi formed the hypoglossal trunk. That is to say, its localization constituted the complete homologue of Nageotte's radicular sac in the spinal nerves. It began even before the common arachnodural sheath, which also surrounded the filaments in a common fasciculus. It was shown by a thickening of the sheath around them, scarcely visible, and also by vascular filaments. The smaller fasciculi also showed this appearance along their nerve fibers.

A little lower down (Fig. 3*a*) the arachnoid gutter was enormously thickened, but inflammation had not yet attained its height within the fasciculi, although the nerve itself was five times its normal thickness. This progressive swelling of the perifasicular sheath is one of the most instructive facts of the whole research in that it explains why a pathological diffusive-process is, symptomatically speaking, revealed by so few definite signs. The reason why the lesion has so long escaped notice now becomes clear; for it is confined to the first few tenths of a millimeter of the sheath of the nerve. The foregoing figures show how the intensity of the lesion progressively diminishes from this point; so that four millimetres lower, the meningitis practically disappears, but its effect upon the nerve fibers is shown by their progressive disappearance, which constitutes an "atrophic" sclerosis. In fasciculus *b*, on the contrary, the atrophy was much less marked, although the meningeal lesion was as great as that of fasciculus *a*. This illustrates the rise and fall in intensity.

The facts shown by the Van Gieson stain are, however, merely quantitative. Still more striking is the picture shown when the tissue is stained by hematein-eosin-rose, which is not designed to show the collagen of adult connective tissue, but reveals the nuclei of active inflammatory cells. The nerve fiber bundles show a tremendous infiltration of small round cells and fibroblasts. The chronicity of the process is shown by the fewness of the polynuclears and erythrocytes, and this is confirmed by the thickness of the arterioles and the obstruction of the lumen by the proliferation of the endothelium. Moreover, lymphoid nodules are here and there seen, especially around the veins. These appearances show that they are still in evolution. The fibroblastic organization of intervening connective tissue is shown by the adhesion formed between the arachnoid and the several bundles, which had also extended even beyond to the duramater, which itself is inflamed.

The nerve fiber alterations are clearly shown by the methods of Weigert and d'Azoulay. The normal hypoglossus is like an anterior root in that it is composed of large nerve fibers nearly equal in circumference and almost touching one another. On impregnation with the osmotannic process, bundle *a* of the patient showed, even under the low power, to what a different degree fasciculi in the same section were implicated; thus *a* appeared nearly normal; while *b*, *c*, and *d* showed many dwarfed fibers. But the high power showed even in *a* that the fibers were abnormally separated one from the other; so that, although the fibers themselves were not yet attacked, the inflammation had

already penetrated the nerve. Some fibers, though not entirely normal, had scarcely taken the stain. This seemed to be the first indication that they were attacked. Normal and abnormal seemed mixed without plan, although sometimes the diseased occurred in bunches. Lower down, *a* showed the same appearance as in the preceding section was shown by *b*, *c*, and *d*. That the appearances are not due to the technique is shown by the normal aspect of the normal fibers in the same fasciculus. It is quite clear that the maximum damage to the nerve fibers occurs as they are traversing the inflammatory area in the meningeal sheath. It might be objected that this nerve degeneration was due to disease of the hypoglossal nucleus in the bulb; but 250 sections of the medulla failed to show any decolorized hypoglossal fibers or central softening. The meningitis was purely peribulbar, and the hypoglossal was intact within the metencephalon.

The predominant feature of the lesions of the nerve fibers is the demyelinization without loss of the cylindraxis. The loss of the myeline may extend both above and below the inflammatory focus. It may even extend to the periphery of the nerve. Unless reagents are employed which color either the axis cylinder or the degenerated myeline, one may conclude that a nerve is completely degenerated and wonder that its functions could have been maintained during life. The Weigert method shows neither the axis cylinder nor degenerated myeline; so that when conclusions are drawn from it alone, they may be fallacious. The conservation of the axones, for a time at least, explains the long continuance of the functions in nerves completely engulfed by a meningitic focus, and also why certain muscles sometimes escape, while others are implicated. Moreover, it is evident that there may occur alterations of the structure capable of modifying function and yet indistinguishable by our present technique from similar neighboring modifications of structure of sufficient intensity to interfere with function. And it is evident that if two neighboring fasciculi of the same nerve passing through the same diseased focus can be so different in their sensibility to reagents as well as clinically, still less wonderful must be the difference of the effect of the lesion in two nerves so widely separated as the anterior and posterior spinal groups.

The pneumogastric nerves were examined with the same technique as the hypoglossal; but in addition, the peripheral portions, including the two recurrent laryngeal nerves, were studied. The irregular course of the filaments forming the vagus, and their enlacement with those of the ninth and eleventh nerves made them difficult to follow. Besides, there are two ganglia on the nerve, the first, the jugular, being very far from the subarachnoid portion of the nerve. In spite of these difficulties, the preparation shows (Fig. 11 and 12) similar lesions to those of the hypoglossus. The maximum of the endoneural and perineural inflammation occurs at the point where the arachnoid is reflected upon the nerve filaments. The arteritis is also abundant, and a definite exudate in course of organization is also found at the bottom of the arachnoid funnel.

The vagus normally contains many small fibers, which make it difficult to say that any have been stricken by the disease. It is clear, however, that the pale and small fibers are more numerous in the inflammatory focus. Moreover, at this point they are scattered; whereas in the normal nerve, they are close together. It is safe to conclude, therefore, that the vagus presents typical radiculitis.

The recurrent laryngeal nerve normally contains one fasciculus almost entirely composed of thick fibers. Its other fasciculi contain about one-third of slender fibers. In this case, osmic acid shows in two small fasciculi of the nerve, only from 15 to 20 thick fibers, whereas the normal nerve contains from 50 to 60. Blocks of connective tissue, some of them containing a small spot of myeline, separate the fibers of the diseased nerve. In the thick fasciculus, which should normally consist of large fibers, slender fibers now preponderate. With the methods of Marchi, Weigert, and Azoulay only a few fibers color, and these are all large ones. It is clear, then, that there is great diminution of the fibers and that the small ones seen are abnormal. But Van Gieson's method shows a large number of intact axones and sheaths of Schwann; so that the lesion has not produced complete secondary degeneration, but only an extensive demyelinization and the loss of a certain number of large fibers. It would seem that the loss of these corresponds with the loss of the thick fibers in the fasciculus of the trunk in which the thick fibers had been destroyed to such an extent by the inflammatory lesion.

Medulla.—The nucleus ambiguus was examined from the acoustic tubercle to beyond the middle of the bulb. There was neither diminution nor atrophy of the cells on either side. The dorsal myeline was equally normal. The Weigert method showed that the axones were healthy while traversing the bulb. It is therefore clear that the laryngeal symptoms of this patient were due to a focus of transverse radicular meningitis.

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1758 K STREET.

LOCAL ANESTHESIA IN GENERAL SURGERY.*

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THE subject of anesthesia for surgical work is so much to the fore at present, when clinicians and chemists are striving not only for substitutes for our chief anesthetic agents, ether and chloroform, but for ever safer and more agreeable modes of administration, that a reminder of the accomplishments of that little cultivated branch, local anesthesia, may be of interest. The subject is not a new one and with those not constantly engaged in surgical work, as

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well as with many who are, the possibilities and benefits of such anesthesia are often looked upon with disbelief or at least skepticism. This is largely a heritage of the old days of strong cocaine solutions and imperfect technique.

The general anesthetics in experienced hands are very safe but their employment is always marked by more or less disturbance, an evidence that anesthesia is purchased at a price which in the average case is not too high even though it be disagreeable. But in the presence of profound bacterial toxemia and especially in those suffering from grave disturbances of their own metabolism it has always been a serious consideration. Surgical endeavor has offset much of this by more rapid operative work and better technique but there will always be a certain number of cases that despite our best efforts succumb to the additional insult of a general anesthetic. These added risks in surgery are the diabetics, nephritics, those with marked disturbances of the thyroid gland, liver, and pancreas, and those with a greater or less degree of organic disease of other regions, in whom an intercurrent affection demands the intervention of surgery. For a number of these, to save added hazard, and for some condemned to bear burdens for the space of their existence because they are poor operative risks, local anesthesia is applicable and distinctly able to offer relief and to a greater extent each year as our methods are perfected and anesthetic agents of lesser toxicity or greater adaptability found.

This is no plea for the general substitution of local methods whenever possible, general narcosis has been and will remain our chief reliance probably for some years, but the place of local anesthesia in the larger surgery has come to stay and its field has steadily widened until it has successfully entered the domain of major surgery. While still at its greatest usefulness where general anesthetics add distinctly to the danger it has arrived at that stage in its development where it can in addition be extended to numbers of cases to enable them to escape the disturbances and discomforts of ether and chloroform and to ensure a quicker and pleasanter convalescence. It is now possible and permissible to operate with its aid in conditions that a short time ago were regarded as unapproachable except with complete and general narcosis.

Lack of time, lack of interest, or lack of patience has with most operators restricted its use to the usual cases of minor surgery and the technique of its employment in the larger field, not difficult but delicate, has been neglected. The tendency is to fall back upon the anesthetist and accept chances in cases not only suitable but desirable for its use. Local anesthesia must offer something more than relief from pain and discomfort and must be appreciated as a distinct advantage in many cases if not as a life-saving procedure as well. Its conspicuous advantages are the greatly reduced or total absence of shock, absence of respiratory and gastric disturbances, and the apparent absence of any other organic disturbance with a more agreeable and safer postoperative period. Even in abdominal work with the exposure and handling of viscera and in cutting operations, unless continued at length and with unnecessarily rough handling and cooling of the parts, there will be little or no evidence of shock then or later. These patients are entirely conscious and able to converse and reply to questions throughout and often to assist the operator. In exploratory laparotomy it has been my experience in several cases to have them take a deep breath at request to depress a kidney, stomach or liver to within grasp of the hand introduced through the incision. Thorough palpation of the abdominal organs in a non-inflammatory condition is apparently painless and moderately strong traction may also be exerted. Many of these patients gave no evidence of the operative work at all and not infrequently the subsequent day the operated cases could not be distinguished from those awaiting their turn. They have usually left the table with a lower pulse rate than on going on. The great reduction or absence of shock, as stated in an earlier paper, I believe due to the more or less complete nerve block, absence of abnormal heat radiation from the surface and lungs, and absence of the direct toxic action of the anesthetic upon the nerve tissue of the brain and spinal cord. The nerve block and the enforced rather gentler manipulations save the spinal cord from a bombardment of impulses while laboring under the effect of a toxic agent, and there is little or no fall in vasomotor tone. The addition of adrenalin to the anesthetizing solutions further acts to diminish the speed of absorption of the anesthetic and to maintain blood pressure.

The particular method of local anesthesia that I wish to speak of here is neither the infiltration method of Schleich, the neural methods of Crile, Matas, or Cushing, nor the venous method of Bier but one of purely local anesthesia of the tissues and cellular planes with limited amounts of the solution of the anesthetic that has accomplished, I think, as much as any one other proposed. It is especially adapted to abdominal work and in this field has undoubtedly an extended future. The undoubted painlessness in the necessary handling of gut and peritoneum in doing hernia operations and colostomy and in resecting the gut in bad cases of strangulated hernia by this method have led me to more extensive work. The excellent condition of these patients after operation was most striking, as it has been in all the cases thus far done. The knowledge and experience so gained has been used the past three years in extending the method to a number of suitable abdominal and other cases, in some of which it has been put to as severe a test as might well be expected of a more general anesthetic yet has been adequate. The anesthetic solution and the experimental work with this mixture I have reported elsewhere in detail and will only say here that it has been the novocain-adrenalin combination. The toxicity of novocain is but one-sixth that of cocaine and when combined with adrenalin it has anesthetic properties and a suitability, I believe, much above cocaine or its combinations *when injected hypodermically*. The combination with adrenalin is far less toxic than the novocain solution alone, a lethal dose of the latter for an animal having but slight action when administered together with a relatively small amount of adrenalin, with which it seems to enter into a definite combination. The novocain has been used in 2 or 4 per cent. strength with adrenalin (1-1000) solution added and in the proportion of 5 or 6 to one. The largest amount that I have used has been 140 minims of the combination of 4 per cent. novocain with adrenalin in possibly the most extensive laparotomy that has been done under local anesthesia, a case of ovarian cystoma in which the greatly adherent tumor weighed over 50 pounds. This case has also been reported elsewhere but I may be pardoned, perhaps, referring to it again as illustrative of the extent to which we can go in selected cases. It was necessary to make a 12-inch incision through the thin distended

abdominal wall to turn out the immense semisolid mass, separating and frequently ligating the adhesions to the gut and finally the broad pedicle. The operation was done in the presence of a pulmonary tubercular lesion and a general anesthetic was unwise. This patient was conscious throughout the procedure, quiet and replied to questions. She took nourishment the evening of the operation and slept some hours that night, showing no appreciable shock at any time. She had but one-fourth of a grain of morphine a half hour before operation. The thin distended abdominal wall made the section easy and all exposed parts were kept warm and covered. This patient made the statement on leaving the table that she thought that we had been trying to catheterize her, a procedure necessary on account of the bladder prolapse from pressure. The great advantages of this feebly toxic mixture in the stronger percentages, over the more dilute infiltrating solutions of cocaine or other drugs, are the remarkable diffusive action from the injection site which does its own infiltrating and the longer we wait the better the anesthesia. It will nearly always be found of wider extent at the end of the operation than at the beginning. We have the additional advantage of operating through tissues that are dry and comparatively bloodless and in which the larger vessels stand out in contrast with the paler surroundings. The action is very durable. The anesthetization of the part takes but a few moments and is less painful. Secondary hemorrhage of any degree whatsoever or interference with wound healing has never been observed; Bodine's observation that the rather gentler handling of tissues is responsible for the excellent wound healing with local anesthesia is undoubtedly correct. The past few months I have been using a new combination of novocain with synthetic adrenalin, and in one recent case of very large femoral hernia of 18 ears' duration, one and one-third grains in this mixture secured perfect and lasting anesthesia. It was possible to do all the necessary work, separating the greatly adherent omentum from the ring and the reparative suturing easily and without pain. We were handicapped in no way by the local anesthesia and the operation was as complete and as satisfactory as though general anesthesia were given. Extensive superficial dissections, with the exception of goiter, have not been undertaken, and the operations for malignant disease have always been done under general anesthesia. In abdominal work we are able to take advantage of this comparative insensibility of the viscera and peritoneum and except with a large deposit of fat in the subcutaneous tissues of the abdominal wall the procedure is not difficult and many of the less complicated as well as some of the more complicated conditions may be operated in this way. Exploratory measures for suspected tumors, obstructions, and perforations may often be well accomplished in those serious conditions in which they are so often called for and there is nothing in this method of local anesthesia to contraindicate general anesthesia at any time it may be found wise or necessary and the amount required will be much less than normally. In tubercular peritonitis, especially with lung involvement or poor general condition and in typhoid perforation it is of great value.

In amputations and in the larger operations upon the lower extremity local anesthesia and nerve blocking have to compete with spinal anesthesia, which has proven very free from reactions and systemic effects if the anesthesia does not extend above Poupart's ligament. From 15 to 18 minims of a plain 4 per cent. solution has proven very satisfactory in these cases.

But few patients object seriously to local anesthesia and not a few are glad to escape a general narcosis which they dread more than the operation. Experience proves the decreased risk even where there is a certain nervous excitement due to an appreciation of the course of the operative procedure. This is especially true in those suffering from Graves' disease and whether the operation be thyroidectomy, appendectomy, or any other procedure. The preliminary administration of ¼ grain of morphine an hour beforehand and the occasional inhalation of a few drops of alcohol and ether from a mask to distract attention are of advantage in some cases, but as a rule with increased experience less and less of these adjuvants are found necessary. Reassurance as to the painlessness of the operation and the wisdom of withholding ether are most helpful and wise, and quiet work goes far towards success. In the hysterical and uncontrollably nervous local anesthesia is impossible.

A knowledge of the variation in sensibility of the different tissues and an intimate knowledge of sensory nerve distribution is requisite for the best results. The skin is the chief seat of sensibility and the subcutaneous tissues and muscles are but moderately sensitive. The larger connective tissue bundles and the tissue accompanying the vessels have some sensation. Periosteum is sensitive but not bone, and the latter can be freely sawn and cut if its covering be anesthetized. The skull can be trephined and dura and brain exposed and explored provided the scalp and periosteum are rendered insensitive. In joints the synovial membrane is sensitive. In the abdomen the parietal peritoneum has some sensation and is best anesthetized, but the viscera and visceral peritoneum apparently have none. In several abdominal cases, where time has not been a factor, it has been possible to make extended explorations and some very interesting observations which have confirmed many of the statements of others. In two cases rather strong traction upon the mesentery of the appendix produced pain in the central and upper part of the abdomen, but ligation of the mesentery and cutting the appendix, none. In one case traction upon the gall-bladder produced pain, referred to the region of the back and upper chest. Traction upon the stomach, high epigastric and lower chest pain in front. Nausea may accompany any decided traction upon the mesenteries. In the case of a markedly retroverted and retroflexed uterus, somewhat adherent, and which was explored in an operation for another condition, pain was produced by elevating it with the hand nearly to the abdominal wall. The pain in this case seemed to be referred merely to the general pelvic region. The fundus of the bladder does not appear to be sensitive even with some cystitis and it can be freely opened. The reflexion of parietal peritoneum covering it above appears to have some sensation, as also the tissues of the prevesical space. These are easily anesthetized before beginning the abdominal incision.

In my experience at least the viscera may be very freely handled and a very fair amount of traction exerted upon their suspensions and mesenteric attachments without sensation. Cutting, burning, and stitching is entirely painless.

In addition to the abdominal and other cases reported a year ago, those of traumatic rupture of

the jejunum, two cases of intestinal obstruction from gallstone enteroliths, three of tubercular peritonitis, one of acute pancreatitis, ovarian cysts, exploratory operations, ventral and umbilical hernias, empyemas, plastic operations on the face and neck of considerable extent, excision of single and multiple glands of neck, axilla and groin, tracheotomies, and other cases. I have done further cases of tubercular peritonitis, intestinal obstruction, ventral and umbilical hernias, exploratory laparotomy, and interval operations for appendicitis, anesthetized the abdominal wall for cholecystotomy and choledochotomy, for cholecystenterostomy and a number of other cases. All of the cases of local anesthesia have recovered and done well with the exception of one tubercular case, which died of a continuation of the tubercular process before leaving the hospital. The freedom from pain and discomfort, absolute in many cases and endurable in all, has at times been most striking. With the exception of the hernia and appendix cases, all have been undertaken in the presence of acute ailments or chronic affections that would have made a general anesthetic an added risk or greatly added discomfort. Their condition and convalescence, I am sure, has been much more agreeable, if not safer, than it would have been with general narcosis. In the cases done so far the solution was injected but once and at the beginning and it has not been necessary to use an additional amount later.

There are many procedures that may be successfully carried out in appropriate cases and in those able as well as those unable to take a general anesthetic, but the character of the disease, character of the patient, and the surroundings must determine the choice of the anesthetic agent. While local anesthesia is not submitted as a substitute for general anesthesia, it has a definite and widening field of usefulness that may be increased with experience and the use of modern methods. There is a certain art in its use and operators will vary considerably in their results. While the danger from general narcosis in experienced hands and with skillful surgery is at its minimum, that from local anesthesia under similar conditions and where it can be utilized is always less.

24 West Forty-fifth Street.

PERSONAL OBSERVATIONS ON THE SKIN LESIONS OF PELLAGRA.*

By HOWARD FOX, M.D.,

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The cutaneous manifestations of pellagra have been so accurately and fully described in the recently published monograph of Prof. Ludwig Merk (Die Hauterscheinungen der Pellagra, 1909) that it would be difficult to add anything new to what has already been said. My excuses for recording some personal observations made during a recent trip to the South are that pellagra is a comparatively new disease in the United States, and that the literature in our country is as yet rather meagre. The medical literature of Europe, and especially that of Italy, upon the subject of pellagra is indeed enormous. I know, however, of only two communications dealing solely with the cutaneous aspect of pellagra (the one by Dr. Bernard Wolff of Atlanta, Ga., the other by Dr. Isadore Dyer of New Orleans) that have as yet appeared in the United States.

At the recent national conference on pellagra I had the opportunity, through the kindness of Dr. J. W. Babcock, of studying about forty cases of pellagra at the State Hospital for the Insane. At the symposium on pellagra held a week later by the Southern Medical Association at New Orleans, a further opportunity was offered of studying a half-dozen cases. A few additional cases were also kindly shown me by Dr. Bernard Wolff at Atlanta and by Dr. Robert T. Wilson, Jr., at Charleston.

As the skin lesions of pellagra are most marked in the spring and early summer, it was inevitable that some of the cases, especially the milder ones, did not present as typical lesions as could have been desired. A few of the cases, indeed, showed no skin lesions whatever. While the number of cases was not great, it was sufficient to convince me that the cutaneous lesions observed were different from any I had ever seen in New York at the dermatological clinics or societies with which I am connected. While I have never seen any cases abroad, there is no doubt that the disease seen in the South was pellagra from the almost exact similarity of the lesions to the descriptions of certain European writers.

Dr. J. J. Watson, in a paper recently read before the New York Academy of Medicine, stated that in his opinion the "characteristics of the eruption were its symmetry and color." I agree with Dr. Watson that the symmetrical distribution of the lesions is most characteristic and striking, but do not consider that the color is as characteristic. It is true that many of the cases seen by me were in negroes, in which the question of color played no part. The eruption seen in the white persons presented a bright red color, changing to a dull red, and later to a yellowish brown. No one color, it seems to me, could be said to be absolutely characteristic of pellagra, as is the violaceous color of lichen planus, the yellow of xanthoma, or even the lean-ham color of specific lesions.

A characteristic feature of the skin lesions fully as important as the symmetry is the sharply circumscribed border seen most frequently in the patches upon the neck and hands. Indeed, the lesions upon the neck, forming the so-called "neck-band" of Casal, are absolutely distinctive, and could not well be confused with any other lesions of the skin. Several illustrations of the neck-band are to be seen in Merk's book which are almost perfect counterparts of some cases seen in the South. None of the cases presented sternal prolongation of the neck-band, the so-called "appendix fasciolæ" of Casal. Most of the cases were, however, in women, and Merk states that he has not met with this lesion in the female sex.

A striking picture was also presented by the eruption on the backs of the hands and wrists when the characteristic border was present. In many cases this border was seen not only upon the back, but also upon the front of the wrists. In the cases in which the eruption was disappearing the sharp border was no longer visible.

Comparatively few of the cases showed lesions upon the face. In one case there were lesions upon the neck and cheeks which at first glance looked much like a burn that might have been produced by carbolic acid. Some of the cases presented lesions upon the dorsal surfaces of the feet. In others the lesions involved the greater part of the legs and resembled an eczema. Few of the lesions noted upon the feet presented a sharply marked border.

Advanced case of pellagra, showing extensive eruption. Patient died four months after onset of disease. (Case of Dr. C. C. Bass, New Orleans).

While the backs of the hands, the wrists, neck and dorsal surfaces of the feet are the usual sites for the eruption, it may also be seen at times upon other locations. In the case of Dr. Watson, above quoted, typical sharply bordered patches were seen upon both elbows and knees. They might have been mistaken for psoriasis if the characteristic scaling of that disease had been present. At the symposium in New Orleans, Dr. C. C. Bass of that city demonstrated lantern slides showing the eruption upon the breast in one case and upon the foreskin in another case, in addition to lesions upon the typical locations.

Few of the eruptions which I saw were complicated by pustulation, constituting the so-called "wet cases." Fissuring, especially over the knuckles, was quite frequently noted. Telangiectases described by Lombroso were not marked in any of the cases. My attention was called by Dr. Babcock to patches of ecchymosis occurring upon both the upper and lower eyelids in crescentic patches. Had they not been entirely symmetrical they might readily have been mistaken for traumata. In full-blooded negroes the change in the color of the skin consisted simply in a jet black pigmentation, looking, as Dr. Watson described it, as if the hands had been smeared with soot. It was, unfortunately, not possible to watch the evolution of the eruption in any case through the stages of erythema, desquamation, and pigmentation, and the later resulting atrophy. An idea of the evolution of the eruption could be obtained only by observing the different stages in different patients.

In the differential diagnosis of the skin lesions of pellagra it is necessary, according to Merk, to consider only four affections, namely, sunburn, vitiligo, eczema, and erythema multiforme. The eruption of pellagra is at first frequently mistaken for solar erythema. An ordinary sunburn, however, is never followed by the marked and persistent scaling of the pellagrous eruption. The entire absence of scaling in vitiligo would at once differentiate this condition from pellagra. There are certain forms of eczema which at first might be taken for pellagra. In a case of squamous eczema the backs of the hands, in which the lesions were sharply circumscribed and symmetrical, the similarity to pellagra might at first seem quite marked. The characteristic itching of eczema as contrasted with the almost entire absence of subjective symptoms in pellagra would generally render the diagnosis clear. Bernard Wolff, in recording some observations on the skin lesions of pellagra from a study of seventeen cases (*American Journal of Dermatology*, 1909, p. 343), writes: "In the severe forms of dermatitis (pellagrous) the resemblance to an acute erythematous eczema was fairly close." The possibility of confusing erythema exudativum multiforme is discussed at some length by Merk. It does not

Case of pellagra, showing eruption upon front of right wrist and back of right hand. Pellagrous dermatitis. (Case of Dr. C. C. Bass, New Orleans).

seem as if there should be great difficulty in differentiating these conditions, as there is no scaling, as a rule, in erythema multiforme.

In no case did I happen to see the interesting condition described by Isadore Dyer in a recent communication (*New York Medical Journal*, 1909, p. 997). In case No. 3 of his series the eruption upon the dorsal surfaces of the hands was "particularly associated with the orifices of the hair follicles," and closely resembled a pityriasis rubra pilaris. In one case at Columbia, in a full-blooded negress, an eruption was seen upon the face which I would certainly have called lupus erythematosus if the patient had

not given a history of rapid appearance and disappearance of the lesions, together with other typical pellagrous symptoms.

The name erythema, by which the eruption of pellagra is generally denoted, does not appear to me to be entirely appropriate. It would seem quite proper to use the term erythema for the first stage of the disease, which resembles an ordinary sunburn and which lasts only a few days. But it seems somewhat anomalous to speak of the entire eruption as an erythema when the erythematous stage is so comparatively insignificant, while the stage of disquamation is so characteristic and of such long duration. An eruption which is called an erythema conveys the idea of affections such as erythema multiforme or the so-called toxic erythemata, which are not as a rule accompanied by disquamation. The general term of dermatitis would be a more appropriate name, in my opinion, than erythema for the pellagrous eruption.

It has long been a more or less generally accepted idea that the eruption of pellagra was caused by the action of the sun's rays upon the exposed portions of the skin. This theory, maintained by older writers such as Strambio and Frappoli, is still held by many at present, notably such authorities as Babes and Sion. That the action of the sun's rays is not the sole cause at least of the eruption would appear from the arguments of Raymond, quoted by Merk, who says that the eruption may occur on parts of the body protected by the clothing, or even in persons who remain indoors and are not at all exposed to the sun. It may reappear upon the same regions in persons who have taken precautions to protect the skin from the sun. The eruption may not be equal in extent to the area of the skin exposed. Finally, it may occur (quoting Neusser) in naked children upon the characteristic locations, although their entire bodies were exposed to the action of the sun's rays.

Reasoning from the observed fact that the eruption can appear on covered parts of the body, Nicolas and Jambon (*Lyon Médical*, 1908, p. 724) conclude that if the sun's rays are one cause of the eruption, they at least play a rôle of little importance. A very interesting lantern slide was shown by Dr. Bass at New Orleans, which would appear to prove that in this case the eruption resulted from exposure to the sun. The photograph showed the eruption upon the backs of the hands of an undoubted pellagrin. The patient had worn two rings, one of which had at times been removed, while the other had remained upon the hand up to the time of taking the photograph. Where the first ring had been worn was seen a circular band a little lighter in color than the surrounding darkened skin, while on the finger where the second ring had been worn was seen a band of normal white skin, contrasting very strongly with the surrounding skin.

The cutaneous manifestations of pellagra represent in themselves a rather harmless and unimportant symptom of the disease. They are, however, of great importance from the diagnostic standpoint. To make a diagnosis of pellagra without skin lesions the so-called "pellagra sine pellagra" would seem difficult or impossible. Merk has well said that in pellagra the cutaneous lesions are of the same importance as are the eruptions of variola, measles, and other exanthemata in the diagnosis of these diseases.

616 Madison Avenue.

RECTAL EXAMINATION AS A ROUTINE MEASURE.

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It is safe to state that there is not a physician of any considerable general experience who cannot recall one or more instances of gross error in diagnosis through failure to examine the rectum. The American Proctologic Society has elevated the study of diseases of the colon and rectum to the dignity of a specialty, yet to-day the subject receives but scant attention by the professor of surgery in the undergraduate schools of America, the post-graduate schools alone endeavoring to supply the deficiency, signally failing, however, because of the few who take the courses in comparison with the total number of physicians. Abroad the situation is the same with few exceptions. In London St. Mark's and Gordon Hospitals are devoted to rectal diseases exclusively. On the continent the subject is covered by the general surgeon, and with what result? Evidently this, that to the general practitioner the rectum remains as of old a terra incognita.

The truth of this statement is a sad commentary on the instruction in our medical colleges. Most physicians rightly devote their lives, not to original research or even to a specialty, but to general practice. To this end it is essential that they be prepared at graduation to employ all the ordinary methods of investigation, generally recognized as reliable, in the examination of each organ of the body.

This indifference to proctology in practice has also been revealed and forcibly impressed upon my mind for years in the Department of Rectal Diseases at the New York Polyclinic. The majority of patients applying there have been treated or operated upon one or more times in other institutions without relief, often due to the fact that the attending surgeon regarded the cases as "minor" and turned them over, perhaps without examination, to the house staff for operation. The house surgeon conscientiously did his best, but failed through inexperience. What occurs in New York is doubtless also the case in other great hospital centers.

It is no exaggeration to say that this neglect, and consequent prolonged suffering and loss of time to patients, will continue so long as the capable and responsible visiting hospital surgeons hold diseases of the rectum in contempt and delegate to others the work that they should at least supervise themselves, and so long as medical schools fail to provide adequate instruction in proctology to undergraduates.

In pursuing the refinements of some of the newer methods of diagnosis, because of their novelty and theoretical appeal, we are prone to overlook the old but simpler means of examination and forget that they too have been improved upon.

The anatomy and physiology of the colon and rectum have been carefully studied and are fairly well understood, but the pathology has been comparatively neglected till recent years. In general it may be said that the lesions here are the same as those of other parts of the alimentary canal plus these special conditions arising from the irritation of feces, infections, and trauma to which the rectum is peculiarly exposed.

There is no class of ailments more painful, distressing, and dangerous than those of the rectum, and withal none that yields more readily to proper treatment. If we will but consider the rectum as

a comparatively isolated organ anatomically, in that its blood supply comes mainly from a single and accessible source, viz., the superior hemorrhoidal; that its lymphatics converge to the presacral glands and cellular tissue, except of the terminal one and one-half inches which empty into the inguinal glands; that physiologically it is not essential to the human economy and that the entire organ is easily accessible to examination, the subject of proctology is much simplified. By proper examination we can to-day determine absolutely by touch and sight the lesions of the lower ten inches of bowel, and the adjacent parts.

False modesty and fear of the procedure on the part of the patient may prevent him seeking relief for rectal symptoms till forced to it by pain, discharge, or irregularity of the bowels, while prudery or inexperience may deter the physician from insisting upon an examination. As a consequence, the patient almost invariably makes his own diagnosis of "piles" or "fistula" and the physician prescribes only, with the result that rectal diseases are commonly neglected in their early stages. The physician who thus prescribes is no less culpable than one who treats a pain in the chest without examining the thorax.

A rectal examination presupposes a thorough family and personal history; a general physical examination, particularly of the abdomen, and symptoms referable to the lower bowel. It is essential that the general practitioner be familiar with the latter for he usually sees these patients before the specialist.

These symptoms may be summarized briefly as follows: Gastrointestinal.—indigestion, obstinate vomiting, flatulence, irregular action of the bowels, a feeling of "unfinished business" after stool, due to prolapse of the sigmoid, constipation or diarrhœa continuing after the bowel is rid of all irritating material and not controlled by the usual medical measures, or "urgent morning stool" with the passage mainly of gas and mucus more or less tinged with blood. The latter type of bowel action is one of the earliest symptoms of neoplasm or extensive ulceration of the lower intestine.

Pain referred to the rectum, or a feeling of dragging, weight, and pressure within the pelvis or over the sacrum; reflex pain, especially down the left leg, simulating sciatica; dysmenorrhea in young women, dysuria without discoverable lesions of the urogenital organs, swelling of the left leg, chlorosis, anemia, and loss of weight. In young children, picking the nose, disturbed sleep, scratching the anus, and straining and protrusion at stool. Mucus, pus, or blood in the feces. Thus rectal diseases have many symptoms common to affections of other organs related anatomically or reflexly. This is notably true of the urogenital organs in males, reproductive organs in females, and of the nervous system. For example, prolapsus recti may follow the straining incident to hypertrophied prostate, hemorrhoids may depend upon uterine fibroids, and a feeling of fulness in the rectum with hemorrhoids and persisting after removal of the latter may be one of the earliest manifestation of tabes dorsalis. Hence it is essential that the proficient proctologist be skilled in gynecological, genitourinary, and neurological examinations, lest he fall into the error of treating the manifest rectal disease unsuccessfully because he has not recognized its primary cause. This does not mean that the proctologist is to be a general specialist, but that he must have a diagnostic horizon sufficiently broad to weigh one feature of the case against another and not be misled by the obvious lesion.

As to the investigation proper I proceed as follows: The patient loosens all constricting clothing and with bowel empty assumes the left lateral (Sims') posture, exposed to a good light. Anticipating pain, the patient will be gratified to have the examination carried out without experiencing more than slight discomfort. The buttocks are separated and the perianal region inspected. Absence of fat in the ischiorectal fossæ is suggestive of a wasting disease, *e. g.* tuberculous or malignant. We also note the soggy and moist, or dry and brittle skin of pruritus ani, abrasions as from scratching, pediculi, or worms, excrescences as condylomata, the openings of fistulæ and a relaxed or contracted anal canal. The examiner next makes pressure with the index finger just outside the sphincter in succession all the way around the anus. Thus he will often feel and be able to follow up an old tract of induration and elicit pain of a deep inflammation that would otherwise be overlooked. The patient is now instructed to "bear down" while the examiner gently teases out the mucosa, thus everting the entire anal canal and exposing any fissures or hypertrophied papillæ. Hemorrhoids are protruded at the same time and their sight and character noted. If a painful ulcer is present it may have to be cocainized before proceeding, but under no circumstances let the examination rest at this point, for we must ever bear in mind that every peri-anal evidence of disease may be but the outward expression of a more serious and primary lesion within the bowel. Thus pruritus may be secondary to catarrhal proctitis, abscess follow fistula, fissure depend upon constipation and give reflex symptoms of urethral stricture or vesicle calculus, while hemorrhoids may be due to a variety of more important causes, ranging from cirrhosis of the liver to stricture and neoplasm of the rectum. It has been my experience to see a number of patients previously operated upon for "bleeding piles" although a cancer then existed within reach of the examining finger, and for whom the earliest and most favorable time for operation was lost through neglect of this simple but all-important procedure.

The index finger, its nail-groove filled with soap, and well lubricated with vaseline or stiff jelly, is next introduced into the rectum. As it passes the sphincter the normal, the spasmodic or the atonic state of that muscle is noted and each of its segments in turn is pinched between the examining finger and thumb. A tender spot or minute area of induration may thus be felt that would otherwise escape notice. Between the sphincters the palmar surface of the finger detects any slight depression or elevation, painful or not, which suggests the internal opening of a fistula and, in rare instances, an exquisitely tender spot—an inflamed crypt of Morgagni.

Within the bowel the finger can reach a distance of about four and one-half inches. An ampulla crowded with hard feces suggests constipation or worse, impaction. Foreign bodies commonly lodge within reach. When the bowel is empty, voluminous folds of mucosa enveloping the finger high in the rectum indicates sigmoidal prolapse. If polypus is suspected the finger is first passed high and then drawn down, otherwise the polyp is apt to be pushed up out of reach. Most fibrous strictures can be felt, for roughly over 75 per cent of them occur within this palpable zone, owing to the factors there

present favorable to their development. Of 55 cases reported by A. B. Graham* 54 were within three inches of the anus.

Neoplasms—benign rectal growths, adenomata—are by far the most frequent, their commonest site being the posterior wall within reach of the finger. Fibromata occur in adults and are usually easily felt. Myxomata are seldom encountered. Among malignant growths sarcomata are rare, infiltrate the bowel wall, the mucosa not ulcerating early, and impart to the finger a leathery feel. Carcinoma is preeminently the growth for our consideration; 84 out of Tuttle's† 100 operated cases being adenocarcinoma. To touch it varies according to the stage of development—tumor, ulceration, characteristically friable, or infiltration of adjacent organs. In the digestive canal the sigmoid and rectum are the commonest sites of cancer, about 80 per cent. of the cases occurring here, next the stomach, and then the hepatic flexure. When we recall that the major number (54 of 87 of Tuttle's cases) are within reach of the examining finger and further that most of them are the final expression in the change from benignancy to malignancy, the subject assumes vital importance. According to Mayo over one-half the cases of carcinoma of the stomach give a history of ulcer, and in the light of recent pathology we must regard chronic irritations, ulcers and benign growths of every sort as potential cancers.

Outside the bowel the induration of deep abscesses and hard fistulous tracts can be felt as well as enlargement of the presacral lymphatics, a matter of great prognostic import, and the normal or painful condition of the nerves at the tip of the coccyx (coccygodynia). At the same time the state of the prostate in men and of the uterus and annexa in women is noted. Since the finger per rectum can feel about one inch higher in the pelvis than per vaginam, the former has a distinct advantage in palpating the contents of Douglas' cul de sac and the reproductive organs, excepting only the cervix and vagina. By combining suprapubic pressure with the free hand an intestinal growth may at times be brought within reach, vesicle stone occasionally felt, and cancer of the bladder and prostate palpated. General anesthesia, however, is usually required to make bimanual examination advantageous. As the finger is withdrawn, discharge, if present, follows, that of carcinoma being characteristic and diagnostic. Should the examination have indicated disease of the anal canal or lower two inches of rectum, the lesion can be viewed directly by inserting a small-sized Sims' speculum, using the finger as an obturator, on the side opposite the affection.

The squatting posture is of distinct service in causing a prolapse of the first or second degree to protrude and will sometimes bring a growth that cannot otherwise be felt within range of the examining finger.

Let it here be noted that all this information has been obtained without instruments but solely by the eye and finger. In fact, the segment of the rectum responsible for the majority of the diseases of that organ can be so examined. It is sufficient for the general practitioner that he be able thus to recognize the greater number of rectal ailments.

Having examined as detailed a patient giving unmistakable symptoms of rectal disease without finding the cause thereof, our resources are by no means exhausted, but recourse must be had to instruments of precision. The familiar Kelly tube has been elaborated by the addition of an electric bulb and inflation apparatus into a proctoscope of which there are many examples. By these instruments the terminal 8 to 12 inches of colon, the former stumbling block of the diagnostician, has been brought from darkness to light. What was surmised and treated empyrically is now clearly seen and treated scientifically. The pale, succulent, mucous-flecked membrane of hypertrophic proctitis contrasts as strikingly with the dry, red mucosa of the atrophic type as does the analagous condition of the nose. Ulcers are seen, their character and number noted, and smears taken directly from their surface for microscopic examination.

Prolapse of the sigmoid, a common cause of constipation and dragging pains, is observed, as well as adhesive bands which prevent the bowel from rising out of the pelvis when inflation is attempted. Polypi may also be seen, the long pedicles of which allow them to slip beyond reach. Strictures and neoplasms can be inspected, tissue removed by forceps for microscopic examination and, provided they do not encroach upon the lumen to the degree of obstruction, the proctoscope passed beyond determines the extent of the growth and the condition of the mucosa above, invaluable data from the operative viewpoint.

Only recently a patient was referred to me in whom I succeeded in passing a tube of small caliber and so could demonstrate in advance of operation that the mucosa above the stricture was healthy and that the bowel with the stricture could be amputated by the perineal route alone, which was successfully accomplished.

The technique of proctoscopy is simple but precise. Numerous observations are required before one can recognize the normal bowel, and broad experience is necessary to interpret its many affections. In practice anesthesia is a disadvantage, except in cases having exquisitely painful lesions. The requirements are that the patient have his clothing loose, bowel empty and assume the *correct* knee-chest posture. The finger always precedes the tube which is introduced as far as possible before the obturator is withdrawn. The instrument is then advanced, under direct vision, in the lumen of the inflated bowel with perfect safety, and is of the utmost value for diagnosis and treatment.

With the advent of the proctoscope hard bougies, formerly relied upon for the diagnosis of stricture and unfortunately still used by some, should join that other instrument of torture, the bivalve rectal speculum, as memorials of a dark and painful past.

Introduction of the whole hand into the bowel, as advocated by Prof. Simon, is valuable in cases with an angle at the rectosigmoidal juncture too acute to allow the proctoscope to pass, but should never be attempted by a hand measuring over 25 cm. in circumference.

As a last resort laparotomy is occasionally necessary, with every preparation at hand to do any surgical work found necessary. Yet Ewald has truly said, "Exploratory incision is all well enough, but we cannot expect the whole community of possible suspects to submit to being opened for inspection in order that the occasional case may receive early operation." It is therefore incumbent upon medical schools to provide adequate all-around instruction, and it behooves us as physicians to urge this course upon them, meanwhile perfecting ourselves in and employing every means of diagnosis, especially

*Transactions Am. Protologic Society, 1909.

†*New York Medical Journal*, September 5, 1908.

those simple measures detailed, which yield much and valuable information without pain or risk to the patient.

[Naturally, I omit, as being beyond the limits of this paper, the consideration of the functional capacity of the intestine as determined by the test-diet and examination of the feces.]

Conclusions: 1. Rectal examination should be a routine measure in examining patients with symptoms referable to the lower bowel. 2. Its omission frequently leads to error in diagnosis, especially in obscure ailments. 3. Medical schools should provide instruction in proctology and the profession should urge this course upon them.

46 West Forty-eighth Street.

SERODIAGNOSIS OF SYPHILIS.

WASSERMANN TEST.

By JUSTIN DeLISLE, M.D.,

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Beginning with a study of the mechanism of hemolysis, there have been gradually added to that phenomenon many interesting and important results from scores of observers. Owing to the basic principles involved in the hemolytic reaction, a brief review will be permissible. The hemolytic reaction, or hemolysis, means that when the blood of a certain animal is injected into the body of another animal of another species there is generated in its organism, and found in its serum, a body that has the power to dissolve the blood corpuscles of the animal that furnished the blood for the injection. This reaction is not confined to the cells of the blood alone, for further exploration of this field of research has extended the elements of this reaction almost to the limits of animal and vegetable cells. Continuing this same reaction into the realm of bacteriology, we find a strikingly illustrative example in the granular degeneration and ultimate destruction of the vibrion of Asiatic cholera, when a culture of this microbe is injected into the peritoneal cavity of an animal that has been vaccinated with cultures of the vibrion of Asiatic cholera. This reaction (Pfeiffer's) is bacteriolysis instead of hemolysis; for the latter, blood corpuscles are used as an antigen, whereas microbes furnish the antigen in the former.

A more intimate study of this process has revealed the presence of two different bodies contained in the serum of an animal vaccinated with an antigen and it is upon the conjunction of these substances that hemolysis or bacteriolysis depends. The first body is called the complement, and is found in the blood serum of all animals. This substance is destroyed by a temperature of 58° C., prolonged for one hour, and is therefore thermolabile, or by allowing serum containing the complement to remain at room temperature for several days (tempolabile). The other body found only in the bloom serum of an animal vaccinated with an antigen is called the amboceptor, and, unlike the complement, is neither thermolabile at 58° C. nor is it tempolabile.

We come now to the very essence of the reaction, namely, the *specific affinity* of the amboceptor for the antigen. As noted above, antigen is any body which, when injected into an animal organism, will excite the production of an antibody (amboceptor). An antigen may be blood globules or microbes, and the specific amboceptor found in the serum of animals injected with these several cells has an affinity only for the particular cell injected.

Without even enumerating the many valuable and varied applications of the phenomena of hemolysis and bacteriolysis, let us call attention to one, the Wassermann reaction. Keeping in mind the fact that the amboceptor has a specific affinity for the particular antigen—be it blood corpuscles or microbes—at the same time let it be understood that an amboceptor is always present in the blood of an animal while suffering from a particular disease or having been injected with a known antigen. In either case the amboceptor found in the blood of the diseased animal should have a specific affinity for the particular microbe causing the disease. For example, during the progress of a case of typhoid fever, an amboceptor is generated and found in the blood serum of the individual, and when this serum is mixed with a culture of typhoid bacilli, and to this mixture fresh serum from any source (containing the complement) is added, we witness the phenomenon of bacteriolysis, but should we substitute for the culture of typhoid bacilli the culture of some other microbe, no action would take place. Therefore, we return to the point so much insisted upon, viz., the specific affinity of the amboceptor for the antigen. Neither the complement nor the amboceptor *alone* has the power to produce bacteriolysis or hemolysis; it requires the conjunction of both bodies, and the mechanism of this reaction proceeds in the following order: The first step is the union of the particular amboceptor with the particular antigen, whereupon this combination permits the complement to complete the solution. The application of this reaction in the Wassermann test for syphilis is based upon the above-described phenomena.

Careful examination of the different secretions and excretions of the syphilitic, and a particular investigation of the organs of the syphilitic cadaver, especially the organs of the macerated syphilitic fetus, resulted in finding in the liver of such a body an enormous number of *Treponema pallidum*, the supposed exciting cause of syphilis. Therefore, given a case of syphilis, even of brief duration, it is reasonable to presume that a certain amount of the special syphilitic amboceptor has been formed, and all that now remains to prove the presence of syphilis is to bring the *Treponema pallidum*, if this is the real cause of the disease, in contact with the specific syphilitic amboceptor and the complement, which can be obtained from any fresh blood serum; or if the syphilitic's own blood is examined when freshly drawn, lysis of the *Treponema pallidum* should be immediately observed. Unfortunately, up to this time no method of culture has been devised for the *Treponema pallidum;* for this, however, Wassermann has substituted an extract made from the syphilitic liver, because, as stated above, the syphilitic liver, especially the liver of the syphilitic fetus, contains a large number of the organism mentioned. Now, in order that the Wassermann test may be plain to the eye, still another manipulation has been added, and is called the diversion of the complement.

Therefore, the Wassermann test, in its entirety, means that the serum of a syphilitic, containing the specific syphilitic amboceptor, is mixed with the syphilitic liver extract, which includes the *Treponema pallidum*, whereupon these two bodies unite and are ready for the complement, which is supplied by adding fresh serum from any source. As a result, we witness the phenomenon of lysis, for we have the conjunction of the two necessary bodies,

viz., the specific syphilitic amboceptor and the complement, as well as the particular microorganism for which the amboceptor has a special affinity. If either of these bodies in this case should remain free, it means that the specific germ of syphilis is not present, and lysis has not taken place. In order to demonstrate this, some other cells, such as red-blood corpuscles, that have been sensitized by union with their own specific amboceptor, are added, and the complement which was not fixed by the *Treponema pallidum* will immediately unite with them and cause hemolysis.

The Wassermann reaction as a test for syphilis has been practised for some time in numerous laboratories, and some very curious results have been observed. This test in a high percentage of cases of syphilis gives a positive reaction, but when we come to add the negative results in undoubted cases of syphilis to the positive reaction we get in diseases other than syphilis, we begin to question not the reaction, but rather its interpretation. Further inquiry by a number of observers has justified this question when by substituting for the syphilitic antigen such substances as an extract of non-syphilitic liver extract made from normal guinea-pig heart, lecithin, sodium oleate, glycocholate, and taurocholate, cholesterin, glycogen, etc. How can these facts be reconciled with the positive statement that the specific amboceptor has specific affinity for its antigen? As in syphilis we undoubtedly have a specific amboceptor in the blood serum of the syphilitic, and this particular amboceptor should have a specific affinity for no other cell than the *Treponema pallidum* contained in the extract of luetic liver, this would be in perfect harmony with the mechanism of bacteriolysis; but when we find that an extract of nonsyphilitic liver acts just as well, it certainly puts an interrogation point after the *Treponema pallidum* as the microorganism of syphilis.

313 West Fifty-seventh Street.

REPORT OF A CASE OF THROMBOSIS OF THE LEFT ILIAC VEIN.

PROBABLY DUE TO PRESSURE OF DISTENDED BLADDER.

By C. S. AITKEN, M.D.,

ASSISTANT PHYSICIAN,

AND

J. ALLEN JACKSON, M. D.,

Those who have dealt with the insane appreciate fully the elusiveness of some patients, and the extreme difficulties which arise in trying to offer them the most careful treatment. The following case also illustrates the fact that in these cases, even though they are up and around the wards, they do not call the attention of the physician or attendant to their various ailments.

History.—M. F. was admitted to this institution October 25, 1895. Her physical condition at that time was apparently good. Mental condition: she was restless, sleepless, and melancholic. She talked constantly of religion. She was intemperate and used opium. She was married but had no children. Since admission she has shown considerable dementia, was never violent, untidy, or incontinent. She had some impediment in speech. Her physical condition was good. She was permitted to work in the dining-room.

Physical examination made by Dr. C. T. King September 24, 1908, revealed the following: Fairly well nourished and developed woman about 44 years of age. Height 155 cm. Weight 140 pounds. Complexion dark, expression of face, eyes, and mouth worried. Skin pale, rather loose, and dry. No eruption. Hair dark brown. Speech slurring—but she answers questions and speaks coherently. Eyes blue, pupils react to light and accommodation. Right pupil irregular. Voice nasal, slightly stammering and indistinct. Lids, conjunctiva, and cornea clear. Auditory apparatus normal. Nose normal. Mouth small and closed. Teeth poor. Gums normalino odor. Palate, tonsils, and pharynx negative. Tongue medium-sized, rough-coated, but no deviation or tremor. Thorax large and well nourished, good expansion. Spinal column negative. Lungs resonant throughout. Heart sounds are rather distant and of poor quality. No distinct murmurs. Pulse 80 normal volume, regular rhythm, equal, and synchronous at radials. Abdomen and viscera negative. Reflexes superficial and deep normal. No general symptoms, such as headache, vertigo, or fever. No signs of paralysis, evidences of injury, deformities, marks, scars, ruptures, etc., present. Gait, station, general coordination good. No muscular twitchings. Muscular strength good. Tactile, thermal, and muscular sense normal.

Present Illness.—Three weeks prior to death serious symptoms arose. She showed swelling of both lower extremities—the left more marked than the right. Examination proved marked swelling and pitting of both extremities, without paralysis, signs of inflammation, or evidences of gangrene. Lower abdomen showed a globular mass extending to the umbilicus. By catheter 30 ounces of urine were removed and submitted for examination. It was reported to the ward physician by the attendant that the patient had been voiding urine regularly—which, however, in the light of subsequent events—must have been the overflow of retention. Catheterization was necessary every seventh hour. There was little fever at any time. Heart gave evidence of a mild myocarditis, but no endocardial lesion was present. Following catheterization upon two different occasions vaginal examinations were made, but failed to reveal any abnormalities.

The swelling in the right leg subsided four or five days before death, while in the left leg the swelling only partially subsided prior to death, which ensued from gradual exhaustion August 17, '09.

Blood examination made August 12, '09, showed hemoglobin, 68 per cent.; red cells, 4,130,000; white cells, 13,500. Polynuclears, 68 per cent.; small lymphocytes, 18 per cent.; large lympocytes, 14 per cent.

Urine Report.—Specimen submitted August 9, 1909, was pale yellow acid, s.p. gr. 1.012. Negative for albumin, sugar, indican, and bile pigment. Microscopically showed few leucocytes, amorphous and triple phosphates. Specimen submitted August 13, 1909, was yellow and turbid. Alkaline, sp. gr. 1.010. Whitish sediment. Gives a positive reaction for albumin. Negative for sugar, indican, bile pigment. Microscopically it showed numerous pus cells. Amorphous and triple phosphates. Negative for casts.

Pathological Report.—Body that of a fairly well preserved middle-aged woman. Abdomen is prominent, marks are present, which evidently indicate former pregnancy. A small papilloma is situated three fingers breadth above the umbilicus in the

median line. There is slight brownish discoloration over the ensiform cartilage. The left leg is larger than the right. It pits upon pressure around the ankles and for about two inches above the ankle. At the inner portion of the thigh near the gluteal region there is an abrasion involving the deeper layers of the skin. Also a slight abrasion over buttocks. Labia are large and there is a slight leucorrheal discharge. Eyes bluish gray, pupils equal measuring 5 mm. Teeth not well preserved. Locomotory system negative. Circulatory system: Pericardium negative. No fluid in cavity. Heart, aortic, tricuspid, mitral, and pulmonary valves slightly sclerotic. No evidences of vegetations or any recent acute condition. Heart otherwise negative. The left iliac vein is much larger than the right. Upon dissecting out the iliac vein (left) the vessel is found to be firm and irregularly distorted. On opening the vein, older and recent clots are seen. The most organized portion being about two inches below the beginning of the iliac. Here the clot is pale in color and has attempted organization. The left external iliac as well as the femoral down to the popliteal space shows clots of blood. The right iliac is collapsed, showing here and there a small amount of sero sanguinous fluid. Respiratory system. There are no pleural adhesions, save for a few fibrous bands upon the right side posteriorly. The lungs show bronchopneumonia. Alimentary system. There are a few chronic peritoneal adhesions in the inguinal region. Intestines and stomach negative for gross lesions. Pancreas and gall-bladder negative. Liver shows congestion. In the right upper hypochondrium at the hepatic flexure of the colon and within the layers of the mesocolon is a clot of blood about the size of an egg. The attachments of the superior and inferior mesenteries also show distended vessels, and in this region there is distinct discoloration. There are no gross lesions of the adjacent viscera. Genitourinary apparatus. There is a suppurative cystitis, and acute ureteritis upon the left side as well as acute inflammatory condition of the pelvis of the left kidney. The uterus is retrodisplaced. The tubes and ovaries negative. Slight leucorrheal discharge. Glandular system. The spleen, bronchial, and mesenteric glands, adrenals, and thyroid negative.

In the absence of other conditions which would give rise to emboli or cause thrombosis, we are led to believe that this is a case of thrombosis of the iliac vein probably due to pressure of a distended bladder of indefinite duration. It is submitted for publication to impress upon the ward physicians that cases showing swelling of the lower extremities are not always due to diseases of long standing, but may be due to acute readily remedied causes and the examination by all means should include examination of the bladder. The peritoneal hemorrhage was probably due to a small embolus coming from the iliac vein plugging one of the branches of the mesenteric vessels. This accompanied by rise of arterial pressure resulted in rupture of the vessel involved. We are indebted to Dr. E. D. Martin for assistance in the pathological examination.

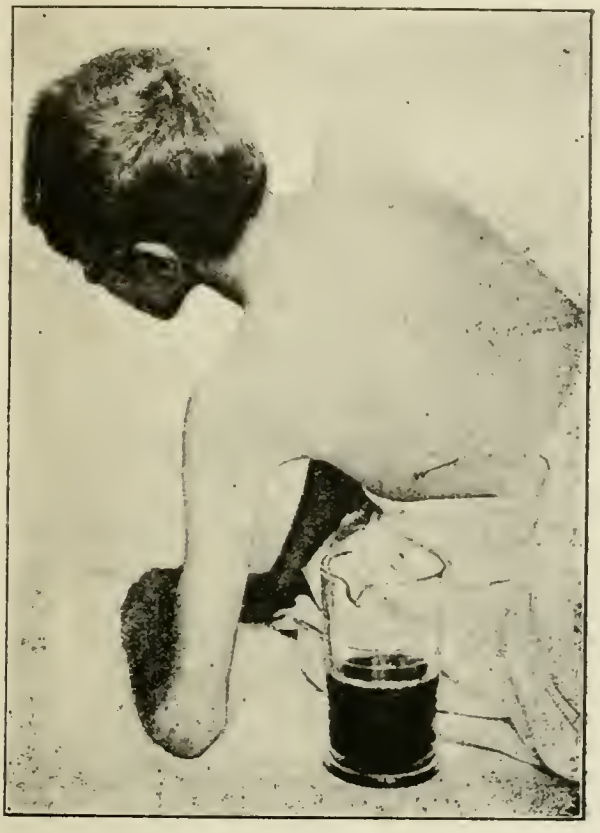
Poisoning by Bichloride in the Vagina.—J. R. Hopkins reports a case of a woman who died from bichloride poisoning as the result of placing one tablet of 7.3 grains in the vagina. The symptoms were local burning, vomiting, diarrhea, and first polyuria, but later anuria. The local burning caused extensive necrosis.—*Denver Medical Times.*

TAPPING THE PLEURAL CAVITY.

By E. M. FOOTE, M.D.,

NEW YORK.

The usual method of procedure for tapping the pleural cavity is to insert an exploring needle, and, if serum escapes, to withdraw the needle, insert at the same place a larger needle or a trocar and aspirate the pleural contents. If, however, an aspirator is not at hand, or it is deemed better not to insert a suction needle, the exploring needle may be utilized for the escape of the fluid. The boy represented in the accompanying illustration had been sick for three weeks with pleurisy with effusion. After cocainization of the skin and pleura, the exploring needle was inserted in the tenth interspace. A clear serum dripped out through it so rapidly that the chest was emptied of 26 oz. in about one-half hour. Toward the end of this period the flow was favored by changes of position and pressure upon the abdomen. There was no reaccumulation of the fluid and the boy made an uneventful recovery.



Aspiration of joints containing fluid may often be successfully performed in the same manner. One thereby avoids the risk of forcibly drawing inflamed surfaces against the point of the needle. Some of the older surgeons objected to the use of suction in aspiration of serous cavities.

130 West Forty-eighth Street.

Thoracic Aneurysm in a Boy.—McNalty reports a case of a boy of 14 admitted to Brompton Hospital for breathlessness and palpitation. He had had scarlet fever at 4, measles at 5, and sore throat at 8. Since then he had had "valvular disease." The boy had a large thoracic aneurysm extending 1½ inches to the right of the sternum and bulging well up into the right neck. The diagnosis was confirmed by the *x*-ray. A point of considerable interest was the presence of an "inverse tracheal tug," by which at each pulsation the trachea was forced upward instead of being pulled down.—*Proceedings of the Royal Society of Medicine.*

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THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

THERE are probably few departments under the Federal Government of which the general public knows so little, and to which it owes so much, as the United States Public Health and Marine-Hospital Service. Organized in 1798, primarily for the relief of sick and disabled seamen of the merchant marine and navy, its duties have steadily increased and broadened until the officers of this service have become the chief guardians of the national health, and, if Congress accepts the suggestion of President Taft, it bids fair to become of even greater influence as the foundation stone of the proposed Federal Bureau of Health. The energies of the service are not confined to our own land and our dependencies. They extend to the entire world, for, associated with many of our consulates in seaports the world over are its officers, keeping constant watch on all shipping destined for our ports, ever vigilant that plagues and epidemics may get no foothold in this country. When no epidemics prevail, the members of the service devote their time to the care of seamen and to research; but, when a serious epidemic makes its appearance anywhere, either the local officers, or others especially designated to the duty, are to be found hard at work in combating the disease, preventing its spread, and striving to solve the various problems of etiology, prophylaxis, and cure. While the surgeon of the Army or the Navy may, in the course of his regular duties, be exposed to serious danger in the rare case of war, or occasionally when in tropical service, the members of the Public Health Service are liable at any moment to be ordered into the midst of an epidemic of yellow fever, cholera, smallpox, or plague, diseases which many of them have contracted and to which some have succumbed.

To the surgeon of the Army or the Navy the country owes much, but to the Marine Hospital surgeon it assuredly owes more, for in his constant successful fight against contagious diseases he is keeping in check an enemy capable of far greater devastation than the most successful of human armies. Yet notwithstanding the inestimable services which this corps is rendering the nation, notwithstanding that the risk of life is so great that some insurance companies have refused to issue policies to its members, notwithstanding that the personnel of the service includes some of the most highly trained scientists in the country, men whose work is recognized, and authority accepted wherever the science of hygiene and sanitation is studied, notwithstanding all this, the United States Public Health and Marine Hospital Service is receiving such beggarly support from the Government that its members are becoming discouraged, old officers are resigning their positions, and new ones are enlisted only with the greatest difficulty. In return for protecting the country against pestilence and plague, and thus saving thousands of lives and millions of dollars, the members of this service are receiving pay below that of surgeons in the other services and on which it is almost impossible to live.

A few years ago the surgeons of the three national medical services received nearly equal pay, but after the Spanish-American War there was a popular demand for an improvement in the personnel of the medical departments of the Army and Navy. To procure this, all salaries were raised so that the members of these branches receive a decent living wage. An effort was made last year to do the same for the Marine-Hospital Service, and Senator Owens introduced a bill which passed the Senate, but did not come to a vote in the House. The bill provided for increase of salaries to place the three services on nearly an equal footing, and for the introduction in the Marine-Hospital Service of a retirement rule by means of which a disabled or superannuated senior officer may be retired on three-quarter pay. This is intended to replace the present system of "waiting orders," by which the older man, although doing no work, still maintains his rank, and designating his duties to his next in command allows the latter neither the title nor the pay which the work is supposed to command. Such a provision would tend to make promotion, which for a number of years has been practically stagnant, more rapid, and would furthermore go far to remove the present entirely justifiable feeling of dissatisfaction in the corps.

The passage of the Owens bill when it again is brought forward would place the Marine-Hospital Service on an equal footing, both in prestige and in salary with the medical corps of the Army and of the Navy. Its previous record and present work certainly entitle it to such a position. The passage of the bill would remove the spirit of discouragement now prevalent among its officers, would refill its depleting ranks, and the efficiency of the service would be increased; the nation would be better protected, and the Marine-Hospital Service would be in a healthier, stronger condition to take on the duties of the Federal Bureau of Health when the time comes. As a profession, we are proud of the position the Marine-Hospital Service has won for itself under the able administration of Surgeon-General Wyman, and it would be nothing less than a disaster should this most important bureau in the National Government be crippled through the niggardliness of Congress or its indifference to the welfare of those who have the health of the country in their keeping.

TREATMENT OF EPILEPSY WITH CALCIUM SALTS.

Calcium metabolism has been exciting a good deal of attention recently, and as Halford points out the results of recent observations and experiments on the physiology of the female genital organs may well lead us to think that calcium metabolism will become a prominent feature in the physiology and pathology of the future. According to the *Lancet* of January 8, 1910, the discovery of the action of calcium salts in the treatment of epilepsy is due to the researches of a succession of Italian investigators. For example, Sabbatani found that soaking the cortex in a solution of calcium chloride diminishes its excitability, while such salts as sodium oxalate or citrate have an opposite effect, and he decided that a lack of calcium salts in the circulation, balks largely as a factor, if not in the causation, at least, in the continuance, of the malady. Besta came to conclusions of a similar nature. Mr. Arthur Littlejohn reported in the *Lancet*, May 15, 1909, that he had employed calcium salts with success in the treatment of a case of epilepsy. The patient in question was disoriented, incoherent, noisy, and spiteful, and was having fits of an aggravated petit mal type three to five times every 24 hours. After the administration of 15 grains of calcium lactate three times per day, her fits were abolished and her mental condition was very noticeably improved. However, the evidence in favor of calcium salts in the treatment of epilepsy is still conflicting.

Julius Donath, physician to the Nervous Section of the St. Stephen Hospital in Budapest, has published recently in *Epilepsia* a series of cases in which the administration of calcium salts appears to have exerted no favorable effects. Large, even heroic doses of calcium chloride were given in four cases with no beneficial effects, and in the other cases with but a slight diminishing influence. Indeed, the employment of calcium salts in epilepsy has not as yet passed the experimental stage, and as a matter of fact, it is not definitely known whether the abnormal chemical changes of the blood observed in epilepsy are really cause or effect. Some other investigators have not been able to discover the diminution in the coagulability of the blood noted by Besta, he having found that in 37 out of 45 cases of epilepsy, the coagulability of the blood is diminished compared with the normal. Nevertheless, Perugia, in *Il Morgagni* for October, 1908, corroborated Besta's findings in 36 cases of true epilepsy, but curious to state, while affirming that the administration of calcium salts increased the coagulability of the blood of his cases, it did not influence either the number of the frequency of the attacks.

It is, of course, a matter of common knowledge that fairly often in protracted cases of epilepsy the bromide treatment is of no avail, and although the employment of calcium has not been attended by definitely favorable results, the reports of its helpful effects should ensure for the method a wide and careful trial. At any rate, in cases of severe petit mal its administration may be recommended.

The Position of the Apex Beat in Children.

The relation of the size and weight of the heart to that of the body as a whole at the various periods of life has been the subject of study by anatomists on many occasions and the changes in this ratio at different ages are fairly well understood. From the clinical side of the question, however, the subject has been less carefully worked out, and not only students, but practitioners also, in examining the chest of a young child are apt, especially in the presence of a cardiac murmur, to fall into error in considering the question of the presence or absence of hypertrophy of the heart. For this reason a recent study of the position of the apex beat in 500 children made by Stewart and reported in *The British Journal of Children's Diseases* for December, 1909, is of considerable value to the pediatrist. The children were taken consecutively, only those showing evidence of cardiac or pulmonary disease or other malady which could displace the position of the heart being excluded. They were examined in the erect posture, and the relation of the apex beat to the left nipple in the fifth intercostal space was noted. Owing to the fact that the nipple in the young child is placed relatively more laterally than in the adult, the nipple line does not coincide exactly with the imaginary mammary line drawn from the middle of the clavicle, but as the latter is difficult to obtain in the child, the former was taken as the guide. By tabulating the results in three classes, namely those in which the apex beat was outside, on, or inside the nipple line, fairly constant and interesting results were obtained. Under two years of age 66 per cent. were distinctly outside of the nipple, 33 per cent. directly below it, and but 1 per cent. inside. By the age of three years, however, the apex beat had moved in decidedly, and from then until eight years of age its normal position, or at least its position in 80 per cent. of the children examined, was in the nipple line itself, while the proportion of those in which it was outside steadily sank from 20 to 5 per cent., and the cases with the apex inside of the nipple as regularly rose from *nil* to 15 per cent. After the age of eight years the cases with the apex outside became distinct rarities, while the number in which the adult position was found uniformly increased, and those in which the apex was in the nipple line proportionally diminished. By ten years the second and third classes of cases were of equal frequency, and at fourteen the adult location was found in two-thirds of all cases. By dividing the cases into these age groups the normal position at any one time is easily remembered, and is a point of no small value in the physical examination of the child's heart.

Plague Infection in Wood Rats.

W. C. Rucker, Passed Assistant Surgeon, United States Public Health and Marine-Hospital Service, who has for some time been engaged in the investigation of plague infection among ground squirrels in California, and who has succeeded in demonstrating that these animals are infected not infrequently, has added recently a fresh link to the chain in the discovery of a wood rat which upon dissection was found to be suffering from bubonic plague. The infection of this wood rat was found by Passed Assistant Surgeon G. W. McCoy, in charge of the laboratory of the service in San Francisco, and was reported by Rucker in Public Health Reports, Jan. 7, 1910. The animal in

question was secured by Rucker from Alameda County, Cal., on Oct. 17, 1909, and despatched to San Francisco for postmortem examination. This species, *Neotoma fascipes,* is fully described by Frank Stephens in "California Mammals," published in 1906. It differs distinctly from the true rat, which is an Old World importation. The wood rat is entirely a New World production and is a member of a genus which includes a large number of species, all inhabiting various districts of California, and some, certain parts of Colorado. Wood rats are chiefly nocturnal in their habits, and are found for the most part along small wooded arrogos in which they build their nests. According to Rucker, the nests are frequently of elaborate design, the interior of which is often arranged in three stories, containing storehouse and living rooms. The storehouse in several instances examined by the writer contained large quantities of the corms of a plant growing in the immediate neighborhood. In certain regions the neotomas store up large quantities of mesquite beans, and these caches are raided annually by the Indians, who use them for food. The animals are not regarded as an economic menace, they do not make their homes in houses, although they will enter deserted houses, they do not exist in the company of the Old World rats, who will always drive them out, and they are easily trapped. As Rucker remarks, it is impossible to draw deductions from the discovery of a single infected animal of a given species, but it is interesting to note that it is being learned gradually that many different species may be infected in nature. The question which will commend itself to the scientifically inquisitive is, how did wood rats become infected? It is stated that they do not, as a rule, come into contact with ground squirrels, although perhaps, this may seem to be the most natural and obvious means of infection. On the other hand, there may be another infected animal with which the wood rat is more closely associated. At any rate, it has been proved that the plague is far more widespread than it was formerly believed to be. The labors of the members of the Public Health and Marine-Hospital Service have been already instrumental in driving the disease from San Francisco, and it appears likely that their further efforts will result not only in eradicating it from the Pacific Slope, but in solving many obscure features in connection with the plague.

Psychoses and Dream States.

In a paper on the mechanism and interpretation of dreams, read recently before the Neurological Section of the Academy of Medicine, Morton Prince of Boston stated that dreams are in reality psychoses or types of delirium, and are characterized by the same general symptoms—if one may speak of a symptom aside from disease. There is a given point at which the various types of hallucinatory phenomena tend to converge with the types of hallucinatory symbolism, but the great complexity of psychical phenomena, together with the usual lack of memory concerning dream states, makes the subject particularly difficult of investigation. But this much is sure: that the relation between dreams and antecedent thought is always a direct and definite one, although the connection may seem very remote, and can be elucidated only by a careful and exhaustive analysis. He does not believe with Freud, that every dream represents the fulfillment of a wish; but rather, that it represents the unfulfillment of a wish or the fulfillment of a fear. One woman mentioned by him always dreamed that she was surrounded by a myriad of cats, and she would usually awake when they seemed to be attacking her or when she was thrown helplessly among them. Under hypnotic influence it was found that in early childhood this woman had been greatly frightened by a pet cat, which had scratched and bitten her, and that the memory of this occasion, although seemingly buried deep in the jumble of past experiences, nevertheless had a certain psychological coloring which caused it to be resurrected only during unconscious states. Such facts may explain in a measure the curious and apparently utterly illogical statements coming from the lips of those in delirium, but it will always be found that, just as in many hallucinatory states of the insane, the mind is working at a tremendous rate, much faster than the organs of speech can record the ideas, and hence what comes to our ears is simply a mass of words.

News of the Week.

The Physical Condition of New York School Children.—A report of the physical condition of the children attending the New York public schools has been made to the Board of Education by City Superintendent Maxwell. The superintendent's report is based upon examinations of pupils made by physicians assigned by the Board of Health to duty in the public schools. These physicians examined 323,344 children, about half of the total number in the public schools in the last year, and found that less than one-fourth of them had no physical defects. Of the pupils examined it was discovered that 242,048 needed medical or surgical treatment. The nature of the physical defects varied greatly. There were 3,850 children discovered to be suffering from diphtheria, scarlet fever, measles, chicken pox, and mumps. The examinations disclosed 38,329 children suffering from defects of vision and 73,058 from defects of nasal breathing. Defects of hearing numbered 3,471. It was found that 183,869 children had defective teeth. The cases of pediculosis numbered 145,066. Malnutrition was the diagnosis in 11,749 cases, and anemia in 2,408.

"Preventorium Bill" in New Jersey Legislature.—A bill was recently introduced into the New Jersey Legislature, which, if passed, will make the continuance of the Lakewood Preventorium impossible. The bill provides that it shall be unlawful to treat any person for tuberculosis, or to maintain any person for the prevention of tuberculosis in any hospital, sanatorium, preventorium, or other place without the consent in writing of the Board of Health of the State of New Jersey. The law does not apply to care of relatives in private houses, or to inmates of State, county, city, or municipal institutions.

The State Civil Service Commission will hold examinations on February 26, 1910, as follows: First Assistant Physician, Tuberculosis Hospital, Raybrook, $1,500 and maintenance; Optical Surgeon (Optometrist), Soldiers' and Sailors' Home, Bath, $300; Trained Nurse, $420 to $600. The last day for filing applications for the above positions is February 19. For detailed circular and application blank, address State Civil Service Commission, Albany, N. Y.

New Infirmary for Cornell.—Announcement has been made that Cornell University is to have a new infirmary at Ithaca, which will be twice as large as the present building, to accommodate the rapid increase in the number of students. The new building will be approximately 140 feet in length and 50 feet in width. It will be of hollow terra cotta block and plaster construction. It will be thoroughly equipped as a modern hospital.

The International Commission on Control of Tuberculosis of Domestic Animals held its first session in Buffalo recently. The following resolutions were adopted: (1) That general compulsory tuberculin test and slaughter is impractical and should be dropped from further consideration. (2) That voluntary testing for owners as a general State policy should be retained, provided it be recognized for what it really is; *i. e.* a very efficient means of public education and as serving somewhat to keep further spread of tuberculosis among domestic animals in check. (3) It was unanimously agreed, recognizing fully its limitations, that we can and should accept the tuberculin test under certain conditions as a basis of suitable control legislation. Dr. J. G. Rutherford of Ottawa was elected chairman of the Commission and Dr. M. H. Reynolds of the University of Minnesota secretary.

The Alumni Association of the Lying-In Hospital of the City of New York will hold its next meeting Tuesday, February 8, 1910, at the Harvard Club, 27 W. Forty-fourth street, at 8:30 P.M.

"Medical Review of Reviews."—Beginning with the January, 1910, issue, this journal will be edited by Dr. William J. Robinson of this city. The editorial offices have been removed to 12 Mt. Morris Park W., New York City.

The "Journal of the Southern Medical Association" has gone out of existence with the completion of Volume VI, December, 1909. The reason for the discontinuance of the journal was that it being the official organ of the Association, and given free to all its members, the Federal postal authorities would not admit it to the mails as second-class matter.

The American Society of Sanitary and Moral Prophylaxis will hold a joint meeting with the New York Association of Biology Teachers on Thursday, February 10, at 8:30 P.M., at the New York Academy of Medicine. The general subject for discussion will be The Teaching of Sex-hygiene Along Biological Lines.

The Ninth Congress of the German Society for Orthopedic Surgery will be held in Berlin in the Langenleckhaus, Ziegelstrasse 10/11, beginning on Thursday, March 29, 1910, at 9 A.M., the day previous to the meeting of the German Surgical Society. Titles and short abstracts of papers should be sent before February 15, 1910, to the chairman, Dr. Georg Joachimsthal, Genthiner-Strasse 16, Berlin, Germany.

The Connecticut Society of Alienists met on January 13, at New Haven, for their annual session. The following officers were elected: *President*, Dr. D. W. MacFarland of Greens Farms; *Secretary*, Dr. Alvin D. Wadsworth of South Norwalk; *Treasurer*, Dr. Frederick D. Ruland of Westport. The *Members* of the *Executive Committee* are Dr. H. M. Pollock of Norwich, Dr. Henry R. Noble of Middletown, Dr. C. W. Jackson of Watertown, Dr. Amos J. Givens of Stamford, and Dr. John L. Buel of Litchfield.

Medicolegal Society of Philadelphia.—At the annual meeting held January 25 the following officers were elected for the ensuing year: *President*, Dr. Samuel P. Gerhard; *Vice-Presidents*, Dr. Lambert Ott and Dr. Clarence Loeb; *Secretary*, Dr. Wm. T. Hamilton; *Treasurer*, Dr. G. M. D. Peltz.

Medical Club of Philadelphia.—At the annual meeting, held January 21, the following officers were elected for the ensuing year: *President*, Dr. James B. Walker; *Vice-Presidents*, Dr. William L. Rodman and Dr. S. Lewis Zieglar; *Secretary*, Dr. J. Gurney Taylor; *Treasurer*, Dr. Lewis H. Adler, Jr.; *Governor*, Dr. George A. Knowles; *Directors*, Drs. Ross V. Patterson, Frank C. Hammond, McCluney Radcliffe, J. T. Rugh, and C. A. E. Codman.

Northern Medical Association of Philadelphia.—At the annual meeting held January 14 the following officers were elected for the ensuing year: *President*, Dr. William R. Brady; *Vice-Presidents*, Drs. Thomas Shriner and L. Latchford; *Secretary*, Dr. P. F. Brehmer; *Treasurer*, Dr. John W. Millick.

Philadelphia County Medical Society.—At a stated meeting held January 19 the following officers were elected for the ensuing year: *President*, Dr. Henry Leffmann; *Vice-Presidents*, Dr. William S. Newcomet and Dr. G. Morton Illman; *Associate Vice-Presidents*, Drs. Samuel Wolfe, R. O. Kevin, C. B. Longenecker, J. J. Gilbride, E. E. Keiser, Frank B. Gummey; *Secretary*, Dr. William S. Wray; *Assistant Secretary*, Dr. A. R. Craig; *Treasurer*, Dr. Collier L. Bower; *Censor*, Dr. Judson Daland.

Northampton County (Pa.) Medical Society.—At the annual meeting held at Easton, on January 21, the following officers were elected for the ensuing year: *President*, Dr. Charles E. Beck of Portland; *Vice-Presidents*, Drs. J. Edgar Fretz of Easton and L. C. Babcock of Bethlehem; *Secretary*, Dr. W. D. Chace of Bethlehem; *Corresponding Secretary*, Dr. N. W. Reichard of Bangor; *Treasurer*, Dr. Clinton G. Stoffel of Pen Argyl; *Reporter*, Dr. B. Rush Field of Easton; *Censors*, Dr. D. H. Keller of Bangor, Dr. C. T. Zulick of Easton, and Dr. E. D. Schnabel of Bethlehem.

The Cass County (Ind.) Medical Society meeting at Logansport recently elected the following officers: *President*, Dr. R. E. Troutman; *Vice-President*, Dr. A. W. Tucker; *Secretary*, Dr. G. D. Miller.

The Franklin County (Me.) Medical Society has elected the following officers for 1910: *President*, Dr. A. G. Howard; *Vice-President*, Dr. C. W. Bell; *Secretary*, Dr. A. S. Pratt; *Treasurer*, Dr. J. W. Perkins; *Censors*, Drs. E. L. Pennell and B. F. Makepeace.

The Fulton County (Ga.) Medical Society held its annual meeting in Atlanta January 6, 1910, and elected the following officers: *President*, Dr. J. R. Simpson; *Vice-President*, Dr. E. G. Ballenger; *Secretary*, Dr. R. R. Daly.

The Miller's River Medical Society met at Athol, Mass., January 1, 1910, and elected officers as follows: *President*, Dr. G. R. Johnson of Templeton; *Vice-President, Secretary and Treasurer*, Dr. George J. Bassow, of Athol.

The Hartford (Conn.) Medical Society held its annual meeting recently and presented a loving cup to Dr. Horace S. Fuller. The following officers were elected: *President*, Dr. E. K. Root; *Vice-President*, Dr. M. M. Johnson; *Secretary*, Dr. A.

R. Keith; *Assistant Secretary*, Dr. E. A. Hotchkiss; *Treasurer*, Dr. G. K. Welch; *Librarian*, Dr. W. R. Steiner; *Board of Trustees*, Dr. G. P. Davis, Dr. A. E. Abrams, Dr. E. K. Root; *Board of Censors*, Dr. J. H. Rose, Dr. C. S. Stern, Dr. T. F. Kane.

The Nashau (N. H.) Medical Society met January 6, 1910, and elected the following officers: *President*, Dr. H. L. Smith; *Vice-Presidents*, Dr. W. E. Reed and Dr. Arthur L. Wallace; *Secretary*, Dr. Eva M. Locke; *Treasurer*, Dr. P. J. McLaughlin.

Philadelphia Pediatric Society.—At the annual meeting held January 11, the following officers were elected for the ensuing year: *President*, Dr. C. A. Fife; *Vice-Presidents*, Dr. J. T. Rugh, Dr. Theodore H. Le Boutillier, and Dr. A. Newlin; *Secretary*, Dr. Maurice Ostheimer; *Treasurer*, Dr. Howard Childs Carpenter; *Librarian*, Dr. C. F. Judson.

Obituary Notes.—Dr. Samuel S. Wiltbank, U. S. N., died suddenly of heart disease, on January 25, on the Tredavon River, near Easton, Pa., at the age of 82 years. He was a son of Dr. John Wiltbank, in his day one of the foremost physicians of Philadelphia.

Dr. Thomas H. Wentz died at Philadelphia, on January 29, at the age of 62 years. He was graduated from Jefferson Medical College in the class of 1874.

Dr. Lewis L. Shaw died at Medford, N. J., on January 20, at the age of 67 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1864. He was at one time President of the Burlington County Medical Society, and from 1866 to 1867 a member of the State House of Assembly. At the time of his death he was Chairman of the Township Committee and a member of the local Board of Health.

Dr. [illegible], N. Y., died at his home, January [illegible], of septicemia contracted during [illegible]. He was a graduate of the [illegible] in 1885.

Dr. [illegible], Mich., died January [illegible], 1910, [illegible]. Haze was one of the old[illegible] Wisconsin. He had several [illegible] State Legislature, and in [illegible].

Dr. [illegible] New York died at his home, [illegible] years. He was educated [illegible] Hospital, Paris, and Munich, graduating [illegible] from the latter. Dr. Miranda was [illegible] Medical Society of the County of New [illegible], the New York State Medical Association [illegible] New York Academy of Medicine. [illegible] Dr. Miranda was treasurer of the [illegible] Sciences.

Dr. [illegible] Tex., died at his home, January [illegible] 62 years. He was a graduate of the Bellevue Hospital Medical College in 1881, and was a member of the El Paso County Medical Society and the State Medical Association of Texas.

Dr. W. [illegible] Abbeville, Va., died at his home, January 12, 1910, [illegible] years. He was a graduate of the Medical Department of Tulane University. Dr. Lee was a veteran of the Confederate Army. He retired from practice several years ago.

Dr. Sidney Crooks McClure of Jeffersonville, Ind., died at the Mercy Hospital, in Louisville, January 17, 1910, aged 59 years. He was a graduate of the Hospital College of Medicine in Louisville in 1878.

Dr. James Reed of Rockwood, Mich., died at his home, January 18, 1910, aged 70 years. Dr. Reed was a graduate of the Medical College of Ohio in 1866, a veteran of the Civil War, and a member of the Wayne County Medical Society and the Michigan State Medical Society.

Dr. Nelson Reynolds of Milwaukee died January 20, 1910, aged 35 years. He was a graduate of the Milwaukee Medical College in 1898.

Dr. J. Shotwell Smith of Wheeling, W. Va., died at the Haskins Hospital, January 19, 1910. He was a graduate of the Medical Department of the University of Maryland, in 1891, and was a member of the Ohio County Medical Society, the West Virginia State Medical Society, and the American Medical Association.

Correspondence.

THE SUGGESTIONS FOR REFORMS IN THE A. M. A. EMBODIED IN THE RECENT RESOLUTIONS PASSED BY THE CHICAGO MEDICAL SOCIETY.

To the Editor of the Medical Record:

Sir:—The resolutions recently passed by the Chicago Medical Society recommending to the A. M. A. certain reforms for which I have been long contending mark the beginning of a new and more democratic era in our great national organization. Certain faults in the politics of the association are so evident and glaring that it would be surprising that they should have so long continued, were it not for the fact that one of those faults is the removal of the direct ballot from the membership, which in itself prevents the remedying of the other evils. The resolutions did not comprise the suggestion of elections by membership ballot in the A. M. A., as, in my opinion, they should have done. In a body as large and important as the A. M. A., with enormous political, business, and financial interests, the ballot is the only protection for membership rights. American citizens do not like to be led like a lot of sheep, with no opinions of their own, and no way of expressing them if they did possess them.

The politics of the A. M. A. are somewhat anomalous. When reduced to its ultimate, the fairness, legality, and honesty of elections revolve around the voting unit. Tracing the politics of the A. M. A. backward from its House of Delegates, we come to the State Society with its House of Delegates. As these delegates are not elected by the State Society, but by the Councils of the District or County Societies, we have as yet no voting unit. Following medical politics down along the line, we come to the Council of the local society. The members of this Council are elected by the membership of the local society. Inquiring into the personnel of the local society, we find that it comprises both members and nonmembers of the A. M. A. The members of the A. M. A. have paid ten dollars per year for membership privileges which, so far as the elective franchise is concerned, are enjoyed by nonmembers for from three to five dollars per year. Whether the elections in the A. M. A. since reorganization would stand the test of legality or not is at least an open question. The open ballot in the A. M. A. is the only solution of the problem, for the local and State societies would hardly dare adopt as a qualification for membership forced membership in the A. M. A. The members of the A. M. A. will one day have to choose between the present farcical system and the open ballot. The latter is the only feasible plan for obtaining autonomy and membership rights.

The members of the local and State societies are deprived of their rights, and their organizations are deprived of autonomy in quite another way, viz., by the dominance of high officials of the A. M. A. in the local and State societies. Take, for example, the Chicago Medical Society and the Illinois State Society. The chairman of the board of trustees is a councillor in the former and a delegate to the latter. He is also a delegate to the A. M. A. The associate editor and assistant secretary of the A. M. A.—a salaried employee of the association—is a councillor in the Chicago Med-

ical Society and a delegate to the State society. The treasurer of the A. M. A. has served simultaneously as councillor, State delegate, national delegate, and treasurer. In California we have a trustee of the A. M. A. serving as delegate to the A. M. A. and editor of the State journal. Whether he is serving also as a member of his local Council and a delegate to his State society I do not know, but it is safe to infer that he is—or could be if he so desired, which latter is the key to the entire situation. And Chicago, Illinois, San Francisco, and California are merely pertinent illustrations of what prevails the country over.

It is unnecessary for me to repeat here the evidence I have elsewhere published regarding the danger under present conditions of the abuse of official power in the A. M. A. I will, however, call attention to one of the most powerful weapons of oppression at the command of certain officials, viz., the possibility of an interpretation of the by-laws of the A. M. A. which may be used to force a member who has moved from the locality in which he originally joined the association to affiliate with the subsidiary society in his new location.

The case of Dr. Howard Crutcher, of Roswell, N. M., is an example of this. His membership cross was omitted from the last A. M. A. directory because he had not joined the Chaves County Society. As Dr. Crutcher would not join the local society if he could, and could not if he would, he was placed in a rather peculiar position. As his dues are paid in the Chicago Medical and Illinois State societies, and also in the A. M. A., the officers of the association are in a still more peculiar situation, the more especially as there is nothing in the constitution and by-laws of the A. M. A. which compels Dr. Crutcher to join a new local society in order to retain his membership in the A. M. A. Obviously, if a member in good standing of the A. M. A. is compelled to join a new local society on removal to a new location a membership transfer should be given him, the acceptance of which should be mandatory on the local body. It would be interesting to observe the attitude of a local society that should be compelled, willy nilly, to receive a man who happened to be *persona non grata*. It requires very little reflection to comprehend that we have here a reef in the course of the good ship "reorganization" over the erstwhile beautiful sea of political theory. I have elsewhere compared to a political "club" the requirement that a physician must become a member of his local and State societies in order to join the A. M. A. Long ago I predicted that sooner or later the political power conferred by this provision would be abused. This prediction, it would appear, has been verified.

The recommendation by the Chicago Medical Society of an increase in the number of trustees in the A. M. A. is without point unless some specific object is set forth. The increase in the number of trustees should consist of the addition of at least two local trustees. The business and policies of the A. M. A. are entirely too weighty for one man to handle, and I doubt not the chairman of the board would be glad to have his weighty burdens and serious responsibilities divided. It has been stated that the country at large would object to a further aggregation of officials at the "central station" of the A. M. A. In reply I would ask, which is the more democratic, a division of labor and responsibility among three or more, or a concentration of power, privilege, and responsibility in the hands of a single individual? The association must have headquarters somewhere, hence the question is, how best to conduct its business and policies at that point.

An addition which might with advantage have been made to the Chicago Medical Society's resolutions is the suggestion of a provision for either an itemized yearly account of the business of the A. M. A., or, if this plan should be found to be impracticable, the yearly appointment of a special nonofficial committee to examine and report upon the business affairs of the association. Some plan certainly should be provided by which the membership of the A. M. A. would be taken more intimately into the confidence of the official body. This would do much to allay the present natural unrest among the rank and file. Another reform the suggestion of which would have been popular with those who believe in conducting the association along purely democratic lines is the nomination of candidates for various high offices by petition. This, if adopted, would relieve the annual elections of their present "cut and dried" quality. It works well in the Chicago Medical Society, why not in the A. M. A.? This much may be said of the physician, viz., impractical though he may be in the every day affairs of life, he has deep down in his heart as much American pride of citizenship as has the average man. This being true, the majority of officially disinterested members of the A. M. A. must needs in self-respect and regard for their individual rights demand many reforms in the organization.

CHICAGO. G. FRANK LYDSTON, M.D.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

MEDICAL CANDIDATES AT THE GENERAL ELECTION—ULCERATION OF THE DUODENUM—A CENTENARIAN DOCTOR—LEGACIES—OBITUARY.

LONDON, January 14, 1910.

THE impending general election—the first polls take place to-morrow—has diverted attention from strictly medical questions to a remarkable extent. The professional journals are supposed to be quite neutral, but some of the writers manage to indicate their prepossessions. Medical questions have little influence on politics in ordinary times, so that on this occasion, which all parties declare to be big as to the fate of the country, nothing is to be expected from party politicians—promises, of course, excepted, which cost little and are usually of the pie-crust kind. Among the candidates for Parliament there are twenty-four qualified medical men, but only two or three are practising. Sir Robert Finlay, who has been Solicitor-General and Attorney-General, is M.D. of Edinburgh, but long ago forsook medicine for the law and attained the highest positions at the English bar. He is a candidate for his university, and claims the support of conservative doctors as having medical interests at heart, being himself a doctor of medicine, and his father and brother also members of the profession. In opposition to him on the other side of politics is Dr. A. R. Simpson, for thirty-five years professor of obstetrics in the University of Edinburgh and for five years dean of the medical faculty. The glamor of his uncle's name will probably secure him many medical votes from men who pay little attention to political subjects, while graduates of his own party are, of course, pushing his candidature. Sir G. Polland and Sir B. J. Price long ago gave up medicine for the law. Dr. Lunn, best known as the organizer of a tourist business, began his career as a medical missionary. Sir G. S. Robertson began in the Indian medical service, and was made a political officer on the wild Western frontier. Sir William Collins, the ophthalmic surgeon, has already served in Parliament. So has Sir W. Foster of Birmingham. Among other medical candidates are: Dr. C. Addison, F.R.C.S., lecturer on anatomy at Bart's; Dr. Moon, M.D. Oxon., F.R.C.P.; Dr. Permewan, the Liverpool laryngologist; Surgeon-Major Evatt.

Dr. Moon's candidature is of special interest to the profession, as so many doctors reside in the district, East Marylebone, which Lord Robert Cecil has had to abandon on account of his advocacy of free trade and his somewhat crooked conduct. Unable to force himself on the constituency, he has tried to cause a split in his own party. Dr. Moon expects to profit by this split in the other camp. Lord Robert Cecil persuaded Lord Charles Berresford to offer himself, but as soon as he saw how matters stood the bluff old admiral refused to go on. Now Lord Robert and a few other lords have got another person, a local tradesman, to carry on the split. These nobles are doing disservice to their order. One of them made a statement about the original candidate, who has demanded a retraction of the "malicious lie" on three occasions, but his lordship is silent about it. I am afraid if Dr. Moon gets in he will not have the influence he should have on professional matters, for it will be known he only crept in through a split in the opposite camp.

Harley Street is vexing itself on this and other points—most of all, perhaps, that Sir D. Powell has thrown himself actively into the campaign—not as a matter of principle, but only to please a personal friend.

Turning to clinical subjects, perhaps ulcer of the duodenum has been most talked about during the last few months, and on the 14th ult. it was discussed at a joint meeting of the two sections of medicine and surgery at the Royal Society of Medicine. Mr. Moyni-

han came from Liverpool to open the debate with the story of his great success by surgical measures and a statement of the views he holds. His cases up to November numbered 186, of which four were fatal. Hemorrhage had occurred in 35 per cent. In the early cases there were three examples of tetany from stenosis dilatation, and eleven were operated on for perforation. In the last five years 116 consecutive operations were performed without any death. Subsequent histories to date showed that only eighteen could be said not to have been cured. The operations included excision of the ulcer, resection of the affected portion of the duodenum, and gastroenterostomy. Mr. Moynihan's invariable practice now is to infold the ulcer, obliterating the lumen of the pylorus, and to unite the jejunum to the stomach without a loop. Considering the nature of the lesion, it seems only natural that a surgeon should plead for early operation, and this Mr. Moynihan does—a practice which tends to prevent complications, though he has not found them as common as might be expected. Nevertheless, hemorrhage may be an early sign, and so may copious and intractable vomiting. But the onset is more often marked by digestive disturbances, from two to four hours after food, increasing until the next meal, which seems to relieve it—hunger pain, as it has been called—distension of the stomach, loss of appetite (this by no means constant), and in some cases occasional vomiting. The pain is relieved by a dose of sodium bicarbonate; so it is by a little food—say a biscuit—or even a drink of water. Patients soon discover those things and that there is a certain periodicity in their attacks. Acidity is a pretty constant complaint, which may be due to hyperchlorhydria or may not. When it does, Mr. Moynihan considers it as a diagnostic symptom of duodenal ulcer. He admits that in a first, or even a second attack, medical treatment continued long enough may perhaps be successful, but chronic ulcer as a rule must be treated surgically. The picture of the disease he gives is, in fact, that of late indigestion occurring in distinct attacks, and he is emphatic on the certainty of diagnosis. On one occasion he said a man came into his consulting room with so characteristic a countenance that he felt sure he had an ulcer, and on asking him if he suffered from indigestion was answered "for years," and an accurate history was added which confirmed the first impression. It is not to be supposed he would rely on or encourage such an impression being called a diagnosis. Indeed one has seen just what he describes with all the symptoms in certain cases we can only call indigestion, and which, after many attacks, have completely recovered.

In the discussion that followed Sir Lauder Brunton said he had tried to cause ulcers in the stomach and bowels of animals by cutting off temporally the blood supply, but always without success. The time relation of food to onset indicated the duodenum as the point of the lesion, but gave no clue to its nature. Mixed carbonates of soda, lime, and magnesia would relieve, and if they did not he doubted the existence of an ulcer in the case. In some cases it was difficult to differentiate gallstones and duodenal ulcer. He advised rest in bed, warmth, and careful diet, and if recurrence followed surgery was called for.

Mr. Eve agreed with Mr. Moynihan that a second attack demanded operation. Gastroenterostomy was satisfactory if the pylorus were obliterated. If not, it was hardly a cure. The ulcers were often multiple, so excision was not an appropriate method; they were not easy to see, and too much stress was often laid on peritoneal changes as indicating their existence. Digital examination of the mucosa was the only certain means in some cases of being sure of the presence or absence of ulceration. Of thirty cases diagnosed by physicians of repute he had operated on twenty-one, and ulceration was not present in twelve. This experience seems to contrast distinctly with that of Mr. Moynihan, who says he has always succeeded in finding the ulcer and demonstrating it to his assistants. However, Mr. Eve admitted that the symptoms are fairly definite, but held that there are exceptions.

Dr. Hale White mentioned some statistics from which he thought there had been an increase of late years in cases of ulcer. He further referred to the difference between in-patients and others in regard to severity of symptoms and the stage at which seen. He said local tenderness and rigidity of the right rectus was rather a constant feature and might render the diagnosis from other lesions difficult.

Mr. Waterhouse referred to the differences between hospital or private practice. He found duodenal ulcers always palpable even if not visible. He had had cases in children. He found the ulcers multiple in 25 per cent., and therefore did not favor excision. He had sometimes found it difficult to decide between gastric and duodenal ulceration, and in such case he had often found both present. There was often occult blood in the stools when melena did not appear. He did not find hyperchlorhydria generally. He held gastroenterostomy to be the all-sufficient and only proper treatment and that every case after a second attack should be submitted to operation.

Yesterday at the meeting of the Council of the College of Surgeons the secretary made the interesting announcement that Dr. Edgar Jones, J.P., who became a member in 1834, had attained the age of one hundred years, was in excellent health for his age, and can read without glasses. Dr. Jones has been a magistrate for his county (Essex) above fifty years, and until the last year or so a regular attendant at the sittings of the bench. In his time he punted and played cricket. When over sixty he climbed Snowden, and when over eighty he played tennis. The president was requested to convey to him the congratulations of the Council.

Sir Alfred Jones left personal estate in England estimated at £446,750. After certain bequests and subject to a power to carry on any business of his for ten years, he gives all the residue of his estate upon trust for such charitable purposes and objects in England or any British possession on the West Coast of Africa as his trustees in their absolute discretion may think fit. For the guidance of his trustees he indicates some such purposes, mentioning specially original research of all kinds into the causes of disease on the West Coast of Africa.

The late Mr. Clutton's estate has been proved at £46,170. Subject to other legacies, he has left a contingent reversion to St. Thomas's Hospital Medical School.

Surgeon-General C. D. Madden died on the 5th inst. in his seventy-seventh year. He entered the army in 1854, served in the Crimean War in 1855, for which he received the medal and clasp, as well as the Turkish medal. He was next in the Indian mutiny with the light infantry. Throughout the Abyssinian campaign he was Surgeon to the Fourth King's Own, and was mentioned in dispatches. In 1896 he was made C.B., in 1897 received the Diamond Jubilee Medal, and in 1902 the Coronation Medal. He was also Honorary Surgeon to the King.

Dr. J. C. F. Naumann, who died at Wiesbaden, was educated in London and Lausanne. He took the double qualification of the colleges in 1887-1888, afterward the M.D., Brussels, and in 1908 the Membership of the London College of Physicians. He had been physician to the Italian Hospital in London, and was a chevalier of the Order of the Crown of Italy.

Lieutenant-Colonel and Honorable Brigade Surgeon-General Campbell Melliss Douglas, M.D., V.C., has also died. He was awarded V.C. for his conspicuous bravery, which saved the lives of seventeen officers and men in an expedition to the Little Omdurman Island.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

INSTITUTE FOR MEDICAL MISSIONARIES—ORGANIZATION OF CHARITY IN BERLIN—THE EFFECT OF TOBACCO SMOKE ON THE GASTRIC SECRETION—X-RAY EXAMINATION OF THE URINARY TRACT.

BERLIN, December 15, 1909.

THERE has recently been organized in Germany an institute for medical missionaries. It is an incontestable fact that there exists in the colonies a paucity of physicians. The physicians are needed, not only for the medical care of the Germans working there, but also for the general dissemination and promulgation of hygienic doctrines. This is most necessary among the natives, and among them the efforts bear the best fruit. In the institute the preparation of the physician is to be improved by special courses in tropical medicine. Research institution for tropical diseases and hygiene and a hospital are to be associated with the institute. These missionaries and missionary nurses will, as far as possible, be trained medically. The nurses will receive especial training in midwifery. The location of the institute is at Tubingen in Würtemberg, and the

Tubingen medical faculty has taken on the task of the teaching.

During the last few days there have appeared in the Berlin daily papers a series of articles which, with reason, strongly recommend a unification of the various charitable institutions for the care of the sick. The exciting cause of these has been a case in court. A poor, ill, working woman went to a charity physician with her seriously ill child. The physician recommended more sustaining food, and the mother, who was absolutely without means, forged a signature in order to obtain good milk and was sentenced for the crime. This attracted much attention, occurring just at the season of charity and celebration. The woman could assuredly have obtained enough milk had she gone to the proper place for it. There are in Berlin a series of institutions for the care of infants and sufferers from cancer, tuberculosis, and alcoholism, and a great number of charity regulations, but the general public knows nothing of them. The formation of a central office is a crying need, which will soon be realized. The idea is the formation in Berlin of a great organized bureau of information for all health matters.

In the Medical Society Skaller spoke of the occurrence and treatment of gastric hypersecretion among chronic smokers. He has carried out some experiments on dogs to study the very common and extreme gastric hyperacidity found in habitual smokers. He injected into the animals water through which tobacco smoke had been sucked and found that nausea and increase of gastric secretion followed. The latter occurred also when the former was absent. One must, therefore, recognize a lasting secretion brought about by a general intoxication of the organism. If the animals were inoculated with 0.002 gm. of nicotine, the same symptoms appeared as followed the smoke-saturated water. If the water was impregnated with nicotine-free cigar smoke, no toxic symptoms followed. If the secretory nerves were paralyzed with atropine and the nicotine injected, the hypersecretion did not occur. The common emaciation seen among smokers may be caused by the general intoxication as well as by the hypersecretion. Atropine is the best medicament in the treatment of this disease of smokers; in mild cases alkalis are sufficient. The rational therapy is to forbid smoking, at least the "wet" or "cold smokes" and smoking of the end of the stub.

In the Society of Internal Medicine a paper has been read upon the present status of *x*-ray examinations of the urinary apparatus for concretions. The author called attention to the difficulty in taking *x*-ray pictures of the kidneys. This was due to the fact that the atomic weight of the kidneys varied but little from that of the surrounding tissues. In spite of this it was often possible to demonstrate a kidney on the plate. The conditions are different in the case of kidney stones. Oxalate, urate, and uric acid stones are in increasing proportion easy to photograph. One must know, however, that it is easy to transilluminate the urates. In 1 per cent. of cases at operation a stone is found which cast no shadow. The author advised strongly that care be taken in interpreting indefinite shadows. In 2 per cent. of the cases at operation no stone is found, whereas the plate showed a suspicious shadow. During the last four years the author had prepared 1,774 radiographs of kidneys and ureters, of which 321 had shown suspicious shadows on the plates—143 times in the kidneys of males and 109 times in females—while stone in the ureter was shown 41 times in men and 28 times in women. Often the observer must underexpose his plate in order to bring out a stone easily transilluminated. By a series of lantern slides the author demonstrated the position, form, and number of the stones. Whereas, by the usual methods it is possible to examine but one kidney or ureter, by the author's method he is able to examine both ureters, both kidneys, and the bladder on a single plate 40x50 cm. In the diagnosis of ureter and kidney stones one must beware of the so-called "pelvic flakes." The author praised the value of the cystoscope, but believed that the *x*-ray gave a simple and easy method of determining the number and the size of cystic calculi. In conclusion he advised against depending entirely upon the *x*-rays and recommended the use also of all the common and well-known methods of examination.

The approximate cost of tuberculosis to the people of Chicago during the year 1908 was $23,635,000.

Progress of Medical Science.

Boston Medical and Surgical Journal, January 20, 1910.

The Strength of the Uterine Scar After Cesarean Section; An Experimental and Clinical Study.—N. R. Mason and J. T. Williams have performed a large amount of experimental work on this subject and reach the conclusions given below. An interesting portion of their work relates to 21 cases of rupture of the human uterus. Overdistention of the organ, weakening of the scar by subsequent implantation on it of the placenta, and its imperfect consolidation due to its location, suture of the placental site, infection of the uterine wound, improper suture material and imperfect methods of suture all conduce to the accident of weakening of the scar. The conclusions are as follows: a carefully sutured and well-united scar will withstand any strain which can be endured by the uterine muscle. Rupture of a cesarean scar is always secondary to unusual weakness of the scar dependent upon imperfect consolidation. The most frequent cause of imperfect consolidation is placing the deep stitches too far apart or not including the entire thickness of the uterine muscle. Location of the incision and suture of the placental site probably do not affect the strength of the scar. Infection in certain instances plays a very important part in causing weakness of the cicatrix. Catgut as a suture material is open to the objection that there is at least a possibility of the stitches becoming untied and certainly more cases of rupture have occurred after its use than after the use of silk. As a corollary to these conclusions it seems evident that given a uterus which has been sutured with care to include the entire thickness of the muscular portion of the wall in each stitch and to place the deep stitches close together throughout the entire length of the incision, using silk or linen, and where there has been no evidence of sepsis during convalescence, such a uterus may be subjected with safety to distention by a full-term pregnancy or even in the absence of mechanical indication for cesarean section to the strain of labor itself. A short bibliography of the subject closes the paper.

Post-Operative Pneumonia.—E. H. Risley compiles the statistics of the work done in the Massachusetts General Hospital, comprising for his purpose 1,000 laparotomies, including radical cures of hernia. Of the entire number 25 per cent. were done in the presence of pus; 162 were done for acute appendicitis, 153 for chronic appendicitis, 36 were on the stomach, 59 on the kidney, 51 intestinal, 59 were exploratory laparotomies, 200 were pelvic operations, and 226 were done for hernia. Long complications developed in 22. Of these 15 were cases of definite post-operative pneumonia. The author finds this complication most likely to develop in septic cases and in cases in which some trauma has been done, not to the air passages but to the peritoneum. This rather favors the theory that all post-operative lung complications are due to minute emboli rather than to irritation by ether and infection through the air passages. In clean cases the lung complication is not dangerous to life, though these cases seem as nearly liable to the pneumonia as do the septic ones. Previous pneumonic processes do not light up again after ether. Lung complications are more common during the winter months. Flare-ups in old tuberculous cases are fairly common. Much can be done in the way of prophylaxis. The author advises most thorough oral cleanliness, the use of the Trendelenburg position, morphine and atropine subcutaneously half an hour before the anesthetic is taken and the use of the Crile method of administration when practical and in all mouth cases. The causes of the pneumonia are summed up as follows: irritation of the air passages by ether, presence of sepsis, lowered resistance of the patient because of sepsis or shock of operation, trauma to tissues already septic and a foul condition of the mouth and teeth.

The Use of Formalized Cultures of Typhoid Bacilli for the Agglutination Test.—M. E. Morse says that in eight tests a majority showed a positive result with the formalized culture in higher dilutions than with the living. In the remainder there was no essential difference. She believes the formalized cultures to be just as reliable and their reaction a little more delicate. The advantages of the formalized preparations are obvious. Their use secures greater uniformity in method and also by employing the macroscopic method the practitioner who is far from a laboratory and not versed in its methods may perform his own agglutination reactions and thus give another element of precision to his own diagnosis of typhoid. Formalized cultures do away with the necessity of a

stock culture, incubator, etc. The macroscopic method, while requiring a little more serum and a little longer time, does away with the microscope and is much more accurate than the microscopic way. The same arguments apply to ships, army stations, etc. Inasmuch as formalized solutions are more agglutinable than living cultures, it would be of importance to determine their possible use in the precocious diagnosis of typhoid where the ordinary Widal test is negative.

New York Medical Journal, January 22, 1910.

A New Method of Treatment of Phagedenic Chancroid and Chancre by Means of Hot Air.—E. W. Ruggles has applied the hot air method to the treatment of the lesions named in his title and gives reports on a series of cases successfully treated. He believes that the good effects of the remedy are due not merely to the effects of the heat upon circulation and upon the removal of the inflammatory exudates, but also to a certain bactericidal or inhibitory effect upon pathogenic bacteria. He has devised a special oven for generating the hot air. It is portable, simple, and efficient. The air is used at a temperature of from 135° to 140°. Pain is promptly relieved, extension of the process is checked, and attempts at repair are quickly inaugurated. The author is convinced that a large part of the benefit derived is due to the active hyperemia produced by the long-continued heat. The effect upon the bacteria is not only merely inhibitory but bactericidal through the raising of the opsonic index. Full directions are given for the construction of the ovens. They may be heated by kerosene lamps or more safely by electric lamps. A diagram makes the author's ideas perfectly clear and by combining asbestos in the manufacture of the electric ovens the latter may be used with perfect safety.

Appendicitis from the Viewpoint of the Clinician.—M. H. Fussell's views are ascertained from the words of his concluding paragraph. He says, make an accurate diagnosis and operate at once. If a skilled surgeon cannot be obtained or the patient's physical condition will not warrant a diagnosis, put the patient in bed, give him opium, give him little or nothing to eat and put an icebag over the appendix. He regards the main symptoms as pain, local resistance, vomiting, tenderness, leucocytosis, and general abdominal distention. The pulse is usually rapid, and if also weak may be the result of a severe infection or merely result from a mental perturbation. Occasionally a diarrhea or dysentery may usher in the scene, and this fact should never be forgotten. Usually the bowel movements are torpid. Conditions simulating appendicitis are severe colic from acute indigestion, pneumonia, typhoid fever, renal colic, inflammation of the gall-bladder, gastric ulcer, and epididymitis. Illustrative cases are given illustrating difficulties in differential diagnosis. The time for an operation is as soon as a careful diagnosis has been made. The contraindications for an operation are the lack of a skilled surgeon, or some physical condition of the patient, which renders an operation unwise. Personally he has passed through all stages of thought as to operation for appendicitis, from believing that no patient should be operated upon except when there was reason to believe pus existed, to watching the temperature, pulse, blood, and tumor formation, to the radical one of immediate operation, given a proper surgeon and a fit subject. He thoroughly believes that at least three-fourths of the cases of appendicitis would recover if not operated upon, but he knows there are no symptoms that will tell when any case is approaching the danger line until it is extremely dangerous, either to interfere or wait.

The Fungus Diplodia as a Possible Factor in the Etiology of Pellagra.—H. S. Reed discusses the recent outbreak of pellagra in the Southern States and believes that some new organism has gradually invaded the crops of this region. He has made many analyses of the maize there grown and has suggested as the result of his findings that diplodia is the cause. Fungi belonging to this genus have been grown both parasitically and saprophytically upon maize and at present are known to occur over a large part of the maize-producing territory of the country, especially that part in which pellagra or pellagrous diseases have appeared. These fungi, which appear to have become widely distributed more or less simultaneously with the appearance of numerous cases of pellagra, seem on account of these facts fully as probable of significance in the etiology of this disease as those fungi which have for years been associated with mouldy maize. The maize upon which this organism has grown is altered both in physical and chemical composition. Meal infected with diplodia was found toxic to mice. The isolation of proteins soluble in alcohol from diplodia meal yields compounds differing from the same bodies isolated by the same means from sterile meal. The products obtained from diplodia meal appear to resemble in every way the pellagrozein isolated and described by Lombroso. The writer expresses his willingness to undertake the examination of suspected maize or maize products with reference to the finding of fungi in them.

Journal of the American Medical Association, January 22, 1910.

Vaccine Virus.—M. J. Rosenau describes the modern method of producing vaccine virus. The material is usually taken from the vesicles when fully developed, which may be somewhere between the fifth and eight day after the animal has been vaccinated. It should be taken only from typical unbroken vesicles, and is usually obtained by scraping with a curette. The vaccine pulp thus obtained may be purified with glycerin or other substances. Glycerin is best, and is mixed with the pulp in the proportion of from 40 to 50 per cent. This acts as a preservative and antiseptic for the ordinary bacteria. It is impossible to exclude some harmless bacteria from the virus. Strong antiseptic measures being impracticable, we must depend on cleanliness and asepsis in every stage of the production. The old-fashioned dry points are more liable to be contaminated, and the new federal regulation prohibits interstate traffic with them. Manufacturers have made an imitation of these dry points, which furnishes a very convenient method of vaccinating, by putting a drop of glycerinated virus on ivory or glass points hermetically sealed in paraffin or glass. These are safe and satisfactory. All vaccine virus is tested according to modern methods for virulent germs and these tests include animal inoculations. The tests must be satisfactory before the virus is placed on the market. Special tests are made to determine the absence of foot-and-mouth disease and tetanus spores. All establishments manufacturing vaccine virus for the interstate traffic must be under government supervision.

Frontal Sinusitis.—F. P. Calhoun reports a case of traumatic frontal sinusitis operated on by removing most of the external wall of the sinus and thorough curetting. The wound was packed with iodoform gauze and gradually healed in fourteen weeks' time. Two months later a long sinus was discovered discharging mucopurulent matter. At the suggestion of his colleague, Dr. C. R. Andrews, he injected bismuth paste made as follows: Bismuth subnitrate, 30 parts; paraffin (melting point 120), 10 parts; white wax, 10 parts; petrolatum, 50 parts. Two injections, four days apart, sufficed to produce a cure, and more than a year has now elapsed without discharge or other inconvenience. The cavity filled almost completely and the deformity is practically unnoticeable. He reports the case because of the apparent good effects of the bismuth paste in a condition which often resists treatment and is followed very frequently by deformity.

Inoperable Sarcoma.—L. Loeb says of the treatment of inoperable sarcoma by the streptococcus and prodigiosus toxins, that it is a vaccine treatment, and differs from certain other vaccines in not being a specific remedy. These two toxins have no etiologic relation whatever to sarcoma, for the cure of which they are employed. The basis of the method of treatment is in this case an empirical one; it was noticed that an attack of erysipelas in persons afflicted with cancer in a number of cases led to a retrogression of the growth, and even to a cure. Certain acute infectious diseases, however, may also cause a retrogression of cancer. Fehleisen, after his discovery of a streptococcus as the cause of erysipelas, made some inoculation experiments in cancer patients with some beneficial results, and other surgeons likewise reported cures. The living bacteria were employed, however, and sometimes proved dangerous. It was a step in advance, therefore, when Spronck recommended the use of the toxins instead of the living germs, and W. B. Coley only a year afterward began a systematic study of their use in the treatment of sarcoma. Since that time he has persistently continued in this line of work, and has improved it by adding the toxins of *B. prodigiosus* to the streptococcus toxins. Later it was found that the toxins did not have to be derived necessarily from the germs of erysipelas, and it is even likely that toxins of other bacteria may serve the same purpose. The toxins are injected in gradually increasing doses in a part of the body distant from the tumor, and later, if possible, into the tumor itself. Dr. Coley gives the following data of the treatment in sarcoma: "In 430 cases treated the tumor disappeared under the influence of the toxins in approximately 11 per cent. of the cases; 6.5 per cent. of the patients treated have remained without recurrence over three years after the cessation of treatment. In 3 out of

these 430 cases death followed, probably as a direct or indirect result of the treatment. According to Dr. Coley, in 13 cases of sarcoma of long bones, observed partly by himself and partly by other surgeons, the use of the toxins has rendered amputation of the limb unnecessary; in other cases, however, the toxin treatment was without effect. In a series of 22 cases in which the toxins were used after primary operation, 4 patients are now well after periods of from three to eight years, and 9 after periods of from one to three years; in 5 cases recurrence took place in spite of the toxin treatment; the remaining patients are still under treatment or the cases are very recent." Loeb has collected the statistics of the experience of a number of prominent surgeons, and concludes that the treatment of inoperable sarcoma by this method leads to a cure in approximately from 4 to 9 per cent. of cases, and some results obtained suggest that it may be useful as a postoperative procedure in diminishing the number of recurrences, and that in another certain number it might limit the need for amputation of the limb in cases of sarcoma of the long bones. The manner in which it acts cannot be definitely stated, but it is probable that the toxins and their reactions on the local and general syndrome often have an unfavorable effect on the life and growth of the sarcoma cells.

Splint for Fractured Ulna.—Penn-Gaskell Skillern reports a case of fracture of the ulna in the lower third of its shaft in which the inferior fragment was driven outward, encroaching on the interosseous space. Reduction by manipulation was evidently to be maintained by overabduction of the hand. The simplest way to secure this seemed to be to apply a Bond splint in reverse. A right-handed splint was used and the patient was instructed to grasp the semicylindric block with his hand. The shaft of the splint, being free, formed an acute angle with the radial border of the pronated forearm. The hand was secured to the block by adhesive strips applied so as to describe an ellipse between the posterior surface of the bases of the metacarpals and the under surface of the distal end of the splint. The acute angle between the shaft of the splint and the forearm was obliterated by pushing the splint toward the forearm until it paralleled the latter. This forced the hand over toward the radial side in overabduction, and the lower fragment of the ulna was therefore drawn away from the radius as far as the interosseous ligament permitted, and the fragments were perfectly coapted. He quotes from Gross's "Surgery" to show that the principle thus applied is an old one, but thinks it deserves present consideration.

Epidemic Spinal Disease in Nebraska.—G. P. Shidler gives an account of an epidemic of spinal disease recently prevalent in Nebraska which had been diagnosed as cerebrospinal meningitis and acute poliomyelitis, which were neither of them considered quarantinable. When the disease appeared to be highly contagious, however, these diagnoses had to be given up. The epidemic commenced about July 4, and seemed to spread from a Fourth of July celebration in Stromsberg, Neb., with excursions from surrounding towns and counties. Evidences of its contagiousness are given. The author has studied 60 cases, and gives the results. The period of incubation could not be determined in all cases, but in several it was 5 days and in several others from 11 to 13 days, probably depending on susceptibility, resistance, and virulence of the infecting organism. Of the patients, 25 per cent. were under 3 years of age, and 20 per cent. over 10 years. The latest cases occurring in the county are of a higher age throughout. Twenty-nine of the 60 were females and 31 males; 31 per cent. occurred as single cases in families having more than one child, and 44 per cent. in families in which there were two or more children, all of whom took the disease. Most of the patients had been in previous good health. In large families with poor hygiene and sanitation there seemed to be tendency for more cases to occur, but most of the cases were from clean, well-kept homes. Teething seemed to have no effect on acquiring the disease, but overwork seemed to predispose, especially in young men working in the hot sun. The onset was usually sudden, with moderate fever, loss of appetite, and disinclination to play, though in a very few cases restlessness at night and pain on movement were first symptoms noticed. In several of the cases there was no fever, and in only one a chill; 2, 3, and 4-day temperatures seemed to be the rule, falling in 24 hours by crisis. Constipation was the rule. The reflexes were generally sharp and exaggerated during fever. Under subjective symptoms, a basilar headache was most important and constant, often with pain in the back of the neck and general hyperesthesia of back and limbs. In the more severe cases perfect rigidity of the neck muscles was noticeable. The worst paralysis occurred in children from 8 to 12 years of age when the disease was not fatal. In 10 cases there was no paralysis, and 11 only incoordination. Paralysis of both legs was the most common form. Recovery was generally good in mild cases, but in the severe cases which were not fatal there was usually a slight improvement, followed by atrophy of certain groups of muscles, most frequently the deltoids, pectorals, quadratus femoris, and tibialis anticus muscles. The mortality was 11 per cent. in the 60 cases. The ratio was highest in the later occurring ones. As to the nature of the disorder, Shidler says there is nothing in the symptoms that could not occur in a simple meningitis caused by some unknown organism. In 9 cases out of the 60 and out of 14 in which lumbar puncture was performed, what appeared to be a Gram-positive coccus was obtained and in three a diplococcus, but never intracellular. The spinal fluid was clear as water in every case but one in which it was slightly turbid and showed the only polymorphonuclear leucocytosis. The clear spinal fluid, comparative rarity of cerebral symptoms, and relatively low death rate almost completely exclude in his opinion the diagnosis of cerebrospinal meningitis and therefore the possibility of good results from Flexner's serum. The chance of its occurring in connection with another disease, however, must not be overlooked. The mortality is too high for the poliomyelitis of the text-books but he asks if the simple meningitis and the poliomyelitis may not have a common cause, the symptoms of one sometimes predominating and sometimes those of the other. He asks: "Is it not natural to suppose that in most cases, on account of the blood supply and the proximity of the membranes to the cord substance, the two infections go hand in hand and that, while poliomyelitis may leave the predominating lesion usually, at any time it would be possible for the meningeal symptoms to appear uppermost?"

Lancet, January 15, 1910.

Septic Infection Consequent on Mastitis.—The patient of A. D. Pithie was a married woman who was delivered of an eight months child in June and made a fair recovery. The left breast ached from the time of confinement. An inflammatory lump formed in it and it was fomented. The symptoms ran on and early in October the lump suppurated and discharged. Then she had a rigor with sickness and faintness. When the author saw her early in October she was in great distress and manifestly septic. No pus pocket could be found. There was an intensely red rash upon the chest and neck. Quinine and strychnine were given but without avail. Then antistreptococcic serum was injected into the walls of the abdomen but the patient vomited. It was next given by rectum, and although the patient at first retched after each administration, tolerance was established. Finally she made a slow but perfect recovery. The points of interest in the case are the evident absorption of septic material from a mastitis without any evident collection of pus; the prompt and satisfactory action of the serum after quinine had been given without good effect; the recurrence of the symptoms a few days after the serum had been stopped, and the controlling effect of the serum when again resorted to. This leads the author to think that in similar cases it would be well to continue the administration of the serum for some time after all symptoms had subsided if even in smaller and less frequent doses.

Displacement of the Semilunar Cartilages.—K. H. Digby gives a general description of these structures and illustrates his paper with several diagrams. Regarding the causes of this injury he makes the following observations, basing his views on 100 consecutive cases operated on at Guy's Hospital. A slip or twist while running, walking, or dancing may cause it. The wrench at the knee, especially in recurrent cases, may be trivial. Catching of the inner side of the forepart of the foot against some obstruction or catching the foot in a hole or between two planks may act similarly; turning suddenly on one leg, sudden or short falls on one leg, being tripped up, attempting to rise after squatting some time upon the toes, turning over in bed, one foot being caught by the bed clothes, climbing a ladder or going up stairs, kicking at a football with the inside of the forepart of the foot, catching the foot in some moving structure, the result of direct violence, all these conditions have been the cause of the accidents which have come under his personal observation. Conservative treatment may sometimes result in benefit. The cartilage if displaced is reduced by manipulation. If all rotary movements are restrained adhesions will form. Apparatus should be worn which admits of flexion and

extension but prevents rotation. The usual lesion in all these cases is excessive outward rotation of the tibia beneath the interarticular cartilages producing a laceration of the capsular attachments of the forepart of the internal semilunar cartilages. The ligamentum patellæ is often relaxed and thus the tension on the lacerated capsule is relaxed. The relaxed condition may result from repeated effusions into the joint. Strong outward rotation of the tibia gives rise to pain over the peripheral attachment of the internal semilunar cartilage. Strong inward rotation is painless.

Fatal Phosphorus Poisoning with Unusual Subcutaneous Hemorrhages.—R. G. Hann and R. A. Veale report the case of a girl, unmarried, who, on account of pregnancy, took a dram of rat poison containing about 4 per cent. of phosphorus. She vomited, but continued about until the third day, when one foot began to swell and she began to vomit blood. A profuse uterine hemorrhage appeared. She had severe abdominal burning pain unrelieved by large quantities of water. She came under observation on the fourth day. Below the waist line more than half the skin area was the seat of enormous subcutaneous hemorrhages. The remaining skin was normal. There was no jaundice. She died that same night. Autopsy showed blood-stained serum in the pleural cavities, much hemorrhage in the mediastinal tissues, extensive retroperitoneal hemorrhages especially about the left kidney, and also in the omentum and mesentery. The heart and lungs were normal. The liver was enlarged and of a bright canary yellow color. There were hemorrhages into the wall of the gall-bladder. The kidneys were of normal size but of a pale yellow color. The stomach mucosa appeared normal, but the organ was full of dark colored fluid. Marked fatty degeneration was present. The author says that in at least 80 per cent. of these cases jaundice is present. As is usual, the primary symptoms of gastrointestinal irritation were marked off from the secondary symptoms of toxic poisoning due to hepatic failure, by a period of comparative comfort on the beginning of the third day, but the thirst was intense throughout. Such extensive subcutaneous hemorrhages as this case presents were unlike those seen in any case of purpura and, as far as he knows, have never been recorded in any previous case of phosphorus poisoning.

Infective Endocarditis as a Complication of Pregnancy.—Two cases are reported by E. E. Norton. Both resulted fatally. In the second case the fatal issue was doubtless hastened by uremic conditions following on widespread changes in the kidney. Both followed on miscarriage in single women and the endocarditis was presumably due to infection and death of the fetus *in utero*. Death had probably no relation whatever to any attempts which had been made to terminate the pregnancies. The cases were of the fulminating type, though in one case there was some cardiac hypertrophy. In one case the cardiac condition was not diagnosed. In the second case it was suspected on account of the petechial eruption. Infective endocarditis is apparently of extreme rarity as a complication of pregnancy. One author did not find pregnancy in 150 cases of infective endocarditis collected by him. Each of the two cases reported occurred in young unmarried women on whom attempts at abortion had been made. In each there followed a sudden attack of severe illness, miscarriage occurred, and death followed rapidly upon a profound toxemia. The symptoms bore the strongest resemblance to those which might have been produced by septic complications following upon abortion criminally produced by the use of instruments. The heart in one case showed on both mitral cusps an irregular row of rough vegetations. There was no peritonitis. In the other there was a large mass of rough vegetation on one mitral cusp and also on each aortic cusp there was a row of warty vegetations of considerable size to one of which a large clot adhered. Peritonitis was also here wanting. In neither were there any signs in the uterus of instrumental interference. Several similar cases are referred to by the author.

The British Medical Journal, January 15, 1910.

Some Points in the Treatment of Nerve Injuries.—J. Sherren calls attention to the importance of the following points: (1) Fine catgut should be used to unite the ends of the nerves, plain if there is no tension, lightly chromicized in cases in which any tension falls on the junction. Nonabsorbable material, silk, linen, thread, or celluloid thread, should be avoided. They give rise to symptoms in many cases months after their employment when recovery is well advanced, causing relapse and seriously interfering with complete recovery. (2) In all cases in which a nerve has been wounded it should be protected from forming adhesions to surrounding structures by wrapping in Cargile membrane. When tendons have been divided they should be treated in a similar way. Failure to protect the nerve is responsible for imperfect recovery in a certain number of cases and often necessitates a second operation even when the nerve was not completely divided. (3) After wounds in the region of the wrist the deep fascia should always be carefully sutured. If this is not done the tendons may become adherent to the skin, interfering considerably with their mobility and in many cases when the wound has been extensive a hernia of tendon forms which is a source of weakness until remedied by operation. Operation is, however, only the first step toward recovery. Paralyzed muscles must be kept in good tone and for a while relaxed by proper apparatus. Failure to attend to these points is responsible for many incomplete recoveries. It is rare to have nerve involvement after major amputations, for it is now a recognized step in these operations to pull down and cut short the nerve trunks. This is often neglected in amputations of the fingers, but it is a matter of the greatest importance.

On the Orifices of the Body.—P. Daniel discusses this subject with special reference to the latency of disease and overlooked infections. He says that in many cases of illness no satisfactory or sufficient cause is found or that some simple explanation is forthcoming and that in the vast majority of cases this is an infection of some one or more of the cavities of the body. Invariably some one of the mucous surfaces is at fault. The most important ones are the mouth and nose, urethra and vulva. The bacteria chiefly concerned are the cocci, and they may be broadly specific, setting up directly septic processes, may break down the resistance of the body so that other pathogenic bacteria are enabled to invade successfully the other structures or they may co-operate with and increase the destruction and toxemia due to other bacteria. An enormous number of the diseases which make themselves manifest in adolescence begin in infancy. Some of the graver diseases are congenital. Repeated small infections and intoxications ultimately give rise to violent disorders often culminating in violent septicopyemia. A large number of symptoms are set up in various parts of the body which are considered separate disease entities, but are really merely secondary to the frequent and long-continued infections. Orificial disease is universal among the poorer classes and exceedingly frequent in the higher classes if we look for it properly. Oral sepsis is an actual potent factor in the causation of every day disease. The author found only 10 cases in 5,000 patients who had absolutely healthy mouths at the time of examination. Many patients daily swallow pus in quantities varying from a few minims to half an ounce. Such a continual infection is responsible, according to the author, for such maladies as goiter, neuritis, arthritis, so-called heart disease, general ill health, and hysteria. Many cases of hepatic cirrhosis, erroneously ascribed to alcohol, are really due to sepsis. So also may be such diseases as insanity, uremia, Charcot's joint lesions, tabetic crises, laryngismus stridulus, etc. In all these lesions some orifice of the body is very frequently at fault. Particularly does the genitourinary tract furnish evidence of this. The author says that from the standpoint of prognosis in other diseases and from the post-operative standpoint the presence or absence of an infected genitourinary or a gastrointestinal orifice is of incalculable importance and yet he constantly sees patients suffering from phthisis or chronic pulmonary lesions in whom there are septic tonsils, stumps, purulent gingivitis, submaxillary calculi, otitis media, etc., which have been entirely overlooked and ignored in the battle against the tubercle bacilli. The main teaching of the author's suggestive paper is to make a thorough examination of all the orificial cavities of the body in our search for the ultimate cause of disease.

Causation of Angina Pectoris.—Byron Bramwell notes that in the great majority of cases of angina pectoris, the pain radiates down the left arm, sometimes down both arms, and very rarely down the right alone. He believes that in most cases the sequence of events is as follows: First. A sudden strain is thrown on the left ventricle due to exercise or a sudden increase of the peripheral resistance. It may be merely relative to the weakened ventricle. In some instances in which the cardiac nerves or muscles are diseased the attack arises independently of any sudden exertion. Under such conditions a strain on the ventricle which under ordinary circumstances would not be attended with cardiac pain would be sufficient to produce the condition. Second. In consequence of this strain those of the left ventricle fibers which are degenerated either as a re-

sult of deficient blood supply or of degenerative changes in the cardiac muscle irritation of the cardiac sensory nerves is produced. The exact cause of the irritation of these nerves is not clear and this seems to the author to be the point in angina pectoris which needs to be cleared up. It may be spasmodic contraction of some of the fibers or perhaps increased tension in the cavity of the ventricle. Third. Irritation of the cardiac sensory (afferent) nerves in the wall of the left ventricle is reflected by the sympathetic branches of the cardiac plexus distributed to the left ventricle and the spinal cord in the form of pain to the periphery. This explanation is in accord with the following clinical facts: First. That the exciting causes of angina are increased muscular action and conditions which produce increased pressure in the peripheral arterial circulation, second, that in many cases the paroxysm is at once relieved by rest and by remedies which rapidly reduce arterial tension and so take off the strain from the left ventricle and, third, that in some cases of angina pectoris the attacks of angina disappear with the development of mitral regurgitation. In addition the author believes that in those instances in which both arms or the right alone is affected the cause of the pain whatever the exact lesion may be is referable to involvment of the root of the aorta or of the aortic arch. Another explanation of the pain in the right arm is to suppose that the nerve terminations in the wall of the right ventricle have become irritated. The most constant pathological change found in fatal cases is atheroma of the coronary arteries. As a result of muscular effort the blood supply may be suddenly diminished and the attack consequently occurs. We have alluded only to some of the interesting points brought out in this able paper.

Berliner klinische Wochenschrift, January 3, 1910.

The Physiological Loss of Weight in the New Born.—Hirsch has made a careful study of the loss of weight in a series of infants during the first few days of life, and has compared these figures with the weight of the meconium passed during the same period. From these researches he concludes that the so-called loss of weight of the new-born is only apparent, and is almost entirely accounted for by the amount of meconium passed. The primary weight expresses the weight of the child plus the meconium; the minimum weight represents the net weight of the infant. There is but a very slight actual loss of weight, namely, from 10 to 20 grams, during the first few days, due to destruction of albumen and loss of water through the skin. With proper nourishment the birth weight should be regained on the eighth day.

Münchener medizinische Wochenschrift, December 21, 1909, and January 4, 1910.

Artificial Formation of a Vagina by Means of a Loop of Intestine.—Mueller reports the case of a young unmarried woman, aged 21, who came under treatment for amenorrhea. The breasts and external genitalia were found to be quite normal and well developed. The urethral orifice was much enlarged and in the form of a slit. Between this and the frenulum, in the place of a vagina, was a flat scarlike patch the size of a 25-cent piece. Examination with the little finger in the bladder and the index finger in the rectum failed to demonstrate a trace of any organ between the rectum and bladder. The patient had never menstruated. Considering the difficulty in obtaining satisfactory results with the usual plastic operations on the vagina, the author attempted the procedure recommended by Mori in 1907, of implanting in the site of the vagina a loop of small intestine. Under chloroform and ether anesthesia, an incision 4 cm. long was made in the middle line between the urethra and frenulum. The rectum and urethra were carefully separated. The ease of this suggested that one was working in a preformed split. After provisional packing of the wound, which was one finger length deep and admitted two fingers, laparotomy was performed. The pelvis was found to contain only the rectum and the bladder. On the right side, at the level of the pelvic inlet, on the innominate line, appeared a small, red body the size of a small hazel-nut, which was recognized as a rudimentary uterus. From the right cornu of this was a thin, round ligament. The ovaries were found to be two string-like bodies, 6 to 8 cm. in length, and the size of a lead pencil. The left contained a fresh corpus luteum. A loop of small intestine, 30 cm. from the cecum, was now taken, and a portion of this, 14 cm. long, resected. The gut was then united by end-to-end anastomosis. The resected loop was kept in gauze. After the anastomosis the upper end of the resected loop was closed with three layers of stitches. The gauze was removed from the perineal wound, and a forceps inserted and forced through the peritoneum, the opening being widened with the clamp. The piece of intestine was inserted through the wound so that the mesentery border lay anteriorly. The lower end of the gut was stretched to the vulvar wound. The upper end showed behind the bladder. The abdomen was closed, and the new vagina packed with gauze. Recovery was uneventful, and six months later the new-formed "vagina" was smooth and easily patent for an examining finger. The author discusses the moral aspect of the justification of the operation.

Positive Wassermann Reaction in Acute Lupus Erythematosus.—Hauck says that after an examination of 15,000 cases by the Wassermann reaction it may be said that it is to a high degree specific for syphilis. Positive reactions have, however, also been obtained in yaws, trypanosomiasis, leprosy, scarlet fever, and malaria. Recently Reinhart reported a case of acute lupus erythematosus with no history of syphilis which gave a positive reaction. The author reports a similar case in which on two occasions during the disease marked positive hemolytic tests were given. The patient was treated with quinine and recovered from the disease. After recovery the Wassermann reaction was negative. In a case of chronic lupus erythematosus the reaction was negative.

The Quinine Treatment of Pemphigus.—Bergrath says that previously no satisfactory method of treating pemphigus has been known. Spiegler says that nothing should be done; Hutchison advised arsenic; Neisser, strychnine; and Mosler, quinine and atropine. The present author has used large doses of quinine in two cases of severe pemphigus. In the first case, a girl of 21, with pemphigus beginning on the conjunctiva and covering the entire body, an improvement appeared three days after the beginning of the treatment with quinine. The quinine was begun in doses of 7 grains three times a day. At the end of two weeks the general improvement was so great that the patient was allowed to get up and go out in the garden. The dose was then increased to four times a day, without symptoms of quinine intoxication. In six weeks she was discharged cured. The second case was a woman of 48, also suffering from typical pemphigus vagitans. After she had steadily grown worse under arsenic and strychnine treatment, quinine was begun, with 4 grains four times a day. This was increased to 30 grains daily. Whereas during the first three days of this treatment new bullæ appeared, after that they ceased entirely. The patient gained weight. The eruption disappeared. The signs of gastrointestinal involvement cleared up so that the patient again ate solid food, and she was sent home after 2½ months quite well, except for scars of the old bullæ. Though the author does not care to pronounce the cases as permanently cured after this brief period of observation, he says that the improvement was so striking that quinine should be tried in every case of pemphigus. It is not impossible that by a prolonged intermittent quinine cure, finally the pemphigus process may be completely stamped out.

Runner's Cramp.—Schmidt reports the case of a young athlete who had run from one to one and a half miles daily for four years. Two weeks before admission to the hospital he had severe cramps in his calves. This disappeared when resting, but recurred as soon as he tried to run. There was marked hyperextension of all toes. Rest in bed relieved symptoms in two days, but every attempt to run brought them on again.—*U. S. Naval Medical Bulletin.*

The Toxic Power of Blood Serum.—A. Gasbarrini gives the results of his experiments by the injection of blood serum of various animals into the rabbit. Large amounts of the serum were injected endovenously and subcutaneously, serum of the ass and ox being used. The serum was sterilized and kept at a temperature equal to that of the animal receiving the injection. The serum of the ox has a poisonous effect on the rabbit, causing death in a few minutes with generalized flaccid paralysis. The temperature of 55° destroyed the toxicity of the serum, which could then be injected with impunity into the rabbit. The resistance of the animal could be increased by injections of small doses of fresh serum, by immunizing the animal by doses of serum heated to 55°, or by injecting into the venous system, a few minutes previously, a certain dose of boiled serum. Fresh serum of rabbits immunized by serum of asses or oxen heated to 55°, and used in small amounts had a protective action against otherwise mortal doses of serum of the ox.—*La Riforma Medica.*

Book Reviews.

Leitbuch der specifischen Diagnostik und Therapie der Tuberculose. Für Arzte und Studierende. Von Dr. Bandelier und Dr. Roepke. Dritte Erweiterte und Verbesserte Auflage. Mit einem Vorwort von Wirk. Geh. Rat. Prof. Dr. R. Koch, Exzellenz. Mit 19 Temperaturkurven auf 5 lithographischen Tafeln, 1 Farb. lith. Tafel, und 4 Testabbildungen. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1909

The third edition of this treatise on the specific diagnosis and treatment of tuberculosis quickly follows the second issue. The present edition contains some introductory words from Robert Koch. Otherwise it is little changed from the previous editions, except that the latest judgments of the value of the cutaneous and conjunctival tuberculin tests are considered. The book contains everything necessary for understanding and carrying out the principles of diagnosing and treating tuberculosis with the specific remedy tuberculin. It is the most complete volume dealing with the subject that we have seen.

Klinische und Experimentelle Studien zur Pathologie und Therapie der Tuberculose im Kindesalter. Von Dr. Bauer und Dr. Engel. Mit 11 tafeln und 4 Abbildungen im text. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1909.

This pamphlet consists of two exhaustive studies of tuberculosis of children that have appeared in the "Beiträge zur Klinik der Tuberculose" during the present year. Dr. Engel's study concerns itself with the reaction of the child's organism to tuberculin. Dr. Bauer writes of the phenomena of immunity in tuberculosis. Both articles present a great number of facts derived from the observation of actual cases of the disease. While appealing especially to the scientific students of tuberculosis, they may be read with profit by the general practitioner and by the pediatrist.

The Malarial Fevers, Hemoglobinuric Fever, and the Blood Protozoa of Man. By Charles F. Craig, M.D.; Captain, Medical Corps, U. S. Army; late Pathologist and Bacteriologist to the Sternberg U. S. Army General Hospital, Chickamauga Park, Ga.; the Josiah Simpson General Hospital, Fortress Monroe, Va.; the Camp Columbia Hospital, Havana, Cuba; the U. S. Army General Hospital, Presidio of San Francisco, Cal.; the Division Hospital, Manila, P. I., etc. Illustrated by four colored plates, twenty-five clinical charts, and 28 photomicrographs and drawings. New York: William Wood & Company, 1909.

While the number of supposably exhaustive monographs on the subject of malaria is very considerable, none of the volumes that has as yet appeared can compare at all either in authoritativeness or completeness with the present work. Captain Craig is universally recognized as one of the world's foremost students of the malarial infections, and the many years he has devoted to their investigation under conditions unusually favorable for research give a weight to his views that almost forces their acceptance, even when they are at variance with those of some of the other observers in this field. It is therefore of great interest to note with what decision he takes a stand in regard to certain mooted points, and undoubtedly the expression of his convictions will do much to modify the general opinion concerning them. For example, he is very emphatic in asserting that two distinct types of estivoautumnal parasites occur, *Plasmodium falciparum* and *Plasmodium falciparum quotidianum*, giving rise to infections clinically distinguishable by their temperature curves, unless the picture has been obscured by the administration of quinine. He is equally positive in removing black-water fever entirely from the category of the malarial infections, and presents evidence clearly demonstrating that the disease must be due to some cause other than the malarial plasmodium, and also that quinine is not the etiological factor, as has often been alleged. It is a pleasure to read the chapter on coincident typhoid and malarial infections, in which the author urges the abandonment of the term "typhomalarial fever," that convenient diagnostic ragbag so often resorted to as an excuse for careless or insufficient observation, not infrequently to the great detriment of the patient. While coincident typhoid and malarial infections do sometimes occur, this is very rarely the case, and their number is insignificant. Craig goes so far as to state there is good reason for believing that there is even a certain amount of incompatability between the two infections, "for it is frequently observed that when typhoid develops in a patient suffering from malarial fever, the malarial symptoms disappear, as well as the plasmodia from the peripheral blood, and only reappear during convalescence from the typhoid." Naturally he lays the greatest possible stress on the importance of the examination of blood preparations, preferably stained and by Wright's method, in all cases in which there is a possibility of the existence of malaria, and doubts the statement sometimes made that cases of malarial fever may occur in which it is impossible to demonstrate the parasite. Space forbids the detailed discussion of the book that its importance deserves, every page bears the impress of careful, thoughtful, original work, and it should certainly be studied by every practitioner of medicine. The addition of the chapters on the other blood protozoa usefully complete the volume, and though the filarial infections do not, of course, strictly speaking, fall under this head it might be suggested that a brief discussion of their manifestations in the blood could advantageously be included in a future edition. The book is beautifully printed and illustrated, and will without doubt prove to be one of the most important publications of the year.

Diathesis and Ocular Diseases. By A. Maitland Ramsay, M.D.; Fellow of Faculty of Physicians and Surgeons, Glasgow; Ophthalmic Surgeon, Glasgow Royal Infirmary; Lecturer on Eye Diseases, Queen Margaret College, University of Glasgow; Author of "Atlas of External Diseases of the Eye," "Eye Injuries and Their Treatment," etc. New York: William Wood & Company, 1909.

This book is one of 184 pages, with 27 illustrations in the text and on plates. The volume contains the postgraduate lectures delivered at the Glasgow Ophthalmic Institution in September, 1908. Chapter I is introductory. Diathesis is defined as "a bodily condition predisposing to a particular disease." Then follow chapters on "The Neurotic Diathesis," "The Scrofulous Diathesis," and "The Arthritic Diathesis." The relation of these diatheses to diseases of the eye is considered in various chapters in logical sequence, and the treatment of the affections described is quite fully entered into. The general condition of the body and its influence on the eye is a subject of no mean proportions, meriting careful study. The author of this work has presented the matter in an attractive manner, and has produced a volume that is well worth the attention of ophthalmologists.

Blindheit und Blindenwesen. Von Augenarzt Dr. med. Hübner, in Cassel. Halle a. S.: Carl Marhold Verlagsbuchhandlung, 1909.

This monograph is devoted to a consideration of what constitutes blindness in an absolute and economic sense, an inquiry into the causes of blindness, a consideration of the measures best adapted for prophylaxis, and, finally, the measures employed in improving the mental condition of the blind by the various means of education, principally through the senses of touch and hearing. The author has devoted much time to the study of the subject, and has presented it in a most interesting and instructive manner.

Clinical Manual for the Study of Diseases of the Throat. By James Walker Downie, M.B., F.R.C.S., Lecturer on Diseases of the Throat and Nose, University of Glasgow, etc. Second Edition, revised and in large measure rewritten. Glasgow: James Maclehose & Sons; New York: The Macmillan Co., 1909.

This is a second edition in name only, for its predecessor has been remodeled, nearly wholly rewritten, and brought up-to-date. The subject matter has been subdivided under a sufficient number of suitable headings in order to facilitate references, while several new and original illustrations and some new colored plates have been added. Short notes of several interesting cases are given. The author is well known as an accurate clinician, and is a teacher of experience. His style is simple, and he has crowded much information into his pages. His work bears throughout the impress of practicability.

Dose-Book and Manual of Prescription-Writing. With a List of the Official Drugs and Preparations, and Many of the Newer Remedies, with Their Doses. By E. Q. Thornton, M.D., Ph.G., Assistant Professor of Materia Medica, Jefferson Medical College of Philadelphia. Fourth edition, revised and enlarged, and adapted to the eighth revision (1905) of the United States Pharmacopœia. Philadelphia and London: W. B. Saunders Company, 1909.

In the present revision the author has enlarged the sections dealing with solvents and incompatibilities, and has rewritten the table of solubilities. The volume should prove useful to beginners in prescription writing, as it contains in clear and concise form the essentials of that subject, together with the composition, strength, and dosage of all official preparations. But it is a pity that in a fourth edition so many errors in Latin should be allowed to remain to disfigure an otherwise valuable book.

Society Reports

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

104th Annual Meeting, Held at Albany, January 24, 25, and 26, 1910.

THE PRESIDENT, DR. CHARLES G. STOCKTON OF BUFFALO, IN THE CHAIR.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page 211.*)

Wednesday, January 26—Third Day.

The Relationship Between the State Board of Regents and Training Schools.—Dr. JOSEPH MERZBACH of Brooklyn gave a brief history of training schools for nurses, their former requirements and the present requirement for entrance. He outlined the present-day course of instruction. The number of training schools for nurses in this country was about 1,500; the necessity for such a large number was brought about by reason of the increased number of hospitals. He offered suggestions for improving the present methods of instructing, examining, and registering nurses.

Some Unsolved Problems in Relation to Nurses' Training Schools.—Dr. CHARLES STOVER of Amsterdam told of the evolution of the nurses' training schools, the control of the State Board of Regents and its deference to the New York State Nurses' Association. There were 500 pupils in attendance at schools in this State, and the expense of their education was enormous. Dr. Stover called attention to the indifference to this subject by medical and hospital authorities and the public that financed the schools, but which got in return but one-tenth of its nursing. He planned for some future expression of medical opinion.

Mr. DOWNING of the State Educational Department said he had studied the question of nurse training for over a year since he had assumed official duties in the State Educational Department, and the problems that were involved. He said he was in sympathy with the frame of mind of those who had spoken, and he thought the time was ripe when there should have been provision made by statute for a class of nurses to be known as domestic or practical nurses. An attempt should be made to give the poorer classes a body of attendants competent to perform the ordinary duties required in the care of these patients and at a price the people in ordinary circumstances could afford to pay.

Test Meal and Feces Examinations; Some New Methods and Their Clinical Value.—Dr. ANTHONY BASSLER of New York said that test meal analyses of the usual kinds gave negative findings in the great majority of cases of gastric cancer and latent ulcer, and the usual dietetic tests observed from feces examinations often lead one astray, and that in states of chronic intestinal putrefactions the examinations of the feces were most difficult laboratory matters. Therefore, he believed that any additional tests by means of which the scope of diagnosis of gastrointestinal affections were increased were worthy of consideration. His methods consisted of the examination of test meals and feces by means of the bacteria contained in them. A special form of fermentation tube was shown in which the resulting gases were observed in per cents., the bacteriological examinations made, indol and uroresine observed, the various gases analyzed, and the reactions noted. From the normal stomach a test meal in which the hydrochloric acid had been neutralized in advance showed practically no gas result, and the same was true of the primary and secondary neurotic and nutritional conditions of the organ. In latent ulcer and beginning cancer (because of the ulceration present) the bacterial content was higher than normal and gas result might be seen. The same was true of those conditions in which the hydrochloric acid in the stomach was chronically low. In benign stenosis of the pyloris sulphurated hydrogen in the test meal might be most valuable for differential diagnosis.

In his opinion, conditions of digestion in the intestines were more responsible for stomach distress than were the primary stomach conditions. Krehl and Cohnheim had shown that in dogs, injections into the intestines influenced gastric functions most markedly and clinical work strongly suggested that this was also true in the human being. He believed that indicanuric conditions could cause either a depression or aggravation of the stomach secretions in different persons. The main anaërobes in chronic putrefactive conditions of the intestines were *B. coli communis, B. aerogenes capsulatus* and the Gram positive diplococci, and all of these were easily cultivated by his methods and were readily distinguished in the examinations. In regard to the saccharo-butyric and the combined types of chronic intestinal putrefaction of high degrees he drew attention to the various stomach conditions of sensation, secretion, and motility that accompanied these cases. In them a starch and fat intolerance might exist from which there resulted a subnutrition and lack of resistance against acute infectious diseases, particularly of the catarrhal forms that attacked the upper respiratory tract. The indolic type was responsible for many of the intractable cases of neurasthenia, physical and mental debility, headaches, gastric and intestinal atony, prolapse of the abdominal viscera, chronic anemia, and more or less steady and progressive invalidism.

The Importance of Care in Closing the Abdominal Wound.—Dr. LEROY BROUN of New York read this paper. He said it was of interest to note the wide range of difference in technique in closing abdominal wounds; the majority of men, however, were in the habit of using some form of layer suture. Many reinforced the sutured layers by a few nonabsorbable through and through sutures extending either through all of the layers, including the peritoneum, or down to the peritoneum but not including it. His interest in this subject was aroused by an occurrence in his private practice. An abdominal section was made and the wound was closed by bringing the edges of the peritoneum together with a continuous suture of No. 1 catgut. Two or three safety sutures of silkworm gut, including the skin and fascia, were introduced and tied after the skin was closed. The skin was coapted with a continuous suture of black silk. On the morning of the twelfth day after the operation, the wound appeared to be in excellent condition. That evening he was summoned with the statement that the patient was in collapse after a fit of coughing. On lifting the dressings, loops of small intestines were seen protruding from the separated wound. The wound had opened for its entire length. Inspection of the edges did not show any necrosis. The layers could not be clearly differentiated, and the location of the fascia was, however, plainly marked by broken loops of chromic gut. This occurrence, while the first of its kind in his individual work, was by no means confined to a few cases. Madelung collected 137 cases of rupture of the abdominal wound with escape of intestines. Ries reported three cases of his own. The explanation of the rupture of the wound was simple, namely, the pressure from within suddenly applied as resulting from sneezing, coughing, vomiting, or straining at stool; and secondly, a defective or too quickly absorbed suture. Under an exciting cause rupture took place in the large majority of the reported cases at the time when the sutures had lost their supporting powers by being dissolved or otherwise, or having been removed if of nonabsorbable character. In general the complete separation of the wound

must commence first, by the separation in part of the deeper layers, as a result either of the snapping of the retaining sutures as advanced by Ries, or by their absorption, or cutting through, or a possible untying of the knots. The separation once commenced was completed by the pushing up of the intestines. At a later time, as advanced by Ries, whether within a few hours or days, the skin union separated permitting the escape of the coils of intestines. This was generally coincident with the removal of the skin sutures. In suturing the abdominal wound Dr. Broun's custom was to bring the peritoneum together with a running suture of No. 1 plain gut. The muscle was coapted with a few sutures of interrupted No. 2 plain gut. He closed the fascia with No. 2 or 3 chromic gut interrupted about every one and a quarter inches. The skin was brought together with a running suture of silk. Under certain circumstances lapping the fascia added to the security of the wound. A firm supporting dressing was then applied. The adhesive strips were not removed for two weeks after the operation, but were tightly laced after each subsequent dressing.

Dr. Whitbeck of Rochester said it was very important that the safety sutures should not be drawn too tight.

Dr. Walter B. Chase of Brooklyn said that when the incision was not in the median line of the abdomen, cases in which hernia was more likely to occur than when a median incision was made, added security was given by overlapping the layers, and especially the transversalis fascia.

The Chauffeur's Fracture.—Dr. William S. Thomas of New York described the mode of production of this fracture, a subvariety of a Colles' fracture. A detachment of the styloid process of the ulna was noted in seven of his skigrams. Severe silver-forked deformity was not found. The mechanism of the injury seemed to be one of avulsion. The chauffeur's fracture was a badge of carelessness. Immobilization of the wrist and rest was all that was required in the majority of the cases. The patient usually was able to return to work within three weeks.

Shall All Fibroid Tumors of the Uterus Be Removed with the Knife?—Dr. Frank DeWitt Reese of Cortland read this paper, which was based upon his experience with eighty-two cases that occurred in his private practice. Uterine fibroids were found at all ages. He was convinced that the malignant troubles associated with so-called fibroids were really adenomyomata or some other mixed tumor. The causes were not known. Among the eighty-two cases, seventy-seven suffered from pain at the first menstrual period. Fibroids of the uterus were of slow growth. Large sized fibroids with a small pedicle should be removed. When there was much bleeding, curetting should first be done; if bleeding continued, and if the hemoglobin percentage was not too low, operation was called for. Intramural fibroids pure and simple were amenable to nonoperable treatment. The success of the nonknife treatment depended upon an early diagnosis, and the persistence in carrying out the constitutional treatment.

The balance of the morning was devoted to a symposium on vaccine.

A Case of Human Glanders Treated by an Autogenous Vaccine, with Recovery.—Dr. A. T. Bristow and Dr. Benjamin White of Brooklyn made this report. From 1905 to 1909 only seventeen deaths of human glanders were reported to the Board of Health. More cases had not been reported probably because they had not been recognized. An account of a case of atypical human glanders was given; the case could not have been recognized except by laboratory methods. An autogenous vaccine, made from the patient's own organisms, was given, with recovery. A summary of the treatment was given. Fifteen injections were given. They began with ten million dead bacilli and ended with three hundred million. The source of the infection could not be traced. The importance of an early diagnosis could not be overestimated.

The Treatment of Surgical Tuberculosis by Vaccines.—Dr. James A. McLeod of Buffalo said that in the scope of the paper it was an almost insurmountable difficulty to attempt to correlate and condense the facts that were necessary for a free discussion of the subject. Since Koch first announced his discovery, investigators from all quarters had poured into the literature the fruits of their investigations. This vast amount of work, resulting in no definite goal, had had its origin in the fact that the tubercle bacillus had not conformed to the lines followed by the great mass of bacteria. Such being the case he asked that it be granted, (1) that up to the present they had no exact knowledge of the true toxins elaborated by the bacillus; (2) that they had no conception whatever of the immunity response by the body to combat an invasion by the organism; (3) that they were not even certain whether the body enjoyed a general, or but a local resistance toward the bacillus. Tuberculosis was essentially a local disease; but was the resistance offered to it by the body a general one, that was, one lying in the blood itself, or a local one, that was, one lying in the tissues themselves, or was it a combination of the two? The probability was that it was a combination of the two; otherwise contradictions existed. The tubercle bacilli themselves, and by this he referred to the human and bovine types chiefly, were in their present knowledge among the most highly organized in the bacterial world. It would seem, according to some authorities, that these two types were the result of an evolution, which had raised them from the ranks of the lowest nonpathogenic forms of acid-resistant bacteria, such as were found everywhere in nature, through hosts of increasing complexity, until the present parasitic stage had been attained. Infections with the tubercle bacillus were local ones and except in certain conditions they did not *per se* produce temperature; yet from the local foci, toxins must be absorbed; otherwise no harmful effects would ensue. What the toxin was, they did not know, nor had it ever been obtained. Marmorek's serum was said to contain this toxin, but this had not been proved. Tuberculin, it was said, did not contain it, and yet it had a known curative value. Since Koch's first announcement of his discovery of the tubercle bacillus, every conceivable method had been exploited in attempting to produce either an active or passive state of immunity or resistance towards the bacillus. Von Behring declared that in his bovovaccine he had discovered jennerization, as applied in his experiments, to the raising of an immune state in calves, toward the bovine forms of the disease. Unhappily, recent announcements showed clearly that no immune state existed; it was only a resistance, lasting over a variable short period of time, to be followed by a state of increased susceptibility. That no immune state existed was proven by the recovery of living virulent bacilli from the lymph glands of the animal inoculated. Jennerization had failed, pasteurization had failed, the various sera had failed. Tuberculin alone had given a certain measure of success. What the action, or reactions, of the various tuberculins was, they did not know for certain, but it was believed that the action was upon the tuberculous disease, and not upon the bacilli themselves. Wassermann had proved that antituberculin was present in the tissues, but it had not been proved that this substance was bactericidal. Nor had the agglutinins been shown to inhibit the disease. It was so with all other bodies with the one possible exception, the opsonins. Wright and Douglas claimed that these opsonins were bactericidal, and demonstrated that by increasing their content in the serum, the phagocytic power of that serum was raised. They deduced from this that opsonins were distinctly responsible for immunity to certain diseases. Although such a rôle could not be placed entirely to the credit of these bodies,

yet certainly the fact remained that, subsequent to inoculation with tuberculin, the opsonic content of the blood was increased. With this increase clinical improvement became manifest. Whether this improvement was due to the opsonins, or simply to a local hyperemia, could not be proved. Bullock made the statement that cases of lupus with a high opsonic index gave better results with the *x*-ray treatment than those cases with a low index; he further stated that these latter cases, upon their indices being raised, also did much better. This did not seem to prove that the opsonins were responsible for this improvement, but that their estimation gave some indication of the resistance, whatever it might be, that was offered by the body against infection. If they considered then the opsonins as a measure, not of the immunity, but of the general resistance offered, they had a practical foundation to work upon. This foundation was possibly an empirical one, but it was the only one representing itself. Having defined this empirical position upon which their ideas rested, they might be permitted to approach closer to a practical consideration of the use of tuberculin as applied to surgical tuberculosis. In the combination of treatments, surgical and laboratory, they had always kept in mind this view-point, the improvement of the patient.

Vaccine Treatment of Surgical Tuberculosis.—Dr. Lewis L. McArthur of Chicago contributed this paper. Several years ago a series of investigations were begun to determine, if possible, the value of vaccine therapy in surgical tuberculosis. The tuberculo-opsonic index in the healthy individual was quite constant, 0.9 to 1.2. They admitted three things: (1) As a diagnostic method not invaluable; (2) as a therapeutic guide to vaccine dosage, not absolutely essential; (3) in the majority of cases it was useful in both, and, when feasible, should be utilized. Time for interference they believed to be when there was a high opsonic index. Dr. McArthur related his personal experience with tuberculin in various groups of surgical diseases. He did not wish to be understood as wishing to advocate the use of vaccines to the exclusion of other means. Active immunity in acute affections could only be secured when the opsonic index was used as a guide. In local tuberculosis it was impossible to secure results without it.

Infection of the Urinary Tract by Colon Bacilli.—Dr. Frank Billings of Chicago read this paper.

Dr. Charles N. Dowd of New York said that a great deal of observation concerning vaccine therapy hinged about the tuberculous lymph nodes, especially those of the neck. Good results might follow vaccine therapy. He agreed with all that was said regarding the advisability of using the vaccines in these cases, especially for one or two months before operation. The removal of the cervical glands of tuberculous nature did not require more than one-half an hour in children in the early stages of the disease, and in his experience he secured from 80 to 90 per cent. recoveries. Dr. Dowd had operated upon over three hundred children whose ages ranged from fifteen years down. Recurrences were not common. The glands could be removed without the slightest difficulty in the early stages of the disease; in the later stages healing was fairly prompt. He urged operation first and then, if desirable, the vaccine.

Dr. James A. McLeod of Buffalo said he did not wish to be understood as stating that surgery in the past had not produced good results in the treatment of tuberculous glands of the neck. But during the past years many cases had been referred to him with sinuses that persisted after operation. Besides, he had seen many cases with enormous scars. In many of the cases the question of operation had been eliminated by the preliminary inoculations with tuberculin. He believed that it was wise to give tuberculin injections for two or three months; then, if the desired effect was not produced, operate.

Dr. Lewis L. McArthur of Chicago acknowledged that when he had a case with tuberculous glands of the neck that could be removed by surgical means, he so removed them; but there were cases, for instance, where operation was refused, or cases that had been operated upon with a resulting fistula; these were the cases he treated with tuberculin, and with benefit.

Dr. Billings said that the colon bacillus infection of the genitourinary tract was a very frequent occurrence.

The Duty the Medical Profession Owes the Woman with Cancer.—Dr. Walter B. Chase of Brooklyn said that in view of the appalling fact that statistics of registration areas showed that one out of eleven of all women died of cancer, and that after reaching the age of thirty-five years the mortality increased to one in nine, and that as most of these were cases of uterine cancer, the question arose whether the medical profession did not owe an unfulfilled obligation to this most unfortunate class of sufferers. While large benefactions and well-organized efforts were ministering to the comfort of tuberculous persons, there was in this State no systematic humane plan to reach these more terrible cases, condemned to helpless suffering and torturing death. There was substantial basis for the belief that earlier recognition of the presence of malignancy in these cases would add something to the measure of relief to be obtained by radical or palliative treatment. Among these unfortunate women were large numbers whose resources make it impossible for them to secure proper medical advice or capable nursing. It was also painfully apparent that hospital facilities for incurables were entirely inadequate to meet the needs of society, not only in malignant, but other diseases. In view of these facts he offered a resolution to the effect that: First, that the Medical Society of the State of New York shall, by its president, appoint a committee of four, whose duty shall be to urge on all practitioners of medicine in this State greater care in making early diagnosis in case of suspected uterine cancers. Second, resolved, that this committee be directed to devise some method by which, along ethical lines, women may be properly informed as to the reason why they should seek early professional advice in menstrual and hemorrhagic disorders, and that they be further instructed to consider some more comprehensive plan whereby a general diffusion of appropriate and vital knowledge may be promulgated on this very important subject. Third, resolved, that this committee be directed to report its recommendations at the next meeting of the society. Fourth, resolved, that the treasurer of this society be directed to honor payment of bills incurred for printing and needful correspondence (if not otherwise provided for), and that this committee be empowered to fill vacancies in its membership and appoint sub-committees if deemed expedient.

Treatment of Pott's Disease.—Dr. Brainerd Hunt Whitbeck of New York read this paper. He spoke of the characteristics of Pott's disease upon which the treatment depended. The importance of early diagnosis was dwelt upon, and the responsibility therefore largely rested upon the family physician. The constitutional, and particularly the local, treatment was outlined. Cases were reported in which aspiration and the injection of Cabot's fluid were employed with good results. Tuberculous sinus was much to be dreaded. Beck's bismuth had been used in many cases, but with varying degrees of success. Leaving out of this mixture paraffin and wax had been followed by better results. The progress in the treatment of these sinus cases was very slow at first. Fresh air in large doses was of inestimable value in the treatment of cases of Pott's disease.

Then followed a symposium on appendicitis, under the auspices of the New York Surgical Society.

Appendicitis in Children.—Dr. Charles Dowd of New York said that surgery in children differed from surgery in adults in many particulars. The osseous and lymphatic systems, especially of the thorax and abdomen, showed very marked peculiarities. In children attacks of appendicitis differed from the disease as it occurred in adults. His paper was confined to a consideration of two questions: First, when to operate, and, secondly, how to operate. The ordinary symptom which was so misleading in children was muscular rigidity; that, taken in connection with a long appendix, often complicated the location of this symptom. Appendicitis should be differentiated from a beginning pneumonia, and a general peritonitis from an unknown cause, from a tuberculous pneumococcus, and gonococcus peritonitis, from coxitis, and cyclic vomiting. The results obtained in these cases of appendicitis in children depended upon the condition of the patients when they were referred to the surgeon. Dr. Dowd reported 181 cases which he divided into three groups, according to time; before 1905, 70 cases; 1905-1907, 50 cases; 1907-1909, 61 cases. The percentage of the cases operated upon within twenty-four hours of the onset in the first group was 15.7 per cent.; in the second group was 16 per cent.; in the third group was 36.1 per cent. The mortality in the first group was 10 per cent.; in the second, 8 per cent.; in the third group, *nil*. There were more young children in the last group than in the other two groups. The simplicity of operation was more marked in the late than in the early group. The local abscesses were drained to the neglect of the general peritoneal cavity.

Masked Appendicitis.—Dr. George E. Brewer of New York called attention to certain types of cases grouped under the term "masked appendicitis," which he said could be illustrated only by the recital of case histories. Errors in diagnosis were fraught with dire disaster. Dr. Brewer had made the mistake in diagnosing appendicitis when many other conditions existed, and he related the histories of some of them. He also called attention to some of the conditions chronic appendicitis might simulate, which he illustrated by the relation of case histories.

When to Operate in Appendicitis.—Dr. Joseph A. Blake of New York presented this paper, which was read by Dr. McWilliams.

Conditions Simulating Appendicitis.—Dr. Alexander B. Johnson of New York read this paper and offered the following conclusions: (1) A very large number of conditions might simulate appendicitis. (2) Many of them when carefully studied, especially with regard to the past history and present signs and symptoms, would render a differential diagnosis possible. (3) In acute cases, with an imperfect history and an inability to observe the patients during the earlier hours of the disease, an accurate diagnosis might be impossible. This would be especially true (a) of perforating lesions of the alimentary tract other than appendicitis; (b) of some affections of a tube and ovary upon the right side; (c) of cases of well developed purulent peritonitis; (d) in the erythema group, Henoch's purpura, with abdominal symptoms, might so exactly simulate acute appendicitis that no differential diagnosis was possible during the earlier hours of the disease.

Analysis of Fourteen Hundred and Eleven Operations Upon the Appendix.—Dr. Clarence A. McWilliams of New York read this paper, which was a report based upon all the operations performed at the Presbyterian Hospital during the past four years. There were in all 1411 cases, of which 687 were acute, 512 chronic and relapsing, and 212 in which the appendix was removed in association with other primary procedures. The sexes in 1199 operations for acute and chronic appendicitis were about equally represented, though the milder and more chonic inflammations occurred more commonly in females. In 512 chronic cases 62 per cent. occurred in females. In severe inflammations the disproportion between the sexes was less, 57 per cent. being females. In 595 operations for severe acute lesions, 37 per cent. only occurred in females. One sex did not seem to be more disposed to a fatal issue than the other. About one-third of the cases occurred in patients under twenty years of age, and a trifle over two-thirds were in patients under thirty. The extremes of life withstood the disease badly. There were 16 patients five years of age or under, with a mortality of 18 per cent. The author attributed this high mortality to the difficulties of making an early diagnosis in young children. In nine patients over sixty years of age the death rate was over 62 per cent. He believed this was due to delay in the endeavor to tide the patient over acute attacks. This was a more unsafe course to take with elderly than with younger patients. In the 1411 cases the mortality was five per cent.: in 512 operations for chronic and relapsing conditions the mortality was 0.05 per cent.; one fatality was caused by the slipping of a ligature from the stump. Additional burying of the base of the stump seemed safer. For the 687 operations performed in the presence of acute conditions the mortality was 9.8 per cent. He discussed the pros and cons of early operation, that was, for those performed during the first forty-eight hours, intermediate operations, those from the third to the sixth day, inclusive, and late operations, those performed after the sixth day. He stated that the operators at the Presbyterian Hospital answered the question as to whether to operate in the intermediate or dangerous stage with a decided "Yes." Their statistics were made up of cases where there had been no delay in operating in all stages of the disease. It was instructive to examine the acute cases in regard to the relations of presence or absence of previous attacks, and the durations of the disease at the time of operation as to the prognosis. In 647 acute cases over one-third had had one or more previous attacks. The milder the lesion, the more likely was the patient to have had one or more previous attacks, while the severer, the less likely. In the acute catarrhal cases, over one-half had had previous attacks, while of those with the severest lesions only about one-fourth had had previous trouble. Of the fatal cases, only one-seventh had had previous attacks. Of the patients with acute inflammations who had had previous attacks, the recurrences took place in about one-third within six months, and in almost two-thirds within one year. In twenty of their cases operation was performed within sixteen hours of the beginning of the symptoms; only one died, and that as the result of an acute pericarditiis on the ninth day. The abdominal condition at the time was entirely satisfactory. Commonly operations performed within sixteen hours of the onset resulted in no mortality. Of 115 cases operated upon between the sixteenth and twenty-fourth hours, the mortality was 3.4 per cent. Three of these fatal cases had diffuse peritonitis with gangrenous appendices. These fatal cases brought out the fact that, operate as early as one might, there was still certain to be a small mortality. There were 145 cases operated upon on the second day, with a mortality of 6 per cent. Of 103 patients operated upon on the third day, 8 per cent. resulted fatally. Operations upon the fifth and sixth days were equally fatal, showing a mortality of 14 per cent. The combined mortality of operations from the third to the sixth day was 12 per cent. The patients operated upon from the seventh to the tenth day gave a mortality of 20 per cent. This showed that early operations and operations made during the intermediate dangerous period gave better results than were obtained by waiting. Dr. McWilliams related three cases, all resulting fatally, in which the Ochsner treatment was employed. Such experiences had discouraged them in the use of this treatment.

As to complications, pregnancy was a coincident condition in six cases, four of whom were pregnant four months or less; none of these died or aborted. Two patients six months pregnant died. Pregnancy was a serious complication urgently requiring early operation. Pulmonary embolism occurred four times with three deaths. Intestinal obstruction was a particularly fatal complication. Ileostomy for paralytic ileus was performed in twelve cases, ten of whom died, or 83 per cent. Fecal fistula developed in twenty-six cases, or in 3 per cent. of the acute operations, with three deaths not attributable to the fistula. The less handling of the intestines at the time of operation, the less liability there was to this complication. Dr. McWilliams was of the opinion that removal of the appendix in association with other primary procedures did not increase the mortality.

Appendicitis.—Dr. Roswell Park of Buffalo said he only wished to make some desultory remarks on the subject of appendicitis, including some of the mooted questions on what to do and what not to do when called upon to attend such cases. The appendix should be regarded as a shut sac within which were enormous possibilities for toxemic disturbances. Dr. Stockton had called his attention to another thing, suggesting the possibility of treating appendicitis with vaccines. This suggestion was brought about by the knowledge that there was in this disease a lowered resistance, and the question arose, could they not improve this very much by the same sort of vaccine therapy talked about at the morning's session. No one, however, would think for a moment of substituting such a treatment for the operative in acute cases; but in the chronic cases the question as to the value of vaccine therapy might be raised very properly. It might become a very valuable adjunct to surgery. He thought that one of the most striking features in connection with cases of appendicitis was the varieties of views held by different men and the varieties of advice given to patients by them. Why did such a difference of opinion prevail? Dr. Park ascribed it to the fact that physicians did not come in contact with the physical and pathological side of the disease; they neither saw nor handled it. This was equally true of gall-bladder disease. In two-thirds of the cases where the physician called in the surgeon, the former was not present at the operation, and therefore he failed to see the conditions as they actually existed; he rarely saw a case of appendicitis in its true aspect. The operator too was at a loss at times to account for the conditions revealed. It was the rule in good surgery that the fewer hands introduced into the abdominal cavity, the better for the patient; but it would be very helpful to the physician if he was permitted to see just what the operator felt and saw; but to allow him to introduce his hand into the abdominal cavity to feel and investigate would probably in many instances mean the death of the patient. Everything should be left to the surgeon. An interesting question related to the relationship of appendicitis to typhoid fever, as well as to perforation, to thrombosis, to deep phlebitis, and other possibilities of typhoid fever. There were reported many cases where an acute mesenteric thrombus had been mistaken for perforation, the mistake only being discovered at autopsy. Then there were, no doubt, many such cases concealed because no autopsy was performed.

Dr. Edwin M. Stanton of Schenectady objected very seriously to the 18 per cent. operative mortality, and quoted largely from the statistics given out by the Berlin Medical Society, the most valuable of any concerning appendicitis. He also told of his experience with the Ochsner treatment, which he advocated.

Dr. Robert T. Morris of New York said that some of them could remember when the diagnosis of "inflammation of the lungs" was a commonly accepted diagnosis. The diagnosis of "appendicitis" was not more definite. That had caused the varieties of opinion on the subject. He believed that they were often talking about different things when using the name appendicitis. There were at least four kinds. Intrinsic infective appendicitis called for operation so soon as the diagnosis had been made. They could not use judgment in the matter because they did not know just what the bacteria were going to do. The subject lay outside of the limitations of judgment. In the other three kinds of appendicitis, namely, with extrinsic infection, syn congestive appendicitis, and fibroid degenerative appendicitis, they could use judgment and, in the latter two kinds, seldom needed to operate at all.

Dr. A. Jacobi of New York expressed his satisfaction in listening to the number of papers read by the surgeons, because it proved to him that they were not only operators but thinking physicians as well; they all gave something about diagnosis. With regard to Dr. Park's remarks, he did not think the general practitioner was as bad as he tried to make out; most of the busy practitioners could not be present at the operations, and they should not be blamed for not being better acquainted with the actual existing conditions. Dr. Jacobi thought it would be well if they had not only statistics of the cases operated upon and those that came to the autopsy table, but they should have statistics on diagnosis. Dr. Brewer stated that he had made fifteen or more mistakes in diagnosis, thus showing that even the masters in the science and art of surgery made mistakes. He wished they had statistics on mistaken diagnoses; it might justify the mistakes made by the general practitioner. Dr. Jacobi recalled a statement made by one of the foremost surgeons in this country; he said that it was very often a very difficult matter to make a diagnosis of appendicitis. Young children were very much disposed to attacks of this disease; a small infant had a great many more lymphatic vessels and ducts than had an adult; moreover, there were plenty of opportunities for an accumulation of lymph bodies in the infant. The length of the appendix in the infant was one-tenth of the colon, whereas in the adult it was one-twentieth. In the infant the shape of the appendix was more funnel-like, and in many cases there was a constriction. There were many reasons why the small child should have appendicitis. In closing, Dr. Jacobi said that if the masters in surgery would teach the general practitioner how to make a correct diagnosis, they would not have so many opportunities to blame him for not calling on them in time.

Dr. William W. Skinner of Geneva called the attention of the society to the little point in diagnosis which he considered of great importance, and which had helped him in a great many instances. In the neighborhood of the infection there was a certain amount of darkening of the contents of the veins; in cases of appendicitis, a careful examination of the skin over the abdomen, especially when the skin was stretched, which would increase the translucency, would reveal over an inflamed appendix the veins well darkened compared with other veins in that region of the abdomen. The veins that showed this darkening were those just internal to the anterior superior spine of the ilium which ran upward.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held December 27, 1909.

The President, Dr. H. Seymour Houghton, in the Chair.

Local Anesthesia in General Surgery.—Dr. Winfield Scott Schley read this paper. (See page 225.)

Dr. Alexis V. Moschcowitz divided the indications for the use of local anesthesia into two classes, general and special. It was true that both merged one into

the other so very gradually that it was hard to draw the line where the general indications ended and the special indications began. Among the general indications, however, were the various disturbances of metabolism and diseases of the heart, lungs, kidneys, liver, etc. Among the special indications for local anesthesia was to be mentioned especially disease of the thyroid gland. He said that he had had occasion during the past two or three years to operate upon a number of cases of disease of the thyroid gland and all were done very successfully under local anesthesia, with but little trouble to the patient, but with some additional trouble to the surgeon. Dr. Moschcowitz did not believe that operations for the radical cure of hernia should be attempted under local anesthesia unless there was some distinct contraindication to general anesthesia. He had always taken the stand that if a patient had made up his mind to be operated upon for hernia the best chance should be given him for a radical operation and a radical cure, and a far better guarantee was given him if the work was done under a general anesthesia and not under a local one. A little less than two years ago he operated upon a colleague for a recurrent inguinal hernia. This colleague had been operated upon previously by one of the best surgeons in the city, and he used local anesthesia. In a letter received by Dr. Moschcowitz recently this colleague stated that the more work he did with local anesthesia the more and more did he come to the conclusion that one could not do good radical work in hernia operations under local anesthesia.

Dr. John H. Branth said that his experience with cocaine for local anesthesia in minor surgery dated back more than fifteen years. Knowing of the effects of cocaine upon the conjunctiva, he applied it for a toothache on himself, but it did not stop the intense agony; he then decided to try a hypodermic injection of this agent along the root of the tooth and inside of the alveolar process. The relief was immediate. On attempting to withdraw the needle, however, it broke and he had great difficulty in removing the broken end. The region was entirely devoid of sensation. He then applied the forceps, rocked the tooth slowly until he succeeded in extracting it. There was very little hemorrhage. Soon he began to feel the systemic effect of the cocaine. He had a profuse perspiration, a very rapid pulse, and he felt as though he was walking in air. His thoughts swept in a short time over his past. Dr. Branth said that he had an idiosyncrasy for morphine and quinine, and he thought that cocaine should now be included. From that time he pulled his own teeth when necesary. Rocking the tooth for perhaps a minute enabled him to save the alveolar process from fracture and the tearing of the gum; it left a small wound that healed quickly and left a good base for an artificial dentine. He then began to make experiments with cocaine, and he found that solutions very much weaker than the usual 4 per cent. or 10 per cent. produced the desired anesthetic effect. He had removed a lipoma of the shoulder weighing three-quarters of a pound with a solution of one-fortieth of a grain of cocaine and one-twentieth of a grain of eucaine in one ounce of water; this he did in a woman who had a valvular heart disease and chronic bronchitis. All of this solution was not used. The same solution he used for circumcision, placing a rubber band around the penis to prevent the systemic effect. The tissues of the penis became white and bloodless, an advantage for the operator. He said he had made numerous experiments upon his own body and on many patients for minor operations with these solutions, and he found that it produced the desired anesthesia and had no untoward effects. In closing his remarks he described the sensation caused by cutting his own flesh. He had a deep carbuncle on his thigh, and he decided to make a free opening and cut out the indurated part. When cutting through the skin it felt as though it was an inch or more in thickness, and there was a creaking sensation as though he was cutting into a pineapple or leather. This he attributed to the systemic effects of the cocaine. Cocaine should be used with great caution; very small doses sometimes give rise to alarming symptoms, but the small doses he advocated would promote safety.

Dr. John F. Erdmann admitted that all that was claimed for local anesthesia by Dr. Schley was true, but the question that arose was the difference between cases, and should they admit that a great many cases could be done under local anesthesia, but should they be done? And if so, in what kind of cases? In operating upon thyroids he said that the records of St. Mary's Hospital of Rochester, Minn., where ether used showed no deaths as the result. Dr. Erdmann had one death from hyperthyroidism seven years ago; in this case he made the mistake of removing the entire gland. In this instance death was not due to the ether administered, but to the fact that he removed the entire gland; the result would have been the same under cocaine. With regard to operations for hernia, he knew of at least fourteen recurrences in cases that had been operated upon under local anesthesia, and the operations had been done by one of the best surgeons in this line of work in New York City. To be sure, operations upon the gall-bladder, common duct, appendix, pancreas, and other organs could be done under local anesthesia; but if his own abdomen was to be opened for a cholecystectomy or a cholecystotomy he would insist that ether be given and not cocaine or other local agent.

Dr. Parker Sims believed that a great deal of surgical work could be done under local anesthesia. But it was not a question of what could be done, but of what should be done under local anesthesia. He believed that it should be reserved for a very limited field of usefulness. In hernia and other similar operations he did not believe that local anesthesia should be used, unless there were strong contraindications to the use of general anesthesia. In cases of strangulated hernia, with regurgitant vomiting he believed that local anesthesia should be employed, because of the danger of suffocation, in such cases, attending the use of a general anesthesia. While we recognize the limited usefulness of local anesthesia, he said that we should feel thankful to Dr. Schley for again bringing the subject to our notice, and for the improvement in technique which had been brought out.

Dr. Schley said that the object in writing his paper was not only to show what an improved technique could accomplish, but to show also the restrictions to the use of local anesthesia. At present its greatest usefulness was in those cases where general anesthetics greatly added to the risks or were prohibitive, but it had arrived at that stage of perfection where it could be extended to many cases able to take general anesthesia to insure a more agreeable and safer postoperative period. Those who tried to use local anesthesia in all surgical cases would get into trouble. This was a field in itself and various successes would attend its use. In operations for goiter and especially exophthalmic goiter it was the anesthesia to use. While in Berne he had seen Prof. Kocher operate upon over thirty such cases, and none was done under a general anesthetic; these cases were both struma goiter and exophthalmic goiter. Up to that time over 3,000 oper-

ations upon goiter had been done there and nearly all under local anesthesia, which was used as a routine in these cases. At the same time Dr. Schley said that the extent to which spinal and local anesthesia were carried abroad should not be followed in this country without reserve. Local anesthesia with those who could use it and in properly selected cases could often accomplish brilliant results.

Serological Aspect of the Diagnosis of Syphilis.—Dr. Hideyo Noguchi, after giving the principles of the Wassermann reaction, gave a description of the different methods as heretofore proposed. He considered each critically from the serological viewpoint. He laid special stress on the fact that active human sera should not be employed when the preparation serving as antigen contained proteins, such as peptone, albumose, nucleoprotein, and many other cleavage products, because the latter produced complement fixation with nonsyphilitic specimens. This nonspecific reaction did not take place when the antigen preparation was based on pure lipoids, as was the case with Dr. Noguchi's method, or when the sera were previously inactivated. Dr. Noguchi presented an analysis of about twenty-two hundred cases of syphilis and about six hundred cases of metasyphilis, showing the results obtained with his method by different investigators.

Serodiagnosis in Syphilis. A Classification of Clinical Observations.—Dr. Victor C. Pedersen read this paper. Dr. Noguchi had carried out certain observations in collaboration with Dr. Pedersen and did the compdement-fixation by the Wassermann method up to about December 31, 1908. The Wassermann-Noguchi test had been used ever since January, 1909. The Noguchi method of estimating the globulin content of the blood serum had been used since the outset of these investigations regularly up to March, 1909, more or less as a control of their work. In order to fulfill the hope of tracing the progress of this test, Dr. Pedersen's records had been divided into certain classes, and the classification submitted for the series of observation closely followed the original designation of Ricord for the stages of syphilis. As to the general status of serodiagnosis, the following résumé was presented. In a scientific matter of such a recent discovery and comparatively speaking of limited development, he did not believe that one could properly speak of conclusions. He thought, however, that the following might be given as suggestive thoughts. These serum reactions could not be regarded as expressions of immunity; otherwise there would be a certain number of natural immunes discovered. This matter of immunity, as shown by the serum tests, was early suggested by various authors, but was soon abandoned. Serum diagnosis might present a certain index as to susceptibility, as was suggested by the fact that its variations corresponded with those of severe infectious and destructive lesions rather closely and, in certain cases, proceeded, notwithstanding the treatment, exactly as the clinical symptoms did. The occurrence of a positive test in such diseases as yaws, malaria, leprosy, and scarlatina did not materially discount the value of the observations in syphilis because leprosy, yaws, and malaria were exotic affections and because in scarlatina the reactions were transitory and were not uniformly present. Dr. Pedersen said that one could not properly diagnosticate the presence of syphilis by a positive test alone, no matter what might be the period of the disease, unless there were other potent factors present corroborative of the test as such. Conversely, a negative test could not itself exclude syphilis. Under certain circumstances the negative test was of value. As to serodiagnosis in chancre, Dr. Pedersen said that chancre cases without an examination for spirochetes, which gave a positive serum test were possibly syphilitic; of course, if the chancre was typical and the glands were typical, the case became probably syphilitic. Chancre cases with a positive spirochete examination were corroborated by a positive serum test. In each of the foregoing a negative test meant nothing, just as the absence of other symptoms during the chancre stage meant nothing. The positive combined spirochete and serum test indicated active abortive treatment. A positive test after thorough treatment indicated a clinically supervening relapse. A positive test during proper treatment, and notwithstanding treatment, probably meant an incurable case. A positive test after cessation of treatment, and after a preceding negative test, probably meant a relapse. A positive test in the absence of symptoms meant at least that the patient had had syphilis, and possibly that he had it still in the sense that a relapse might appear, or, according to Müller, that active syphilis was present. In latent syphilis a positive test demanded treatment. A positive test did not mean that the active, existing lesion was necessarily syphilitic, but rather that a syphilitic basis existed in the system. This was similar to the effect of antisyphilitic treatment on lesions, success with which did not necessarily mean that the lesion was syphilitic. In general the older the case, the more valuable did the positive reaction become. A positive reaction also depended on the extent and activity of the infection. A positive test might be regarded as an active symptom, and, like any other active symptom of syphilis, to indicate treatment. A strongly positive test, with many symptoms, almost invariably indicated a strong infection and great susceptibility. Weak and moderate reactions during the treatment, and as a reduction of a previous positive reaction, probably showed a decrease in the attack and might be a guide to treatment, variable, like other guides, such as general condition, emaciation, weight, strength, etc. In latent syphilis, weak and moderate reactions were of great importance, when the diagnosis was proven. Negative tests were equivocal and uncertain. The danger of a negative test lay in the sense of false security which it gave. A negative test following a preceding positive test and thorough treatment possibly indicated a decrease of the disease, but it did not mean absence of the disease, any more than did absence of clinical symptoms in the same circumstances. A negative test during treatment, and in the presence of active symptoms, was inexplicable, but it was occasionally found, as shown by several cases in the author's report. A negative test after cessation of symptoms and treatment, and consistently persisting in response to repeated investigations through a long time, became progressively a favorable sign, precisely like the continued absence of clinical symptoms of the disease. A negative test after long treatment and during a relapse was confusing, but certainly did ocasionally occur. A rapidly induced negative test followed energetic treatment. Might this not be regarded as an indication to reduce the activity of the treatment? Yes, provided only the clinical symptoms agreed. There seemed to be an inconstant and uncertain relation between the test and treatment, probably because they knew so little about the nature of the conditions in the blood giving the test and possessing, perhaps, too little reliable index of any kind for treatment. In recent cases the test was more influenced by treatment than in later cases. Remedies which cured syphilis, acting thereby on the virus, influenced the reaction notably and relapses were

always accompanied by a return of a positive reaction. These truths could not exist without an assignable influence of the test on treatment. Serodiagnosis could not be very definitely relied on to indicate treatment unless one was following the repeated appearance and disappearance of positive tests in a given old relapsing case. Here the positive test might forerun the clinical relapse and thus become recognizable as an indicator of resumption of treatment. Finally, the cycle of syphilis could not be regarded as completed in much less than five years; namely, from two to three years of treatment and the remaining years of periodical observation thereafter. This test was approximately three years old, and it was therefore folly to try to talk about its bearing on prognosis as a whole. Prognosis could hardly be declared clinically in less than five years of treatment and observation combined. In certain cases the test was of undoubted value in suggesting the outlook for the patient. A test which persisted during treatment or which was found present in known latent cases was undoubtedly of unfavorable meaning. The more precise limits of this dictum would be determined as the years went by. An induced negative test which remained negative after frequent trials and was accompanied by absence of clinical signs was, of course, accumulatively good evidence of cure. A returning positive test precedent to or accompanied by clinical evidence of the disease was not a hopeful condition and might be of value in tertiary, especially cerebrospinal syphilis.

Demonstration of the Noguchi Complement-Fixation Test.—Dr. Howard Fox made this demonstration and discussed some of the points of difference between the Wassermann and Noguchi tests, showing the advantages possessed by the Noguchi method. In the system of Wassermann sheep's corpuscles and anti-sheep amboceptor were used, while in the Noguchi system human corpuscles and anti-human amboceptor were employed. The chief theoretical objection to the use of sheep's corpuscles was the fact that the patient's serum contained natural amboceptor for sheep's corpuscles. This natural amboceptor, in addition to the immune amboceptor which was used for the test, was often excessive enough to give a negative reaction when a positive reaction should have been obtained. Another advantage of the Noguchi method was that the patient's serum might be used either in active condition, or after being inactivated, *e.g.* heated to 56° C. for half an hour. A practical advantage of the method was that two of the substances used, namely, the antigen and amboceptor, had been impregnated in paper, so that small pieces of the paper represented measured amounts of the fluid substances. In performing the test the following five substances were required: (1) Serum of the patient, one capillary drop, or about 0.02 c.c., if used in active state; four times that amount, if used in inactivated condition. (2) Complement, 0.04 to 0.05 c.c. of fresh guinea pig serum. It was possible, though not advisable, to use the complement in paper form. (3) Corpuscles, 1 c.c. of a 1 per cent. suspension in physiological salt solution of normal washed human corpuscles. (4) Antigen. One square of paper representing a measured amount of acetone-insoluble lipoids (protein free). (5) Amboceptor. One piece of paper representing two units of anti-human amboceptor. The first four substances were placed in small tubes in the order named (for the sake of convenience). The tubes were then shaken and placed in a thermostat for one hour, or a water bath for a half hour at 37° C. The amboceptor was then added, the tubes shaken, and again placed in the thermostat or water bath. Hemolysis was generally complete in from one to two hours, after which the results were read. Dr. Fox discussed the control tubes that were necessary, and he exhibited a series of tubes previously prepared, showing the completed reaction. A complete demonstration of the Noguchi test with fresh materials was then given.

WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held January 10, 1910.

Dr. Joseph Merzbach in the Chair.

Presentation of Specimens of Four Unusual Cases of Appendicitis.—Dr. M. Lederer, in the absence of Dr. S. R. Blatteis, presented these specimens. One of these had shown typical lesions of tuberculosis, such as tubercles, giant cells, necrosis, and infiltrating all the walls had been evidences of acute suppurative exacerbation. The second specimen was that of an irregular mass 7 by 5 cm., containing five stones, weighing in the aggregate 5 gms., and composed of a crust of calcium and magnesium salts and a center of amorphous material. The third specimen contained a pin 3.5 cm. long and covered with a blackish deposit. The fourth specimen was that of adenocarcinoma of the appendix. It had been removed from a patient, aged 30, who had died one day after admission to the hospital. Four days before this he had developed pain in his abdomen and the subsequent history had been that of the usual suppurative appendicitis. There had been no history or evidence of malignancy in any other part of the body.

Report of a Case of Purpura Complicating Measles.—Dr. Joseph Krimsky of Brooklyn read this paper.

The Treatment of Locomotor Ataxia.—Dr. Graeme M. Hammond of New York read this paper. He said that he would confine his remarks to only certain phases of the treatment. Years ago this disease had been considered an inflammation. In combatting this they had used the actual cautery, ergot, heat, and cold. Later it was looked upon as an incurable affection. Still later, when syphilis and tabes had been clearly associated, there were used large doses of antisyphilitic remedies. In certain cases of acute syphilis of the cord there was a syphilitic exudation into the posterior portion of the cord. In these cases good results had followed the use of antisyphilitic remedies. But these cases were not cases of locomotor ataxia any more than fracture of the spine. Of later date the neuron theory gave a clearer idea of the disease. It was now believed that locomotor ataxia was a degeneration of the sensory neurons, beginning in the cells of the ganglia of the posterior roots, with a secondary degeneration of the sensory neurons. In many instances one had to do with a meningitis with compression on the posterior roots. Not all cases were the same. Some cases had no pain, and some had considerable pain. Some cases could not walk at all; there were others that had considerable ataxia, and there were some cases in which there was hardly any ataxia. The speaker cited the case of a professional dancer with Argyll-Robertson pupils and absent knee-jerks, whose ability to dance had not been interfered with. The speaker had received his cue in treating locomotor ataxia by means of large doses of strychnia, from the experience of Dr. Dana in treating tic douloureaux with this drug. In the latter condition the pains in the face were sharp and lancinating, and were quite analogous to those pains in the legs that were common in tabes. Dr. Dana had been able to arrest these pains by means of strychnia in doses of 1-16 to 1-12 of a grain three times a day. It had occurred to the speaker that these results might also follow if this treatment were pur-

sued in locomotor ataxia. He had had ten years of experience with this method of treatment. Its efficacy depended upon the fact that strychnia had a primary effect upon the cells of the cord. He began with the internal administration of a tablet of 1-30 grain three times a day. This was increased within one week to 1-20 grain three times a day, and in another week to 1-16 grain three times a day. Then by using a solution of strychnine of one grain to the ounce, and adding to the last dose (1-16 grain) one drop of this solution, and increasing the dose by one drop each day, he was able to gradually increase the dose of strychnine, so that at the end of a month the patient got 1-8 grain three times a day. The patient was then given two tablets of 1-16 grain each three times a day and this dosage was kept up for two months. This was then increased with the drop dosage until the patient got three tablets of 1-16 grain each three times a day. This was kept up for two or three months, and then increased until the patient got 1-4 grain three times a day. At first he had given this dose hypodermically once a day, but he had found this to be of no advantage. There were cases in which the treatment had been continued for from five to seven years, and then the strychnine was withdrawn gradually. The result of this treatment was that in the majority of cases no increase in the disease had occurred. The speaker had never seen a case in which the Argyll-Robertson pupil had disappeared, or the knee-jerk had returned, except in one case in which the latter was absent for one week. The Romberg symptom never disappeared. It made no difference to the patient whether the Argyll-Robertson pupil disappeared or the knee-jerks returned, so long as he felt better and his disease was arrested. Other methods of treatment were also serviceable. The Frankel movements reeducated the muscular centers. Frankel's statement was that the patient's eyesight was reeducated. It was surprising how the patients succeeded in getting control of their movements. As regards diet, the patient was to eat ordinary things in moderation. Outdoor life and exercise in moderation were to be advised. Many physicians advised keeping the patient in bed, but the speaker got him out of doors early. The patient was to be told that his sexual life would end early; otherwise he would worry. He was not to be given potassium iodide, nor bichloride, nor rubbings. The speaker had seen cases of strychnine intoxication in the hands of others; the reason was that the dose was increased too rapidly. Strychnine was not serviceable in sclerosis of the lateral columns. It was of no benefit in the advanced cases in which they could not walk, nor in cases in which there was atrophy of the optic nerve.

Dr. Jos. Fraenkel of New York said he would not agree to the expression "treatment of locomotor ataxia." Locomotor ataxia was a multitude of diseases. There were many theoretical conceptions of the disease; this was an eternal clinical and therapeutic fact. Neurologists had been looked upon as the specialists of incurables. The speaker had seen three cases of locomotor ataxia perfectly cured. These cases had also been observed, and the cure attested by Dr. Dana. The speaker stated that he had lived for nine years in an institution in which there had been on an average thirty tabetics per day, and he had learned to recognize in a subject of locomotor ataxia an individual who had some disease of the cord. He was able to differentiate the following three forms: 1. The cranial form; this was also called the optic or meningeal form. In this variety the patients experienced dizziness and ringing in the ears. This group of cases was free from all the usual crises, pains, ataxia, etc. This group included those cases in which optic atrophy occurred within the first year or year and a half of the disease. 2. The visceral group, characterized by the early appearance of visceral symptoms, such as gastric crises, which frequently simulated cases of locomotor ataxia. 3. A group characterized by the presence of cerebrospinal symptoms, such as shooting pains, and the absence of visceral symptoms. Erb had stated that every case of tabes was syphilitic. The speaker had seen cases of tabes that had been made worse by specific measures, and had seen two cases that had been made better. In discussing the efficacy of specific treatment it was necessary to recognize two groups of cases: First, those showing no trace or evidence of inflammation anywhere in the body, but presenting a change of neural tissue for connective tissue; second, a group including cases of posterior meningitis, posterior lymphangitis, posterior exudation, and specific leptomeningitis. In the former group one was practically dealing with the old type of Duchenne, which had nothing to do with syphilis, or with syphilitic exudation in the posterior columns or around the posterior columns. Duchenne's type was due to exhaustion, and was analogous to the form of disease resembling tabes that had been produced by Edinger experimentally in rats, by causing the latter to run around in a treadmill. The metasyphilitic group of cases was to be distinguished from the first group by the fact that the symptoms of the former had a marked irregularity. The true Argyll-Robertson pupil was found only in the Duchenne group; it was a pupil consisting of a bilaterally equal miosis, irresponsive to light but reacting to accommodation. In the second group there were pupils of all kinds and degrees of irregularity. There was still a third group of cases characterized by the evidence of some definite area of the spinal cord affected by some meningeal exudate. The first group and the first part of the second group were made worse by antisyphilitic remedies. In this connection the examination of the cerebrospinal fluid for the Wassermann reaction was important. The speaker believed that Dr. Hammond's method of treatment was good in selected cases of the nonexudative type. He did not favor the use of the Frankel movements, for these increased the element of fatigue, which hastened the degeneration in the motor ganglia.

Philadelphia County Medical Society.

At a stated meeting, held January 12, Dr. Ellen P. Corson-White read by invitation a paper entitled "Demonstration of the *Treponema pallidum* and of the Serum diagnosis of Syphilis (Wassermann Reaction)." She pointed out the specific diagnostic significance of the presence of the treponema in suspicious lesions and she dwelt upon the great value of the hemolytic serum reaction in the differentiation of syphilitic and parasyphilitic as against nonsyphilitic disorders. She demonstrated the technique of the reaction and she related the results of her observations in a considerable number of cases. She had found the original Wassermann reaction entirely trustworthy in the matter of positive responses, but the Noguchi modification the more so in the case of negative responses. Dr. Hideyo Noguchi of the Rockefeller Institute for Medical Research discussed some of the changes that he has made in his modification of the Wassermann test as the result of a more extended experience. He has subjected the procedure to a most critical scrutiny in a large number of cases, syphilitic and otherwise, at the hands of many different observers, and he has thus been able to demonstrate

its practicability and its trustworthiness. Dr. B. Sachs of New York by invitation read a paper dealing with "Newer Diagnostic Methods in the Study of Diseases of the Central Nervous System." He pointed out the great utility of the demonstration of lymphocytosis of the cerebrospinal fluid obtainable by lumbar puncture in the diagnosis of active syphilis. A considerable experience has also demonstrated the usefulness of the Wassermann reaction in the differentiation of syphilitic and parasyphilitic disorders from nonsyphilitic affections, and the therapeutic indications resulting therefrom. Dr. Homer F. Swift of New York City pointed out that the serum reaction could be looked upon only as any other symptom, and that its invariable presence in every case of syphilis could not reasonably be expected. In order that the results of different investigators may be intelligently compared it is necessary that there should be some approach to a standardization of the reagents used. Dr. Wm. G. Spiller cited a number of instances in which the information gained by the employment of the reaction decided important points in diagnosis, prognosis, and therapeutics.

The Leucocyte Formula in Variola.—Alfonso Montefusco says that in variola the leucocyte formula is changed in a way which differs from that present in other acute infections. Instead of the polynuclears, the mononuclears are increased. This change begins with the beginning of the disease and ends when the crusts have fallen. The mononuclears are in the proportion of sixty per cent., and include both small and large cells and a small number of lymphocytes. Forms analogous to the neutrophile myelocytes are also found. The polynuclear eosinopiles diminish toward the end, while they are increased in the beginning. In a recent epidemic of smallpox the author examined the blood in fourteen cases. He found that the polynuclear neutropiles are diminished in all forms of the disease. The polynuclear eosinopiles are increased up to eight and a half per cent. in the ordinary forms of smallpox. The mononuclears increase from eight to eighteen per cent. in the hemorrhagic form, and to forty per cent. in the ordinary form. There is a special relation between the increase of the mononuclears and the severely clinical form rather than of the suppurative process. The lymphocytes presented a constant increase in all forms of the disease; the same is true of the myelocytes. The leucocyte formula is characteristic in its general lines, but is not sufficiently different from other diseases to enable us to make a differential diagnosis by means of it.—*Giornale Internazionale delle Scienze Mediche.*

Bismuth Poisoning.—In concluding a report of several cases of poisoning from the use of bismuth subnitrate, V. C. Davis and T. R. Kauffman say: Poisoning from bismuth subnitrate vaselin paste is more common than we had supposed. Since the report of these cases, in an examination of about twenty-five orthopedic cases in the Cook County Hospital in which bismuth had been injected into their tuberculous sinuses more than once, we found that in six cases there was more or less pigmentation of the gums. In one of the cases extreme blue pigmentation was present on the gums, lips, and the cheeks without subjective symptoms. From this we have reason to believe that pigmentation of the gums is an early sign of bismuth intoxication and should be taken as a signal to at least discontinue the administration of the paste. In the reported cases four of the five received six ounces or less at the first injection and ten ounces or less *in toto*. One fatal case occurred after the use of less than one ounce of the paste. Toxic symptoms developed after the first injection which might influence poisoning, as some of these cases were not skiagraphed after the paste was used. There are acute and chronic cases of bismuth poisoning, the former being fatal with general symptoms and the latter tending to a slow recovery with practically only local manifestations, but the onset of both types is very much the same. Thus far no case of pure nitrite poisoning following the use of bismuth subnitrite paste is on record, and, though there is but one case where the nitrites played a part in the poisoning, it seems that danger should be avoided by the use of bismuth carbonate. Impurities in the bismuth subnitrate are not a factor in the poisoning because the metallic bismuth has been found in the local pigmented areas and in two well-defined cases the bismuth showed no impurities.—*Illinois Medical Journal.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of January 29, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	545	187
Diphtheria	447	48
Measles	896	15
Scarlet Fever	605	33
Smallpox	—	—
Varicella	256	—
Typhoid Fever	25	7
Whooping Cough	36	2
Cerebrospinal Meningitis	9	6
Malarial Fever	—	—
Totals	2,819	298

Recurring Vesical Calculi.—Pearce Gould reports the case of a man from whom in 1903 he removed an enlarged prostate and seven uric acid stones. In July, 1906, at a second suprapubic operation, a large, firm, uric acid stone with a coating of phosphates was removed. In January, 1907, and June, 1908, the patient was again under observation, but no stones were found. In October, 1909, however, for a third time, a cystostomy was done and a stone weighing 8 ounces was removed.—*Proceedings of the Royal Society of Medicine.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 28, 1910:

			Cases.	Deaths.
CHOLERA.				
India, Bombay	Dec.	22–28	..	2
Russia, general	Dec.	12–18	92	55
Baku, government	Dec.	12–18	7	10
Baku	Dec.	12–18	2	2
Don, territory	Dec.	12–18	6	1
Ekaterinislav	Dec.	12–18	2	2
Moscow, government—				
Moscow	Dec.	19–25	131	59
St. Petersburg, government	Dec.	12–18	..	2
St. Petersburg	Dec.	12–18	6	1
Taurida, government	Dec.	12–18	1	..
Siberia, Vladivostok	Nov.	16–21	1	..
YELLOW FEVER.				
Ecuador, Guayaquil	Dec.	16–31	29	10
PLAGUE.				
Brazil, Bahia	Nov.	27–Dec. 17	28	16
Pernambuco	Nov.	16–30	..	5
Rio de Janeiro	Dec.	6–26	6	..
Santos	Nov.	1–Dec. 29	5	3
			1 case from bark *Amazone*	Dec. 1
China, Hankoe	Nov.	27–Dec. 7	20	20
Ecuador, Guayaquil	Dec.	16–31	70	24
Egypt, Provinces—				
Behera	Dec.	7–14	1	..
Beni Souef	Dec.	16–22	9	2
Gurgeh	Dec.	19–26	2	1
Guizeh	Dec.	19–25	1	..
Minieh	Dec.	21–27	3	1
German East Africa, Mpwapwa	Sept.	19–Oct. 5	7	..
Japan, Kobe	Dec.	5–25	19	11
Peru, Arequipa, department—				
Mollendo	Dec.	20–Jan. 1	1	..
Lambayeque, department	Nov.	19–Dec. 9	2	1
Libertad, department	Nov.	19–Dec. 9	25	3
Lima, department	Nov.	19–Dec. 9	6	4
Russia, Uralsk, district	Dec.	25–31	27	23
SMALLPOX.				
Algeria, Bona	Dec.	1–31	11	7
Brazil, Bahia	Nov.	26–Dec. 3	63	41
Pernambuco	Nov.	16–30	..	35
Rio de Janeiro	Dec.	20–26	2	..
Chile, Antofagasta	Jan.	1	..	Present
Valparaiso	Jan.	1	..	Do.
China, Amoy	Dec.	11	..	Do.
Chang Cheun	Dec.	11	..	Do.
Ghio Be	Dec.	11	..	Do.
Germany, general	Dec.	26–Jan. 1	7	..
Great Britain, Liverpool	Dec.	26–Jan. 8	4	..
London	Dec.	26–Jan. 1	1	..
India, Bombay	Dec.	22–28	12	..
Italy, general	Dec.	27–Jan. 2	25	..
Genoa	Dec.	16–31	8	1
Naples	Dec.	20–Jan. 3	26	7
Japan, Kobe	Dec.	12–18	1	..
Liberia, Monrovia	Nov.	28–Dec. 4	6	..
Malta, Valetta	Dec.	26–Jan. 1	1	1
Mexico, Mexico	Nov.	5–18	..	5
Persia, Teheran	Nov.	1–Dec. 2	..	Present
Portugal, Lisbon	Dec.	26–Jan. 1	17	..
Russia, Moscow	Dec.	12–25	18	4
Odessa	Dec.	12–25	26	7
Riga	Dec.	26–Jan. 8	9	..
St. Petersburg	Dec.	19–25	45	18
Spain, Barcelona	Jan.	4–10	..	2

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Original Articles.

SIX CASES OF PNEUMONIA IN THE AGED, TREATED WITH PNEUMOCOCCUS VACCINE; RECOVERY.

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NEW YORK.

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THE following series of cases, though small, seems of some importance, on account of the age of the patients (66 to 83 years); the marked alcoholic history, several of the cases developing at the end of an alcoholic debauch; the poor general condition of the patients, all but one having chronic nephritis, and all showing marked arteriosclerosis; and the marked contrast between the results of the vaccine treatment, and the mortality from pneumonia here, in similar cases, previous to the treatment by vaccines.

Nearly all the inmates of this institution are over sixty years of age, and the mortality from pneumonia, for the past four years, previous to the present method of treatment, was 66 2/3 per cent. The cases have not been picked, but represent all the cases, diagnosed as lobar pneumonia, since the time the treatment was begun, in all of which the pneumococcus was isolated from the sputum, and vaccine made from the same.

The present plan of treatment is, as soon as the diagnosis is made, to give the patient a hypodermic injection of killed pneumococci, 20,000,000 to 35,000,000 in number, of a vaccine left over from the previous case of pneumonia, then making an autogenous vaccine from pneumococci isolated from his own sputum in our laboratory to carry on the treatment.

After determining the presence of an encapsulated diplococcus in the sputum, the same has been isolated by inoculating tubes of calcium-salt agar with washed sputum, pouring into Petri dishes, and incubating at 37° C., for 18 to 24 hours, at the end of which time, the tiny dew-drop-like colonies of pneumococci could be readily distinguished from the other colonies of bacteria, and inoculations made from the same into tubes of calcium-salt bouillon, and incubated again for 18 to 24 hours, at 37° C., when there would be obtained a suspension of large numbers of pneumococci in the bouillon, in pure culture.

The pneumococci were enumerated by making a number of smears on slides, of equal parts of the suspension of bacteria and blood, the cell content of which is known by previous enumeration (the operator using his own blood, as an index, in these cases). A drop of physiological salt solution is placed on a slide, a platinum wire loop full of blood added, then the same loop full of the suspension to be enumerated, is thoroughly mixed with the above, and a smear made, of varying thickness. The above method, in spite of the difference in the viscosity of the blood and bouillon, as compared with the method of Wright, using a pipette to obtain a definite mixture of blood and suspension of bacteria, was found to give practically the same results, and to be simpler and safer. The smears are fixed with methyl alcohol for five minutes, and stained with eosin and methylene azure (Giemsa). In a large number of microscopic fields, from the several slides, the average ratio of pneumococci to red blood cells was easily obtained and the number of pneumococci per cubic centimeter estimated.

The suspension of bacteria was then diluted with sufficient physiological saline solution to bring the number of pneumococci to 50,000,000 per cubic centimeter, sealed up in small glass tubes of one cubic centimeter each, and killed, by keeping in a hot-air sterilizer, at a temperature of 55° to 60° C., for three-quarters of an hour, and the vaccine was ready for use.

The inoculations of the killed bacteria, into the patient, were repeated in 24 to 48 hours, for one, two, or three doses, as found necessary; 20,000,000 being the minimum, 50,000,000 the maximum dose. In addition to the use of the vaccine, in these cases, the patients were treated symptomatically, being given stimulants, etc., when indicated.

CASE I.—Mr. S., age 83. Patient had just been on a prolonged spree and was on the verge of delirium tremens. The pneumonia started in with great severity. Patient had a chill soon after entrance into the hospital, temperature rose to 103.4°, respirations to 40 and pulse to 140, very irregular and intermittent. Albumin and hyaline casts in the urine. Rusty sputum, containing great numbers of pneumococci. Patient delirious. General condition bad, requiring stimulation from the first. The pneumonia started as a right central pneumonia, later consolidation of right middle and part of right lower lobes developed. The vaccine, consisting of 20,000,000 killed pneumococci, was given as soon as made, on the afternoon of the third day of the disease.

During the night the temperature dropped two degrees, and the general condition greatly improved, but the temperature rose again the next day. Second inoculation of 30,000,000 killed pneumococci was given 48 hours after the first. The next morning, the sixth day of the disease, the temperature was normal and lung beginning to clear. Out of bed, on the eighth day, lung practically clear. Discharged from the hospital eleven days after admission. Has remained well since.

CASE II.—Mr. R., age 75½. Alcoholic history. Two hours before entrance into the hospital, the patient had a severe chill. A sharp pain in right side and short, dry, hacking cough beginning soon after. Patient had been drinking heavily lately.

At time of entrance into the hospital, the patient had a temperature of 105°, pulse 124, respirations 40. Arteriosclerosis very marked. Heart considerably hypertrophied. Urine contained a heavy trace of albumin, and many hyaline and granular casts. Sputum rusty and contained great numbers of pneumococci. The pneumonia developed first in the right upper and middle lobes, with extensive dry pleurisy. The vaccine was first given on the third day, 20,000,000 killed pneumococci, prepared from his own sputum. The next day the temperature had dropped some and general condition had improved. Pain from the pleurisy was very severe. The entire right lung was solid except the anterior border. A second inoculation of 30,000,000 killed pneumococci was given 48 hours after the first, on the fifth day of the disease. The next day, the patient was very comfortable, temperature 99.2°, and general condition greatly improved. Consolidation of lung beginning to soften. Fluid present in right pleural cavity. The next day, the seventh, the temperature rose and the patient complained of pain in left side. Beginning consolidation of left lower lobe was found. He was given another inoculation of 50,000,000 killed pneumococci. The next day the general condition had improved slightly and the temperature had diminished a little. Left lower lobe completely consolidated. Fluid in right pleural cavity increased slowly, and several days later 800 cubic centimeters of thick purulent fluid was aspirated, containing large numbers of pneumococci that stained poorly, and cultures from the same remained sterile.

The lungs cleared rapidly, and the temperature was normal for the next ten days. Patient was up and about and very comfortable. Then he began to have an intermittent temperature and appeared septic. Fluid was found to be accumulating again in the right pleural cavity, and 300 c.c. of very thick creamy pus, containing the colon bacillus in pure culture, was obtained by aspiration. Vaccine was made. On each of the three following days an autogenous colon vaccine of 50,000,000, 100,000,000, and 150,000,000 killed cocci given, and two days a fourth inoculation of 250,000,000. This brought the temperature practically to normal, but the fluid in the pleural cavity caused considerable interference with the respiration and the heart action, and two days later, under hyoscine-morphine-cactin anesthesia, one inch of the eighth rib in the right postaxillary line was removed, 1,000 cubic centimeters of thick, creamy pus was allowed to drain out slowly, and a tube was inserted. The pus was negative as to bacterial content. The tube was left in two weeks, and one week later the incision was entirely closed, the pleural cavity free of fluid, and the patient entirely recovered.

Several weeks later the patient developed symptoms of an aneurysm of the aorta, which, a few days after the symptoms first appeared, ruptured into the esophagus, while the patient was sitting quietly on the veranda, causing instant death. At autopsy, there was found just external to the left innominate artery (the left common carotid and left subclavian arteries, came off from the aorta as a single branch, same as on the right side) a fusiform aneurysm, the size of a lemon, which had ruptured into the esophagus. The lungs were normal and right pleural cavity was clear, except for a few adhesions about the base.

Case III.—Mr. O., age 66. Patient feeble and in poor condition at the start. Had chronic nephritis, arteriosclerosis, and chronic endocarditis, with loud mitral systolic murmur. Action of heart rapid, irregular, and intermittent, compensation poor. Patient slightly cyanotic. Temperature varied between 101° and 104°. Required considerable stimulation during the course of the disease. Consolidation of entire right lung developed. The patient had no expectoration for several days, but later had typical rusty sputum, containing large numbers of pneumococci. Four days after entrance into the hospital he was given the first inoculation of vaccine, 50,000,000 killed pneumococci, repeated 48 hours afterward. The general condition of the patient greatly improved, but resolution of the lung was delayed, and convalescence was slow. The temperature did not reach normal till two weeks after entrance, and patient was not able to leave the hospital till a month later.

Case IV.—Mr. H., age 80. Patient emaciated and feeble. Arteries very sclerotic. Chronic interstitial nephritis present. Patient was in the hospital for several days, complaining of general pains and malaise, then had a chill, followed by a dry, hacking cough, pain in right side, and rusty sputum, containing large numbers of pneumococci. Total consolidation of right upper and middle lobes developed. Temperature kept about 103°, pulse 110, respirations 36. Patient was given a single inoculation of 50,000,000 killed pneumococci three days later, at which time the temperature was 102.6°. The temperature and pulse fell during the next 24 hours, and by the evening of the next day were normal. The lung cleared slowly, and the patient regained his previous condition, but is too senile and feeble to be discharged from the hospital, at this time (2½ months later).

Case V.—Mr. C., age 67. Patient was in good condition for a man of his years. Habits have always been good. Arteries fair. No nephritis. Came into hospital complaining of indefinite pains, of having taken cold, etc. The next day had a severe chill, followed by a temperature of 103.6°, pain in the left side, severe tight cough, with tenacious rusty sputum, containing large numbers of pneumococci. Leucocytosis of 41,000, polynuclears 87 per cent. Consolidation of lower lobe of left lung developed. The first inoculation, consisting of 50,000,000 killed pneumococci, was given the following day. The temperature fell a couple of degrees, but rose again the next day to 104.4°, respiration 36, pulse 104. Inoculation was then repeated with 25,000,000 killed pneumococci. Thirty-six hours later, the temperature was normal, and consolidation of lung beginning to soften. The patient was out of bed two days later, and discharged from hospital eleven days after entrance. He had no other medication than the vaccines during the whole course of the disease.

Case VI.—Mr. N., age 73. Patient in bad condition at time of entrance into the hospital. Had been on a spree for about a week, with severe exposure to wet and cold. Had been sick several days before entrance. The day before entrance into the hospital, had a severe chill, followed by pain in the left side of the chest, and a dry cough. Patient was very anemic, arteriosclerosis was marked, heart hypertrophied, action irregular and intermittent. Urine contained 1 per cent. albumin and great numbers of hyaline and granular casts. Temperature 103.4°, pulse 114, respiration 28. Leucocytosis of 45,000, polynuclears 92 per cent. The following day, he had developed a consolidation of the lower lobe of the right lung, and a small area in the left

axilla. He received an inoculation of 35,000,000 killed pneumococci. Within the next 24 hours the temperature dropped to 99°, but rose again. The general condition improved, except that patient was passing very little urine. A second inoculation of 25,000,000 killed pneumococci was given 48 hours after the first. Consolidation in the right lung was softening somewhat, but the process had extended in the left lung until it included the entire upper lobe. A third inoculation of 50,000,000 killed pneumococci was given 48 hours after the second, on the sixth day of the disease. The right lung was resolving, but the entire left lung was consolidated. The patient experienced some respiratory distress, from the amount of lung involved (respirations 40 to 46), but did not show much toxemia and required no stimulation during the whole course of the disease. The temperature dropped by lysis to nearly normal on the eighth day, but patient continued an irregular temperature, between 98.6° and 100°, for the next five days, until the left lung resolved. He then made a rapid convalescence, was out of bed 14 days after the beginning of the disease, and at the time of writing, is ready for discharge from the hospital.

HYPERCHLORHYDRIA.

By FENTON B. TURCK, M.D.,

CHICAGO, ILL.

Probably no condition of the stomach confronts a physician with such frequency as hyperchlorhydria. It requires more than mere examination of the gastric juice for the various acids to determine the etiological factors and the nature of the lesion present in the stomach. Many conditions pertaining in the upper part of the abdominal cavity have a similar symptom-complex, and to make a correct diagnosis necessitates more than physical examination.

On the basis of more exact methods I wish to discuss briefly the (1) Forms of hyperchlorhydria; (2) methods of examination; (3) treatment.

We find an increase in the HCl content of the gastric juice (*a*) in the early stages of gastritis; (*b*) in gastric neurosis; and usually (*c*) in cases of retention. Ulcer itself does not produce hyperchlorhydria. We may have ulcer of the stomach with no increase of hydrochloric acid, and also with no acid at all. But if ulcer interferes with the gastric functions, slight retention will occur, encouraging bacterial growth, which will be a factor in causing an increase in HCl. Furthermore, if a stomach is continuously acid and the ulcer-forming tendency exists, great irritation and pain will be pesent and the high acidity may not only prevent healing of an ulcer but may be contributory to its activity.

(*a*) In simple gastritis there is in the beginning an increase of HCl without retention; later on a decrease occurs. A bacteriological examination will show numerous colonies of bacteria growing in the empty stomach, especially on the walls.[1] If the patient lies down, material can be more easily obtained than in the sitting position. It will contain mucus, which is inhibitory to bacterial growth, and microscopic examination will reveal many epithelial cells, which on the contrary, are rich food for germs. The stomach seems to be a reservoir for the mouth waste, and desquamated cells are constantly being swallowed and also cast off from the gastric mucosa. On the surface of the mucous membrane bacterial colonies develop abundantly; no one kind of germ is characteristic of simple gastritis; rather a symbiosis occurs, and yeast in rich growth.[2]

(*b*) A neurotic individual frequently suffers with an acid stomach. But we cannot depend upon the mere symptoms of neurosis for a determination of the cause of the increase of hydrochloric acid. To ascertain the degree of functional hyperchlorhydria, two factors must be ruled out: (1) The psychic influence of the food itself and its mastication; and (2) the influence of abnormal food stimulants, especially of the extractives of meat. The patient should be fed for several days through a small stomach tube, with food of the simplest character—eggs, milk, ground toast made into gruel, and extract-free meat.[3] If the acidity keeps down as the result of tube feeding, then the condition is one of neurosis and can usually be handled by regulating diet and habits of the patient.

Severe mental strain, especially soon after eating; too little exercise, fresh air, and sunshine; smoking, and an unhygienic diet are prominent causes of gastric neuroses. Students, lawyers, bookkeepers, and stenographers would do better to omit luncheon. To rush out for an hour at noon, partake hurriedly even of simple food, and then return immediately to mental activity work disaster to brain and stomach. Both cannot simultaneously work hard; the one robs the other of blood, and either the brain becomes confused or the food undigested. The noonday meal is usually injurious to brain workers and may cause continual distress. The farmer and outdoor laborer can overeat with less disaster than the mentally taxed individual.

If gastric neurosis is not relieved by removing the various causes, permanent lesions of the stomach will follow—chronic gastritis, ulcer, dilatation, and ulcer developing into cancer. The liver, pancreas, and duodenum may also suffer. Such individuals need a simple, non-stimulating, nutritive diet, but we usually find the food in these cases to be of the most stimulating variety—condiments, highly seasoned meats, rich pastry, together with alcohol and tobacco. By experiment we have found that the extractives of meat not only possess no nutritive value, but are locally irritating to the stomach and may act as poisons. They form a rich medium for the growth of microorganisms and by their continual use the stomach and intestines become an excellent culture chamber.

The accompanying charts are a graphic illustration of the difference in acidity of the gastric contents with an ordinary meat diet, and with a diet of meat freed from extractives in a case of severe hyperchlorhydria.

The two following cases are illustrative of hyperchlorhydria of the neurotic type:

Case I.—Mrs. B., aged 63 years, wife of farmer. Patient appeared calm and composed, and took the stomach tube with ease. Complained of fluttering in region of stomach, had difficulty in swallowing food, and "heart burn." Analysis of gastric contents showed very high free HCl and total acidity. No retention present and stomach was normal in size. Patient was first fasted two days to give stomach rest and to rule out any retention. Then for one week a mixture of eggs, milk, and starch was given by tube. Second week patient had gastric tube feeding in morning and mouth feeding at night. The colon was thoroughly lavaged two or three times a week to remove excess of poisons. The diet was regulated—simple food consisting of rice and milk, extract-free meat, baked apples, toast, etc. In three

weeks the cardiac spasm had disappeared and the acidity was normal. In this case the cause seemed to be due to severe strain of domestic life. Many farmers' wives are overtaxed with the care of house and children, take very little rest, and eat a hearty meal of coarse food when tired. This may account for so much psychosis in rural districts.

Case II.—Mr. K., aged 52 years, peddler. Patient was nervous, easily upset, weighed 200 lbs., heavy smoker and overeater. Stomach was dilated, contents highly acid, and continuously so. Blood clots were present in stomach contents. Colon dilated, diarrhea at times with severe cramping. Blood pressure 170. Patient yellow. Stomach was washed out with nitrate of silver 1-1000. Soap and ox-gall mixture relieved bowels. Diet of extract-free meat, rice, toast, and stewed fruits twice a day given. Stomach still showed continuous acidity. Smoking was then prohibited and patient was given tube feeding for ten days. Quick response—coating left tongue and gastric acidity became normal. At present is in good condition except when he smokes.

(*c*) The hyperchlorhydria of retention is most common of the three forms. Retention may be present in the neurotic type and yet be the result, and not the cause, of the high acidity. The diagnosis of the retention form is easily determined. Witdraw all food from the stomach and examine it in the fasting state. The acidity will disappear when the food does. Even microscopic food remnants are a cause of irritation and will keep up a constantly high acidity so long as present in the stomach.

The retention may be due to stenosis or atony. The behavior of the gastric muscle in expelling air from an inflated stomach differentiates between motor insufficiency due to obstruction, and that due to fatigue of muscle. The force with which air is ejected from the stomach tube can be felt with the hand or cheek, and gives some idea of the tonicity of the muscle. In stenosis the muscle wall hypertrophies to compensate for the increased resistance of the pyloric outlet and will require greater degree of tension than normal to distend it. The air coming from such a stomach will escape promptly with energetic puffs.

On the other hand, in gastric myasthenia the muscle becomes less and less resistant to tension and air leaves the stomach in a slow stream, with little force. If nebulized oil be used, the escaping cloud is faint and diffuse.

The following case is illustrative of the retention type of hyperchlorhydria:

Case III.—Mr. P—, aged 22, case of retention due to gastric myasthenia. Patient had been sick about six months before coming to clinic. Stomach was dilated, lower border extending to symphysis pubis. The whole conformation of the trunk was of the congenital type and general enteroptosis existed. Stomach was examined with patient in sitting posture, over period of several days, and no retention observed. Patient was placed in reclining position and examination was made for presence of food in stomach. With very slight air pressure, the contents were easily obtained. If food remnants were present, even though microscopical, the hyperacidity kept up; if no food was present; there was no acidity. This case was one of retention with atony of the muscle. If the stomach were inflated with air, the return was slow and with very little force. Patient was given most careful course of treatment for stomach. Tube feeding for ten days of non-stimulating food indicates neurosis to be also a factor, as the acidity and retention decreased. For four weeks the stomach was exercised with water at 120° F. in the intragastric bag before evening meal. Patient at same time wore abdominal supporter to increase intraabdominal pressure. Fruit diet for eight days was given, and then followed by diet of toasted flakes, stewed fruits, extract-free meat, rice, and milk. This treatment reduced the acidity, and the retention was relieved. Patient was sent to camp life. In three weeks' time, the motility of the stomach showed marked improvement and the acidity kept normal. Five weeks later, patient returned for a little general treatment because of catching cold. He was under observation for one week, and stomach was examined twice daily. No retention or hyperacidity were found.

In all cases of retention with hyperchlorhydria I give the patient but two meals a day, and at first, possibly, only one. Myasthenia seems to be more common than stenosis, and the stomach cannot do effectual work if three meals are given. I daily examine the stomach for the presence of food from five to eight hours after eating.

Methods of Examination.—The examination of the stomach with a rubber tube is usually dreaded by the patient, and the nervous fear entertained may prevent the introduction of the tube into the stomach. Where such a condition exists, I use my intragastric reagent capsule for determining the presence or absence of gastric acids. This I first described in the *British Medical Journal,* Nov. 19, 1898. This summer (1909) I found it in use in the clinics of Europe. The reagent capsule contains a small piece of rubber drainage tube about an inch in length, slit so as to carry three test-papers or bits of cloth, colored with litmus, Congo red, and dimethyl-amido-azobenzol. The small tube with the inserted papers or cloth is placed in an ordinary gelatin capsule, which can be readily swallowed by the patient. Through the tube is passed a silk thread carrying a good-sized lead shot at the end. In five minutes the capsule will dissolve in the stomach; the rubber tube fills with gastric juice and the test papers or cotton become saturated. When the string is withdrawn fifteen minutes after swallowing, the coloring of the papers will at once indicate the chemical nature of the stomach contents. The liquid in the little tube can be used for further examination.

The reagent capsule causes the patient no distress and it gives a qualitative test for acidity of the stomach contents. This aids materially in making superficial examination of a sensitive patient, who will later more easily submit to the use of the stomach tube.

I prefer to examine the stomach with the patient in the reclining position. The stomach contents then flow out of the tube with ease; and in cases of prolapsed stomach, the lowest part of the cavity where the food or secretion is more easily reached. Care should be taken that the tube is sufficiently long. I recently had a case giving all the symptoms of hyperchlorhydria of retention, and yet several examinations of the stomach, even with the patient in the reclining position, had revealed (one hour after test meal, and also four to five hours after regular breakfast) small amount of food remnants, mucus in abundance, and no free HCl. I made another examination (four hours after regular breakfast) with a very long double tube, introducing it full length. I then inflated the stomach with air under gentle pressure, until the outline of the greater and lesser curvatures could be seen on the surface. Almost

immediately the food began to come from the tube. Pressure of the hands upon the abdomen caused it to literally pour out, the gastric muscle being so weak that almost no peristalsis was present, and the outflow was dependent upon the pressure of air within and of the hands without. In this instance I obtained nearly a quart of highly acid food, which soon separated into granular and fluid layers. Further examinations confirmed my diagnosis of hyperchlorhydria of retention due to atony.

The expulsion method of obtaining gastric contents excites peristalsis, which is the important factor in expelling the food through the tube. This frequently takes place, even though the tube used is too short to reach the lower part of the stomach where the food and secretions lie. If the stomach is dilated and the muscle is atonic, as in the case just cited, the tube must be long enough to extend into the contents.

The nature of the response of gastric muscle to compressed air inflating a stomach indicates definite conditions. From a dilated myasthenic stomach, air will return slowly and with little force. If nebulized oil is introduced into such a stomach, the cloud escaping at the end of the tube will be faint and diffuse. The opposite results are obtained from a "leather bottle" stomach or one in which the muscle is hypertrophied because of pyloric stenosis. If compressed air be injected, it will return almost instantly, as from a bottle, in short, sudden puffs, which can be distinctly felt with the hand or cheeks. The volume and pressure of air which a stomach will hold without pain or cramping indicate the size of the organ. With the patient in reclining position, the outline of the curvature can easily be made by inflating with air. As the air enters it has a peculiar rumbling sound, and the force of it can be felt through the abdominal wall. This obviates the confusion which often arises from mistaking a dilated colon for stomach.

The double stomach tube would appear to be much the best for gastric examination and treatment. By this means air can be introduced through the small tube, while the larger one permits an immediate escape of the air in response to peristalsis. The distress to the patient is less than in the use of single tubes, and the danger much less. It is not necessary here to consider conditions in which the stomach tube should not be used.

For gastric lavage I prefer the patient to lie down. The water is in this position more easily syphoned out, and by placing the patient on his side, with the head over a portable sink or large basin, the floor and adjacent furniture do not become soiled with suddenly expelled contents from the stomach. Furthermore, it is especially advantageous to administer gastric lavage to a patient in the reclining position.

Methods of Treatment.—In all cases of hyperchlorhydria, as far as possible the cause should be removed. Usually more than one cause exists, and it is frequently difficult to persuade the patient to give up habits which are either very dear to him or else very necessary to his livelihood. Consequently, the treatment of these cases may entail a complete change in life and work.

I shall consider briefly the following details: (1) Habits of living; (2) Diet; (3) Medicine; (4) Local applications to the stomach; (5) Local applications to the colon; (6) Surgery.

(1) Habits.—In many cases of hyperchlorhydria, especially of the neurotic type, if the causes are removed, the patient will soon recover. Outdoor exercises, fresh air, and sunshine should break up the monotony of sedentary life. The devitalized air of a building robs the skin and internal organs of their tonicity, and the reflex areas lose their sensitiveness. Coffee and tea result in similar conditions. The first effect of coffee is exhilarating. Many, therefore, think tea and coffee do them great good; but their effect is produced before digestion or assimilation have taken place, and what seems to be strength is only nervous excitement. The overworked nerves and muscles of the stomach need rest and quiet, instead of abnormal stimulation.

Tobacco and alcohol should be discarded. Tobacco is a slow, insidious, malignant poison, and, in whatever form it is used, it is irritatng to the stomach. It is all the more dangerous because its effects are slow; but once the stomach has succumbed to it, and the muscle is weak and atonic, an immediate effect follows every dose of tobacco.

(2) Diet.—Highly seasoned foods, hot sauces, mustard, pepper, spices, pickles, and the extractives of meat are frequently responsible for hyperchlorhydria. If a patient has partaken freely of these kinds of food, he should change to a more simple diet. The extractives of meat not only possess no nutritive value, but are irritating to the stomach. They also increase the growth of bacteria. The fat in beef is largely stearin, and it taxes a weak digestion more than do fats with a lower melting point, such as cream. If meat is prepared free from the fat and extractives, its nutritive value is not lost, but really increased, on account of the protein concentration. Soak chopped or ground steak in ice water for twenty-four hours; press out juice, and wash pulp in boiling water to remove fat; steam in autoclave or steamer, if possible, under 20 to 30 pounds pressure, for four to five hours. Drain the meat stock of its water and keep on ice. By this method, not only are the irritating elements of the meat discarded, but it is rendered more digestible; the high temperature hydrolyzes the connective tissue into gelatin. This stock can be made up into creamed meat, meat loaf, stuffed tomatoes, etc., the flavors being supplied in the form of mushrooms, celery, and onion, while cream and butter substitute the discarded fat. This process also renders the meat salt free, which in some cases is an advantage, as I order all food to be taken for a time free from salt, in advanced hydrochlorhydria.

Rapid eating and overeating are frequent causes of hyperchlorhydria. To break up these habits, let dry, hard toast or biscuits be a part of every meal. On the other hand, caution should be taken that the patient does not chew his food too long, lest the psychic influence of this extreme increase the already existing secretions. Steamed rice, stewed berries, especially huckleberries, baked apple, creamed toast, poachd egg on toast, puree of pea, cream pea soup, and extract-free meat make a representative dietary. Let the meal consist of two or three kinds of food only. Some patients cannot take more than one kind, at least for a long time. Frequent meals increase both psychic and reflex secretion. A longer pause or rest period between meals often produces brilliant results. Two meals a day, breakfast at seven or eight o'clock, and dinner at five or six o'clock in the evening, are an important prescription. Oftentimes this regulation alone puts the patient on his feet. The rest thus given the stomach may enable it to heal without other treatment. Aside from the diet regulations, I make out a few rules of hygiene for my patients:

1. Plenty of fresh air every day; if possible, sleep in open air.

2. Do not drink with meals. Drink freely of water in middle of day, beginning three or four hours after eating.

3. Avoid such combinations as milk and sugar, fruit and vegetables. Do not take bouillons or meat broths. In general, leave soups out of the diet.

4. Plan to eat two or three substantial foods at a meal. Fruits and cereals can be best eaten in the morning; vegetables and meat at dinner.

5. From eight to ten hours should intervene between breakfast and dinner (time in each case determined by examination).

6. Do not eat when tired; be cheerful at meal time; do not eat alone. Take plenty of time for eating; chew the food thoroughly, but not too long. Never eat between meals, not even sweets and dainties.

7. Avoid sweet desserts and rich salads.

8. Discard tobacco and alcohol, tea and coffee.

Gelatin and agar-agar are very soothing to irritated stomachs. Gelatin makes up best as a simple dessert; agar-agar, as a breakfast food. Agar-agar prohibits germ growth; it helps to lessen the bacterial infection so often present in the stomach in hyperchlorhydria, and it breaks up the infections in the colon and, therefore, relieves the constipation frequently accompanying this condition.

(3) Medicinal Treatment.—The use of carbonic oxide gas lessens the irritable sensations in hyperchlorhydria, and it is customary for patients to drink aerated waters. The gas stimulates peristalsis by the stretching or tension produced upon the muscle wall. The relief obtained by taking bicarbonate of sodium is due not only to the resultant neutralization of the acids, but the nascent carbonic acid gas also mechanically stimulates peristalsis. Peroxide of hydrogen (one to two drams in water) lessens distress in the stomach by inhibiting bacterial growth and by checking the over-production of acid. It is, therefore, a most valuable gastric remedy and is harmless. The more recent oxidizing remedies that liberate oxygen slowly possess the advantage of not being so fulminating in effect.

While alkalies usually bring relief, indiscriminate use of them may increase the irritability. Magnesia has more combining power than bicarbonate sodium, and is less irritable. Mixed alkaline treatment is most efficacious. The following prescription has proven of considerable value:

Mentholis ..... gr. ii
Sodii bicarb ..... ℥ ii
Potassii bicarb ..... ℥ ii
Magnesii carb .....
Calcii carb ..... a a ℥ ss
Bismuthi subnitratis ..... ℥ ii
Triturate Sig. Take a pinch every hour or a teaspoonful three or four times a day.

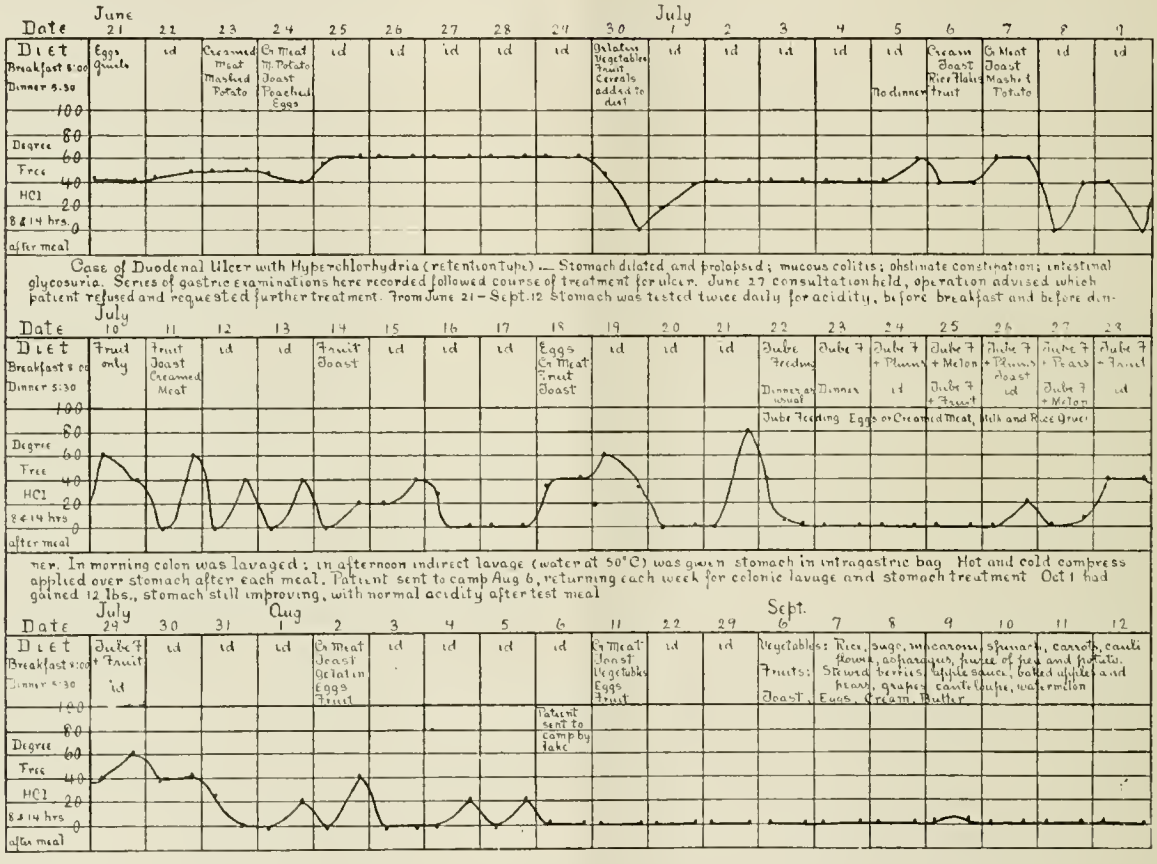
June
July
Date
Diet
Degree Free HCl
8 & 14 hrs.
after meal
Case of Duodenal Ulcer with Hyperchlorhydria (retention type).— Stomach dilated and prolapsed; mucous colitis; obstinate constipation; intestinal glycosuria. Series of gastric examinations here recorded followed course of treatment for ulcer. June 27 consultation held, operation advised which patient refused and requested further treatment. From June 21 – Sept. 12 Stomach was tested twice daily for acidity, before breakfast and before dinner. In morning colon was lavaged; in afternoon indirect lavage (water at 50°C) was given stomach in intragastric bag. Hot and cold compress applied over stomach after each meal. Patient sent to camp Aug 6, returning each week for colonic lavage and stomach treatment. Oct 1 had gained 12 lbs., stomach still improving, with normal acidity after test meal
July
Aug
Sept.

Chart 1.

In gall-duct and hepatic disturbances associated with hyperchlorhydria, soap combined with ox-gall may be given in capsules. The salicylates will excite hepatic function; they are also useful in hyperchlorhydria associated with lithemia, acid rheumatism, and gouty conditions. Urotropin in 10 to 20 grain doses has a sterilizing effect of considerable value.

Olive oil possesses the advantage of not stimulating further production of HCl and would seem to be a useful remedy as a local protection to the gastric mucosa. But in cases of retention, the olive oil undergoes decomposition, setting free fatty acids and thus increasing acid irritation. Vaseline, on

the other hand, seems to offer soothing protection to the stomach, and it does not decompose. It inhibits bacterial growth and frequently relieves constipation.

No systemic drug treatment for hyperchlorhydria and its associated conditions can be compared with the hypodermic injection of atropine, followed later by physostigmine. Atropine has a quieting antispasmodic effect, yet does not check peristalsis. It also renders the mucosa less sensitive to local irritation causing spasm.

Physostigmine produces favorable conditions for peristaltic movement induced by the stomach or intestinal contents. Inject daily 1/200 to 1/60 gr. of atropine sulphate and follow later by 1/60 to 1/20 gr. of physostigmine sulphate. Begin with the minimum dosage and slowly increase. This will through muscle and glands, with a resultant stimulation of new antibodies. In this procedure some albuminate of silver is formed and carried down into the duodenum, causing an intense hyperemia of the mural structures. The common duct is closed and the liver and pancreas swell up, the liver sometimes nearly an inch in diametric increase. In three to twelve hours reaction takes place, the duct opens wider, and the retained secretions flow out in abundance. Their alkaline reaction influences the pylorus so that the stomach can empty itself: the acid contents of the bowels are neutralized, and intestinal digestion is assisted; constipation is relieved; the stool may even be loose for a time. One or two applications of the silver nitrate lavage may start the patient permanently in the right direction; it should not be repeated oftener than every other

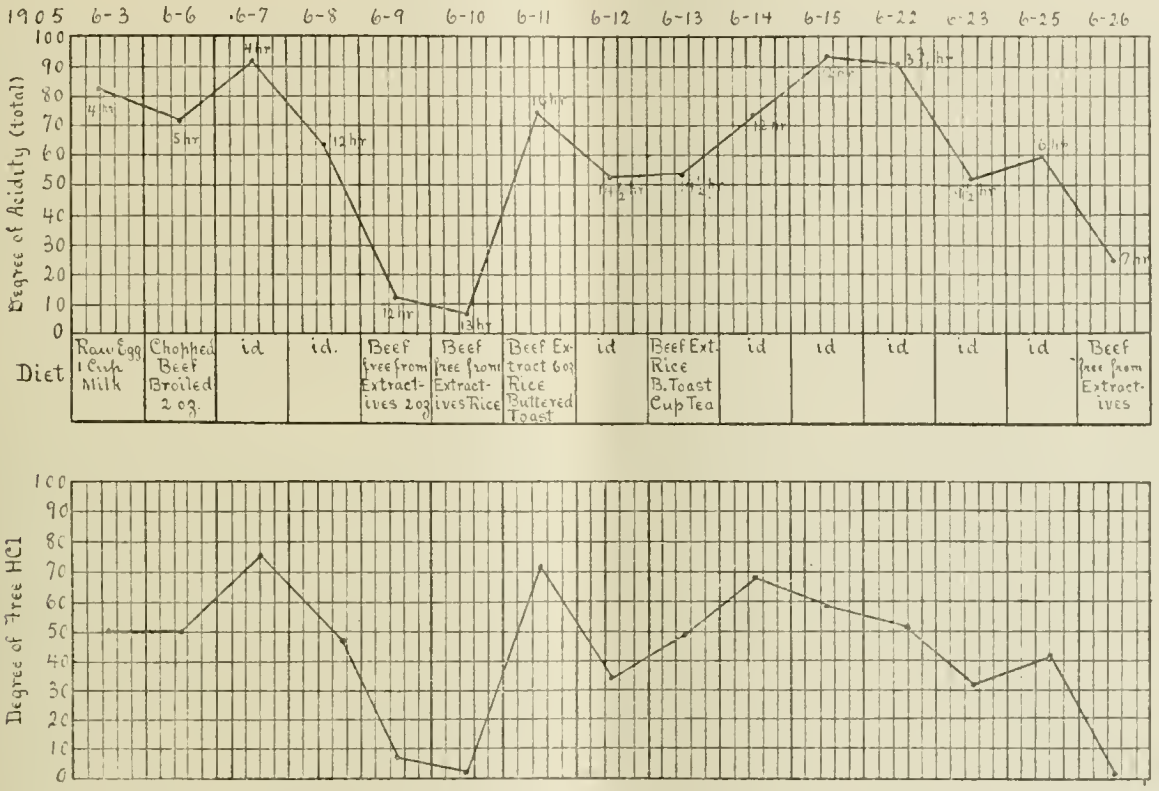
1905 6-3 6-6 6-7 6-8 6-9 6-10 6-11 6-12 6-13 6-14 6-15 6-22 6-23 6-25 6-26
Degree of Acidity (total)
Diet
Raw Egg 1 Cup Milk
Chopped Beef Broiled 2 oz.
id
id.
Beef free from Extractives 2 oz
Beef free from Extractives Rice
Beef Extract 6 oz Rice Buttered Toast
Beef Ext. Rice B. Toast Cup Tea
Degree of Free HCl

CHART 2.—A case of severe hyperchlorhydria, showing the difference in acidity with a diet containing extractives and one free from extractives.

accomplish most excellent results. The injections may be made intramuscularly in the gluteal or crural regions.

(4) Local Applications to Stomach.—A stomach which has been highly and continuously acid for some time needs local treatment. To neutralize the excess of acids either by combining them with albumen, or by the administration of alkalies, does not reduce the hyperacidity permanently, and may increase it. Applications affecting the circulation of the stomach are more effectual. Gastric lavage with silver nitrate 1/1000 is very helpful in cases of high acidity due to gastritis, cholangitis, and disturbances of the liver with secondary stomach symptoms. The first effect of the silver nitrate upon the stomach is a superficial coagulation of the cells; the dead epithelium, débris, and mucus are washed away with the lavage water. An intense hyperemia then follows, some blood may even color the washings, but the end result is a normal circulation of the stomach. The venous congestion is broken up and fresh arterial blood and lymph course day, and should always be given to a fasting stomach, never when food is present. Soap lavage is also useful in hyperchlorhydria, especially when due to hepatic infection. Soap not only mechanically cleanses the stomach, but it is found to be one of the most powerful excitants of secretin, which enters the circulation and stimulates the glands. Their fresh secretions hinder the growth of microorganisms. By adding oil of cloves, oil of cinnamon, and menthol, the douching solution may be rendered still further antiseptic. Slippery elm also makes a soothing lavage.

On account of the tendency of lavage to increase atony of the stomach, its use is limited. It is my custom to begin the course of treatment with one or two applications of lavage, and then proceed along other lines.

If the hyperchlorhydria is due to atony of the muscle and retention, it can be relieved by improving the motility. Exercising the stomach with air results in local stimulation of the muscle wall. Compressed air may be introduced directly into the stom-

ach through a short double tube, and intermittent distention applied. If the air is first passed through a solution of hot water (60° to 65° C.) to which has been added a few drops of a mixture of oil of cloves and 15 per cent. menthol, the heated moist air impregnated with an antiseptic analgesic stimulant makes the gymnastics of the muscle more efficacious. A pressure of 30 to 40 mm. of mercury can be used without causing distress and without any harmful results. If the treatment is given before the evening meal, it at once improves the appetite, initiates peristalsis, and the stomach begins to empty itself more quickly. A patient soon finds the treatment agreeable, the pleasant sensation of which overcomes the momentary dislike of the stomach tube. It is frequently advantageous to substitute cold dry air for heated moist air, or the two may be alternated to increase stimulation. A spray of nebulized oil may also be used as an alternative. The physiological effect of this treatment increases peristalsis, and favorably influences not only the gastric but all the splanchnic vessels.

When the gastric muscle is extremely weak and relaxed, pneumatic gymnastics cannot be used, and even direct lavage of the stomach may be disastrous. In such cases the gastric muscle may be stimulated by alternate applications of hot and cold water in a rubber bag (indirect lavage). A thin rubber bag is carefully tied to the end of a long single stomach tube and introduced into the stomach. The thin rubber does not enlarge the tube materially. Water at a temperature of 50° C. is allowed to run into the bag until the patient feels the pressure. At the end of two or three minutes the water is returned and a new supply introduced. After four or five applications of the hot water, a short cold douche is given for retoning the stomach wall. By this treatment we obtain a high degree of passive exercise to the gastric muscle, with a minimum amount of fatigue on the part of the patient. We do not rob the stomach of any of its secretions, and if acids are present, they often are neutralized by the treatment.

(5) Local Applications to the Colon.—The colon is with frequency disturbed in patients suffering from hyperchlorhydria. The cause may be located there, and an intestinal infection responsible for the lowered resistance of not only the stomach, but of the whole body. It is, therefore, advisable to carefully examine the colon and stool in cases of stomach distress. I have even placed the stomach on a good working basis by treating the colon alone. More frequently than not, constipation and retention, mucous colitis, dilation of the colon, and diarrhea are coexistent with the hyperacidity of the stomach and may be the result of it. Daily lavage of the colon with water at 50° C. for a period of two to six weeks may relieve the retention of the bowel. If the muscle is weak, the hot water will increase peristalsis; if spastic conditions are present, the water should be applied at lower temperature.

(6) Surgery.—Surgical procedures in cases of hyperchlorhydria should be limited to absolute mechanical obstructions. This conclusion has now been reached by the most experienced surgeons. Cannon has recently shown that no alteration in peristalsis occurs when a new opening is made into the stomach, the food continuing to pass through the normal opening as usual.[4] The supposed rest to a selected portion of the stomach does not take place. When stenosis exists, according to Cannon, the passage of food through a new opening does not allow proper admixture with bile and pancreatic juice. Fat and protein may therefore pass through the alimentary tract without being absorbed.

The long-used methods of treating hyperchlorhydria and its associated conditions have not been successful; they are based on histopathology and anatomical structure, depending upon some ocular demonstrable lesion for application. The new pathology of digestive diseases concerns functional disturbance and motility. It offers entirely new foundations for treatment and changes the whole aspect of the cause and effect of these conditions.

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THE ROLE OF CEREBRAL LESIONS IN INFANCY AND CHILDHOOD IN THE CAUSATION OF EPILEPSY.*

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Injury to the brain is one of the well-recognized causes of epilepsy, and the brain injuries of infancy and childhood resulting in paralysis are discussed more or less at length by all writers upon the etiology of this disease. All agree that a large number of patients afflicted with infantile cerebral palsy sooner or later develop epilepsy, and this condition is given as a direct cause of this disease by different authors in from five to ten per cent. of cases. While the relation between these two diseases has been repeatedly pointed out, a study of a large number of epileptics has led me to believe that the importance of brain lesions in infancy and childhood in this connection has not been given sufficient emphasis. I am quite convinced that the profession in general does not fully appreciate the intimate relation existing between the two conditions, nor the importance of the one as an etiological factor in the production of the other.

Infantile cerebral palsies are usually divided into three groups: First, those in which the lesion occurs *in utero*; second, those sustaining injury at the time of delivery; and third, those developing paralysis after birth. The first of these groups is a relatively unimportant one, as cases of this kind are not of very frequent occurrence. A considerable number of cases fall into the second group. Most of this type occur in long tedious labors and often in the delivery of primiparæ. The injury sustained is usually a meningeal hemorrhage, but may be an actual laceration of brain tissue by pressure of forceps. The symptoms are usually so evident and profound that the serious nature of the case is recognized at once. The possibility of such a lesion

*Read before the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics at the eighth annual meeting at Indianapolis, Ind., November 11, 1908.

occurring and the consequences from it should be borne in mind in all cases of protracted labor and instrumental delivery. The practice of too frequent, and at times uncalled for, use of forceps by unskilled obstetricians is undoubtedly to blame for a certain number of the palsies of this type. The third group is by far the most important of the three, the number of cases of this kind being greatly in excess of the others. There is considerable difference of opinion as to the exact pathology in these cases owing to the fact that it is unusual for a case of this kind to come to autopsy during the acute stage, and the changes found in chronic cases are indefinite and often confusing. Strumpel in 1884 first advanced the idea of an inflammatory origin of the disease, the paralysis resulting from an injury or destruction of cortical cells similar to that found in the cord in anterior poliomyelitis. This theory of polioencephalitis had a wide acceptance, and appears to be still supported by the majority of German writers. There has recently been a tendency on the part of some neurologists in this country to return to this theory, but it is safe to say that the prevailing opinion among American and English authorities is that the lesion in this disease is more often a vascular one. Here again authorities hold different views as to the exact pathological process, some adhering to the idea of embolism and thrombosis, and others to a hemorrhagic lesion. Gowers, who supports the first of these views, in discussing the subject, says of the theory of polioencephalitis: "Attractive as the latter theory is at first sight, it rests upon no evidence, and * * * the scanty pathological facts we possess are opposed to its validity as are also the facts of etiology." Further on in the same discussion he says: "The alternative theory, vascular obstruction, has much to support it. It is the common cause of such central cavities as have been found in some cases. It is a known consequence of such general diseases as frequently precede the cerebral lesions. It has been found in some cases of the kind. A cavity in the central ganglia can hardly be due to any other cause than arterial obstruction." Dana says: "The causes are those which lead to intracranial hemorrhages, embolism, and thrombosis." Church is of the opinion that hemorrhages occur more frequently than thromboses. Sachs, who has given a great deal of attention to such cases, and has been one of the most pronounced advocates of the theory of vascular lesion, says in his text on "Nervous Diseases of Children": "The writer has departed from his former views to the extent of conceding that a small number of the acute cerebral palsies of children may be due to an hemorrhagic (infectious?) encephalitis." In the same work the further statement is made: "The truth is that encephalitis is the rarest cause of these palsies and should not be considered at all unless every other morbid state can be safely excluded." My own opinion, based upon a considerable clinical experience and some pathological work in these cases, is that the primary pathological process in the greater number of instances is a vascular lesion. I have observed many cases with histories of a mode of onset and course irreconcilable with the idea of an inflammatory process. The fact that the disease is always sporadic and is but seldom found as a complication in epidemics of acute polimoyelitis, as well as the different anatomical changes found in the cerebral an l cord palsies, indicates a different pathology for the two conditions. Diffuse sclerosis with atropy, indicating a probable inflammatory origin, is found, it is true, in a considerable number of palsies of the cerebral type, but porencephalus, cavities, cyst formation, hemorrhages, and such vascular lesions are the predominating anatomical changes found. There are undoubtedly a number of different morbid conditions that underlie and account for the actual lesion in cases of vascular origin. In those cases developing in the course of one of the acute infectious diseases, the process is most probably one of embolism or thrombosis due to alterations in the blood state and the circulatory system. The fact that it develops late in the course of the primary affection would indicate such a process. Some morbid changes in the vessel walls appear to be present in some cases, especially in those of an hemorrhagic type. Infantile convulsions are, I am convinced, a much more important factor in this connection than is generally supposed. Among the authorities, Sachs and Osler have been notable adherents to this idea, and Jacobi, in an article on "Causes of Epilepsy in the Young," makes the statement: "Every convulsion ever so slight or short may produce cerebral hemorrhage with all its possible results, epilepsy, idiocy, paralysis, and insanity." I have observed a number of cases of young children previously healthy who, after the ingestion of quantities of irritating and indigestible food, were attacked with convulsions, accompanied by profound depression, and followed by a partial hemiplegia, and later on became epileptic. In these cases, from a purely clinical standpoint, the convulsions have every appearance of standing in a causal relation to the brain lesions, probably hemorrhagic, which in turn were the cause of the epilepsy. Granting that such well-defined cases are rather unusual, the fact that they do occur is sufficient grounds for the position that the so-called simple convulsions of infancy and childhood should be considered in a much graver light than they are usually regarded by the general practitioner. In view of the fact that infantile convulsions may, even occasionally, be followed by such dire results, it is certainly the duty of every physician to recognize this possibility and take due precaution to prevent their occurrence.

The same type of lesion, whatever may be its cause, which produces the well-known clinical entity of infantile cerebral palsy when it happens to strike the motor centers, is liable to fall in some other part of the brain. Freud, I believe, first called attention to such cases, referring to them in the paradoxical but apt phrase of infantile palsy without palsy. Most writers upon nervous diseases discuss this condition at some length, but I believe the subject has not been given the attention which it deserves. When the lesion is located so as to impair or destroy the center for some special sense or function, as vision or speech, it is, of course, recognized, but when it falls in some part of the brain not giving localized symptoms, the so-called silent areas, it is only discovered on the autopsy table, if at all. The lesions, in fact, are often small, and after years have passed may become more or less healed, leaving only small scars that may escape the attention of the pathologist. It is surprising to note the serious results sometimes following very small destructive lesions in parts of the brain not usually supposed to be so exceedingly vital. I recall a case of a man suddenly seized with a convulsion involving one side especially, who died in less than half an hour without regaining consciousness. I made a

careful postmortem examination of the patient and found nothing to account for his sudden attack and death except a few small hemorrhages, none larger than a pea, in the posterolateral portion of the optic thalamus. The lesion was on the opposite side from the more pronounced convulsive movements. Every pathologist will bear witness to the comparative frequence with which destructive lesions in the brain are found upon section in cases where they have not been suspected. This is especially true of patients suffering from epilepsy and is, to say the least, a very suggestive circumstance. In this connection it is quite interesting to quote from Dr. Neu, pathologist of the Central Indiana State Hospital for the Insane, in his discussion of a case of brain tumor reported in a volume recently issued by the pathological department of his hospital. He says: "The case also is illustrative of a group whose clinical manifestations are very similar to, and not always differentiable from, those constituting the symptom complex of true idiopathic epilepsy. In the latter no visible, macroscopical alterations are found. In the former, there is present some pathological condition, such as tumor, a hemorrhage, an area of softening, an inflammatory condition, vascular disease, or other conditions as a direct exciting cause. It does seem that there should be some means whereby an epileptoid symptom complex could be differentiated from a true idiopathic epilepsy. At present, however, we must confess to an inability to do so, since on the one hand one often meets with cases which during life are regarded as idiopathic epilepsy and the autopsy reveals the presence of some gross organic lesion, while, on the other hand, one also meets with cases regarded as epileptoid, due to some gross lesion and are operated upon as such, but operation and autopsy fail to discover the existence of any visible gross lesion."

The question naturally arises, it is not very probable that in such cases there is a real lesion, small in itself, or possibly healed and leaving only a scar which has escaped both operator and pathologist.

Gowers, in discussing infantile convulsions as forerunners, not necessarily causes *per se* of epilepsy, gives three characteristic features to that form of epilepsy resulting from an organic disease of the brain during infancy. They are; first, the epileptic convulsions are more or less one sided; second, the first attack of infantile convulsions was of great severity; and third, that the first convulsions often occur during some acute illness, or soon after a fall, or in a state of general physical prostration. How familiar to those of us seeing large numbers of epileptics, is the picture, more or less definite and exact, of this clinical history! All observers must have been impressed with the number of epileptics whose seizures show regularly a more or less pronounced one-sided element. It is found in thirty-five per cent. of the four hundred epileptics in the Parsons State Hospital. A careful and thorough physical examination will not infrequently reveal one-sided symptoms or phenomena in patients showing no evidence of them to a casual observer. It may be only a heightened reflex with evidence of a slight unilateral retardation in development as found by actual measurement, or a tendency to abnormal laxity in the articulations of a member, or a more rapid tiring and exhaustion of one side after continued exertion, which when found are indicative of a cerebral lesion as the origin of the disease. A careful inquiry into the history of epileptics will disclose the fact that quite a number of them suffered at some time during infancy or childhood from attacks of convulsions characterized by an unusual amount of constitutional depression, and involving one side more than the other. It is maintained by some good authorities that most, if not all, cases of epilepsy dating from an attack of some acute infectious disease, as measles or scarlet fever, have as their pathological basis a cerebral lesion.

From a study of the subject, both from a clinical standpoint and a consideration of pathological findings, I am of the opinion that cerebral lesions in infancy and childhood have a much more important influence in the development of epilepsy than is usually attributed to the condition, and that the importance of such cerebral lesions as a causal factor is second only to bad heredity.

A CASE OF NOMA FOLLOWED BY CICATRICIAL CONTRACTION OF THE JAWS.*

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The patient, a girl aged 4 years, was admitted to Bellevue Hospital June 27, 1903. She had been caught under a horse-car and had three-quarters of the skin torn from the right leg. The wound was treated with continuous irrigation of bichloride of mercury, 1-20,000, until July 9, when symptoms of mercurial poisoning developed. On July 12 there developed double gangrenous stomatitis and antitoxin was given. Cultures from the mouth showed streptococcus, staphylococcus, and diplococcus. The lesions were at first treated with irrigations of saline, Dobell's solution, and a weak peroxide. The process on the left side, which was the side on which the patient lay, was cured. On the right side the hardening diminished for the first week and then the disease advanced again. By July 23 the skin over the induration had thinned. On July 25 the cheek perforated. The hemoglobin was 55 per cent. *Operation* was performed on July 26. The noma was excised peripheral to the induration, and the cut surface treated with pure carbolic, followed in two or three minutes by alcohol. The circumscribing incision reached above to the malar bone and posteriorly to a little behind the anterior border of the masseter muscle. The angle of the mouth was saved. The tip of Stenson's duct was necrotic. The upper jaw presented an area of necrosis. A piece of the indurated tissue, deeper than the slough, was planted by Dr. J. E. Welsh in a rabbit's mouth. The animal developed a gangrenous stomatitis on the following day, and on the next day died. *Result:* The extension of the process in the patient was completely arrested by the operation. Cicatricial contraction of the jaws supervened.

The first plastic operation was done on February 20, 1904. A flap was taken from the neck (Israel's operation) and, in accordance with the technique of Dr. B. Farquhar Curtis, was slipped beneath a bridge of skin raised from the lower jaw below the defect, through an incision just beneath the lower margin of the jaw. The skin side of the flap was turned toward the mouth. The flap, one and one-half inches wide, its base situated in an oblique line downward and forward from a point half an inch below the angle of the jaw, was cut downward and

*Patient presented at a meeting of the Surgical Section of the New York Academy of Medicine, January 7, 1910.

outward along the side of the neck to a point three-quarters of an inch below the clavicle. All of the scar tissue was removed from the defect except that behind the angle of the mouth, which was cut free above and below from its sites of attachment to the jaws. Stenson's duct, which was caught in the scar, was liberated in a flap which was turned inside the mouth. The edges of the flap from the neck were drawn beneath the skin margins of the facial wound and united with mattress sutures of horsehair. *Result:* At the extremity of the flap a portion of the margin about five-eighths of an inch in length sloughed, and the flap along the whole upper border of the wound separated.

On March 5, 1904, the edges of the opening into the mouth where the flap had separated, were freshened and sutured. The scar behind the angle of mouth between upper and lower jaws was again cut.

Result: The median portion of the line of apposition united, leaving a small opening posteriorly and a larger one about two-fifths of an inch in length at the antero-superior angle, at which latter situation the skin surface of the flap was everted for about two-fifths of an inch.

On April 4 the pedicle was divided, and an attempt was made to close the two small openings. Previous to this operation the child could separate the front teeth three-sixteenths of an inch and could chew. While under the anesthetic the jaws were spread so that there was one-half an inch between the front teeth.

Recurrence of noma: On the third day following this operation there was ulceration around the stitches and a high rise of temperature. On the fifth day the wound at the posterior opening continued to increase in size, was malodorous, and resembled a recurrence of noma. The culture report stated the case to be one of true diphtheria. Antitoxin was given. However, the diagnosis was found to have been faulty. The noma in the meantime had continued to eat away the flap until about half of that portion which had filled the facial defect was completely destroyed. A slough covered the outer surface of what remained of the flap within the latter area. On April 13, 1904, wide excision of the disease was effected. Some carious bone was removed. The raw surfaces were treater with pure carbolic and alcohol. There was a prompt drop in temperature, followed by recovery.

Bacteriological Findings.—Through an incision made through healthy tissues down upon the outer limit of the disease, scrapings were taken from the zone peripheral to the necrotic area, from which Dr. Flournoy obtained a bacillus in pure culture, which he described as follows: "The culture contained bacilli, pure, resembling the moderately long forms of true diphtheria bacilli. These are about five times as long as they are wide, occur singly, are in general slightly curved, and contain granules which stain metachromatically. They also show a slight irregularity in their diameter. The growth on agar is somewhat more extensive than that of the *Bacillus diphtheriæ*, being quite abundant after twenty-four hours, and showing a smooth, pearly white surface. On transplantation to blood serum (Loeffler's) they show a fairly abundant, rather thick growth, and the same morphological characteristics." It is an interesting fact that at a subsequent time Dr. Flournoy found a pure culture of this same bacillus in another case of noma, from which scrapings had also been taken from the tissue beyond the area of necrosis.

On March 19, 1906, the opening through the face into the mouth was found to have completely closed. The lower jaw was held in almost complete ankylosis. The child took food through an opening caused by the loss of a tooth. The skin over the lower jaw opposite the defect, corresponding to the area occupied by the remnant of the skin flap brought from the neck two years previously, was loose. *The operation now planned* was to split this area of loose integument off the lower jaw, through an incision made below the body of the latter, without cutting through into the mouth; then to line this pocket with a skin flap taken from the arm, and afterwards to cut through the top of the pocket into the mouth, divide freely the scar tissue attached to the lower jaw, and depend on the epithelial growth from the transplanted skin and the mucous membrane to cover the raw surfaces.

A second plastic operation was done on March 19, 1906, as above outlined. The Italian method was practised, having constructed a jacket and helmet of soft leather, as employed by Berger ("Chirurgie de Francisco Durante," 1908, I., p. 273). To accustom the patient to the fixation apparatus, she had worn the same at night for two weeks preceding the operation. The arm-flap was planned with a view to avoiding cicatrization that might impair the movements of the shoulder and elbow joints. The posterior leg of the flap ran from a point half an inch below the acromial angle downward and backward for about six inches over the postero-external aspect of the arm. The anterior leg began at a point about half an inch external to the anterior axillary fold, ran downward and backward parallel to the posterior leg to a point about an inch above the level of the termination of the latter, so that the extremity of the flap was cut diagonally. The width of the flap was about two inches. A greater length of the flap could have been gained by extending the anterior incision upward toward a point over the clavicle half an inch internal to the coracoid process, but at the operation this was found to be unnecessary. Three-quarters of an inch of the extremity of the flap was folded on the pedicle, and this tent-like fold was drawn by sutures into the pocket in the cheek. The head was fixed with the chin pointing toward the right shoulder. To maintain this position the right wrist was first strapped to the left shoulder close to the neck, and the space between the right forearm and left side of the face filled in with a wedge-shaped pad, the latter also passing beneath the chin. These measures prevented rotation of the head to the left, as well as too great depression of the chin toward the chest. A posterior point on the left side of the helmet was also drawn by a strap toward the left shoulder which rotated the chin toward the right shoulder, as well as tended to tilt it upward in the air. The molding movements of the head were limited by a sling beneath the right elbow, its extremities buckled one to either side of the fore part of the helmet. To clear the right side of the face, the sling was raised off the right temple by a roll of gauze laid just below the buckle. The folded extremity of the flap, lining the skin side of the pocket, sloughed. The portion of the flap against the lower jaw grew into place.

On May 21 the pedicle was divided an inch and a half from its site of attachment to the lower jaw,

and the free extremity of this distal piece was turned upward into the pocket to line its outer wall. A cicatrix involving the anterior axillary fold was removed and the pedicle was sutured into the gap, to prevent a recurrence of contraction at this situation.

On June 29 the piece of transplanted skin was divided into two parts, and the top of this now skin-lined pocket was cut through into the mouth. The scar behind the angle of the mouth was divided freely downward at its attachment to the lower jaw. A thick scar posteriorly over the molar teeth, when cut, allowed a spread of about three-quarters of an inch between the front teeth. The teeth on the right side of the lower jaw were found to be sunken into the alveoli.

After Treatment.—On July 4 Dr. F. O. Kendall fitted an interdental splint which maintained a spread of the front teeth of about half an inch, but by the middle of August its introduction became difficult owing to cicatricial contraction, and it had to be left out. The granulating surfaces were kept apart with gauze, and the growth of epithelium over them stimulated with a chinosol ointment, six grains to the ounce.

Subsequent Operations.—Recurring scar contractions behind the angle of the mouth and at the angle between the jaws were cut again on September 20, 1906, and finally on January 31, 1907. Before the latter operation the eye-teeth could just about be separated. At this last operation these two scars were cut very widely into the surrounding tissues, after which the treatment was as follows: To keep the wounds open while the epithelium was skinning over, they were spread daily with forceps. Rubber tissue, as less destructive to epithelial growth, was laid in the wounds in place of gauze, and chinosol ointment was used to stimulate epithelial growth. This treatment was more effectual in antagonizing the scar contraction than any previously employed. At the end of six weeks the epithelium had almost entirely covered the ulcers which had contracted somewhat, but not so much as on previous occasions. On March 17 the spread between the left upper eye-tooth and lower bicuspid which were opposite each other, was three-eighths of an inch. On May 14 this spread between the same teeth was one-quarter of an inch. The patient was encouraged to chew gum.

January, 1910. After nearly three years there is some mobility between the teeth on the right side. The patient can chew solid food on the left side. The incisor teeth can be little more than just separated. Food is introduced through a spread between the teeth.

Observations: (1) Since bacteria in pure culture could be demonstrated at the periphery of this disease which invades the tissues by a peripheral advance, and since in this case excision of the noma peripheral to the area of induration and treatment of the cut surface with pure carbolic acid and alcohol, completely arrested the progress of the disease, it would seem as though the bacteria at the periphery of a noma might be regarded as the causative factor in its production, and that treatment of the disease by excision of it beyond the line of bacterial advance would be a rational one.

(2) The case demonstrated the feasibility of the Italian method of skin-flap transplantation, with the use of Berger's flexible soft leather apparatus of fixation.

47 East Thirty-fourth Street.

THE QUICK METHOD OF EXAMINING STOOLS, AND ITS SIGNIFICANCE FOR DIAGNOSIS AND TREATMENT OF SOME INTESTINAL DISORDERS.

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The general practitioner should be familiar with the examination of stools and should acquire a rapid and reliable method for the purpose. By examining the feces it is possible not only to gain a rapid survey of the work which the intestines perform or omit to perform, but also to draw some conclusions as to the nature and localization of the disorder. There is, of course, the difficulty to deal with that two or even three different ferments act in the same way for certain nutritive substances, and that one ferment may have a vicarious action for and take the place of another.

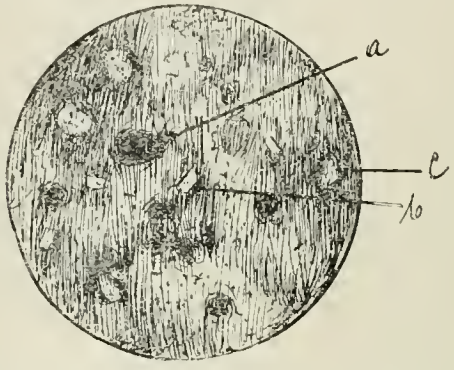

Fig. 1.—Normal test-diet stool; *a*, soap; *b*, muscle fiber; *c*, potato cell.

Method.—In the first place examine the stool after a mixed diet, then, after administration of castor oil, so as to eliminate from the intestine any residue of food, prescribe a test diet for three or four days. In certain chronic or neglected diarrheas it is even advisable to prescribe a bland diet for two or three days, because an organ in the "delirium" of its function cannot very well be accepted for diagnostic purposes. After an ordinary meal the stool is examined for the purpose of comparing it with the work performed by the intestine after the test meal. But conclusions from the findings after an ordinary meal can in no way be made to determine the true intestinal function because here there may be a concatenation of factors, such as quantity, quality, and mixture of ingesta, which would unduly falsify the picture. Artificially produced peristalsis should likewise be excluded. Apparently fatty stools here only indicate the presence of excessive quantities of fats with high melting points. Meat stools with connective tissue are met with, when the gastric intestine has been fed with meat in too fresh or half raw a condition, or with too large quantities of meat. Of course, it is just the repetition of these insults which are instrumental in causing the pathological state. Similar conditions prevail with carbohydrate stools: The organs are finally unable to respond to the unusual demands made upon them. Again, the uniformity of the foods containing an excess of albumin, fat, or carbohydrates seems to exert an influence upon the digestive powers. Thus, for instance, carbohydrates are better borne with the addition of fats, while the persistent uniformity of diet becomes harmful in the end.

All that has so far been said furnishes, therefore, sufficient cause for the necessity of a test diet. That of Strassburger-Schmidt keeps tolerably close with-

in the limits of the average diet: Intestines which can digest this diet without any appreciable residues will well be able to contend even with passing irregularities.

This test-diet (Strassburger-Schmidt) consists of the following: Morning, coffee, tea or cocoa with

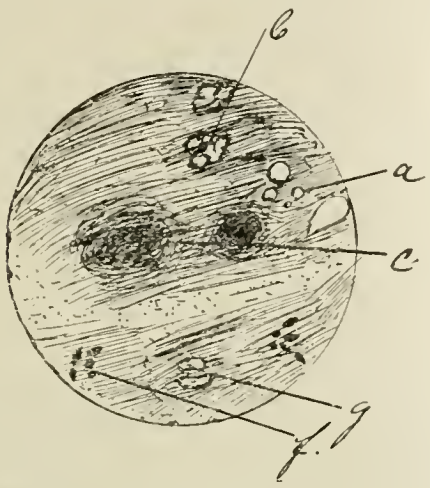

Fig. 2.—Normal test-diet stools; *a*, neutral fat drops; *b*, free fat; *c*, soap; *f*, bacilli; *g*, undigested starch.

much milk, oatmeal with milk, a soft-boiled egg, a roll with much butter. Noon, bouillon, if desired, quarter lb. of lean minced beef roasted in butter, half raw inside, a whole plate of finely ground potatoes, tea with milk, a roll with butter, and evening, oatmeal with plenty of milk, one or two eggs cooked in any desired way, or roast veal, if preferred, or roast lamb, a roll with butter and tea with milk.

Now, a thin, evenly spread layer of fresh feces is placed upon a black ground for macroscopic examination. A small piece the size of a pin-head of feces is spread with a glass rod in a thin transparent layer upon a slide for microscopic examination, taking care that the layer is slightly thicker at the edges. Only a thin layer gives a good, clear view and, besides, allows a rapid admixture of the chemicals which are to be added and frequently renders the rubbing on the slide unnecessary. The slightly thicker parts raise the coverglass a little, thereby admitting of an easier admixture of the fluids added for biochemical examination.

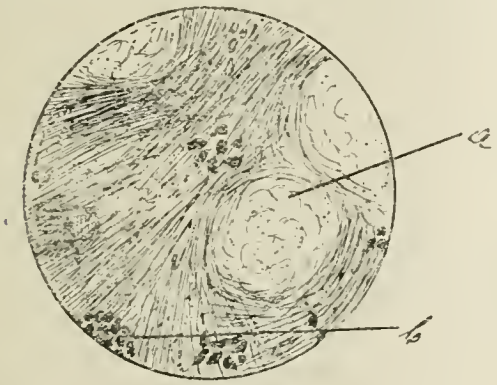

Fig. 3.—Normal test-diet stools; *a*, potato cells; *b*, bacilli.

In cases of obstipation glycerin suppositories are employed to obtain the feces rapidly, or in certain cases a glass rod is inserted into the rectum, as for instance when examing for Schaudinn's amebæ. Amebæ die rapidly, and it is therefore necessary to spread the mass upon a warm slide. A dose of Carlsbad salts sometimes accelerates their appearance. Where there is a suspicion of parasites, it is sometimes advisable to contrifugate the watered feces before examination.

Normal Test-Diet Stool.—Macroscopic. Light brown, after cocoa somewhat darker, odor not of-

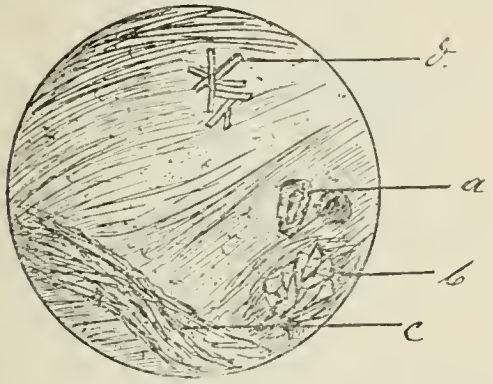

Fig. 4.—Test-diet stools; *a*, soaps; *b*, yellow granules (Nohnagel); *c*, connective tissue; *d*, calcium sulphate crystals.

fensive, of formed or semi-soft consistency, reaction neutral or slightly alkaline. This is examined by simply placing wet litmus paper upon the stools and noting the reaction upon the offside of the paper.

Microscopic.—In the basal substance formed by the detritus a number of round, dark spots of different sizes are at once visible under a Leitz lens No. 3, which prove to be deposits of soaps by biochemical examination. Figs. 1, *a*, and 2, *c*). Besides there may be a few isolated colorless, yellowish, or yellowish brown remnants of muscle fibres (Fig. 1, *b*) ; also a few lighter, roundish spots which prove to be potato cells under a Leitz lens No. 7 (Figs. 1, *c*, and 3, *a*), but frequently these are absent. There may also be found isolated drops of neutral fat with a dull shine (Fig. 2, *a*) and free soap deposits (Fig. 2, *b*), which are sometimes of cracknel shape ("Kringel," Schmidt), (Fig. 4 *a*). There are a few colorless granules of undigested starch or faintly stained by a diluted Lugol solution (Fig. 2, *g*) and sparse blue bacilli (Fig. 2, *f*). There are also yellow stained yeast cells (Fig. 8), crystals, and residues of cellulose.

Pathological Stool after Test-Diet.—Fat stools. Macroscopic. Light, foamy, tough, of rancid odor, and acid reaction. Microscopic. Plenty of neutral fat in colorless or yellowish drops with a dull lustre,

Fig. 5.—Fatty-acid crystals.

also in irregular roundish shape. Fatty acids. In the shape of long, pointed, lustrous needles of fatty acids (Fig. 5), or less often as irregular, shiny, small deposits and lancet-shaped plaquelets. Soaps. Aside from the above-mentioned soap deposits there are "free" colorless or yellowish deposits and short soap

needles, often in bundles and sheafs (Fig. 6), also in "Kringel" shape or fragments of same (Schmidt). Irregularities in the assimilation of fats are found in biliary stasis (icterus), in disturbed pancreatic secretion (in which case there are also many muscle fibers, in the stool) and in disturbed secretions of

Fig. 6.—Soap crystals.

the small intestine, but then there is neither icterus present, nor biliary colored matter (hydrobilirubin), nor muscle fibers.

When there is complete occlusion of the pancreas, the stool contains much neutral fat, abundance of muscle fibers, and biliary colored substances (as opposed to hepatic fat stools) and often shows putrefaction (as against hepatic stools in which there is no putrefaction).

Meat Stools.—Macroscopically are dark, of putrid odor, with visible muscular remnants which are often embedded in connective tissue. Microscopically, the entire field appears strewn with conglomerates of muscle fibers and many fibers entirely undigested. (Fig. 7). Further are seen the so-called "yellow granules" of Nothnagel (Fig. 4, *b*), which impart even on macroscopic examination an appearance as if the stools were sprinkled with brown poppy seeds and prove to be layers of closely arranged light-yellow deposits often embedded in mucus, which according to Schmidt are also muscular remnants. An abnormal quantity of muscle fibers in the stool is present with deficient secretion of the pancreas and small intestine and with peptic gastric insufficiency (Cohnheim). "Whatever muscle fragments have once passed through the ileocecal valve, will be excreted with the feces" (Nothnagel).

Connective Tissue Stools.—Macroscopic. Spread upon a dark plate, the stool shows connective tissue

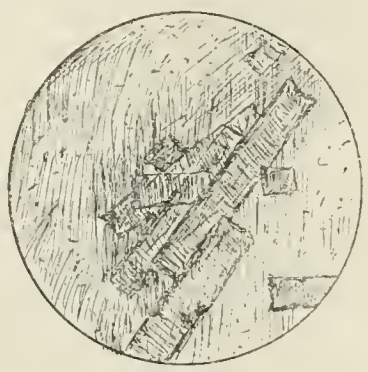

Fig. 7.—Muscle fiber.

in the shape of white particles, which, microscopically, appear as white fibers with distinct demarkations, as against mucus (Fig. 4, *c*). Connective tissue is rather frequently found in normal, but mixed stools, and the quantity differs according to diet and method of cooking of the meat partaken of, especially with people who eat raw meat and eat rapidly. The presence of connective tissue in the stool after a test-meal points to gastric disturbance (Schmidt) in the sense of insufficiency or absence of HCl.

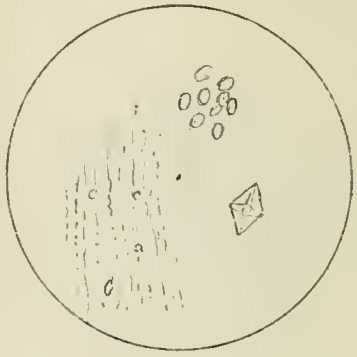

Fig. 8.—Mucus and yeast cells.

Mucous Stools—Catarrhal Stools.—Macroscopically there are either large pieces of mucus lying on the stool or mucus is intimately mixed with the stool. In the latter case these appear as small, glassy, transparent spots, if the mass has been spread with water upon a glass plate and held against the light. Microscopically is seen a structureless, transparent, basal substance. The mucus does not show any demarkation such as exists in connective tissue. (Fig. 8). Sometimes it is only the presence of epithelia, pus corpuscles or bacteria, embedded in the basal substance, which imparts to it a distinct appearance. The so-called cell deposits of Nothnagel (*"verschollte Epithelien"*) are also frequently found embedded in the mucus (Figs. 10 and 12). They look like dull shining, irregular deposits and have a soapy reaction; they are really nothing but dried-up cells impregnated with fatty soaps (Schmidt). The presence of mucus in the stool points to an inflammatory process in the intestine. Macroscopic mucus is always referable to the large intestine, as is also the mucus of colitis membranacea. The finer the mucus is distributed and mixed with feces, the higher the part of the intestine in which it originated. The fact that mucous stools which have persisted for a number of years often disappear after a short proper treatment, perhaps never to reappear, is an indication of the presence of a kind of protective arrangement of the intestinal mucosa against extraneous irritation; as the irritating cause

Fig. 9.—Mucus, treated with acetic acid.

is removed, the abnormal secretion ceases, while the inflammation itself may disappear gradually.

Carbohydrate Stools.—Macroscopically these are light brown or golden yellow, permeated with air bubbles, of a sour and pungent odor smelling of bu-

tyric acid, of acid reaction, often of fluid consistency with macroscopically visible potato remnants. A drop of Lugol's solution placed on the slide shows in some cases graduated stains of pink, violet, and dark-blue spikes and points. Microscopically the starch is mostly encountered in filled cells (Fig. 3), less often free as remnants not enclosed by cell membranes, and least frequently in the shape of starch granules and free starch which is still faintly iodine colored. The raw, uncolored starch granules are recognized by their intense lustre (Fig. 2, *g*). Besides, carbohydrate stools present a number of granular bacteria (*Bac. butyricus,* Strassburger) and still more numerous others of various sizes and shapes, such as rods of cocci or bacteria arranged in rows and heaps, which stain more or less blue with diluted solution of iodine. Frequently the bacteria are present in such numbers that they pervade the entire specimen (Fig. 3). Carbohydrate stools point to a disturbance of the small intestine, because neither stomach nor large intestine has any considerable part in the digestion of starch, and point to a disturbed secretion (fermentation dyspepsia of Strassburger-Schmidt) which, when long continued, may lead to real inflammation of the intestine with decomposition of the inflammatory transudate (Schmidt) in fact to a "putrefactive stool" which is frequently fluid and of putrid odor, alkaline re-

Fig. 10.—Mucus with epithelia.

action, with many remnants of fat, meat, and coffin-lid crystals.

Also in the case of hyperacid gastric juice there is, according to Tabora, irritation of the intestinal mucosa with disturbed pancreatic digestion, increased peristalsis, in short manifestations as are present in fermentation dyspepsia. The presence of large quantities of bacteria staining with iodine also points to deficient carbohydrate digestion of sugar especially. With reduced ingestion of carbohydrates they may disappear entirely. Principally acid stools seem to furnish them with favorable growing conditions.

All the findings of undigested food remnants in the stool, so far enumerated, do not often occur singly, but rather in numerous combinations. In the present communication these few disturbances have been emphasized because of their frequent occurrence and their practical importance, as it is often possible to effect a rapid and definite cure, even in long-standing cases, by the timely institution of therapeutic measures.

Microchemistry.—The introduction of chemical agents and coloring material into the microscopic specimens forms an important part of the fecal examinations, principally because our observations furnish a means to elucidate the nature of the specimens from the changes which may be said to occur under our very eyes.

Method.—Either the reagent is mixed with the preparation on the slide itself, or the drop is simply introduced upon the slide at the same time as the specimen is examined under the microscope. The latter method, however, is only successful if the mass is spread in a very thin layer. Acetic acid

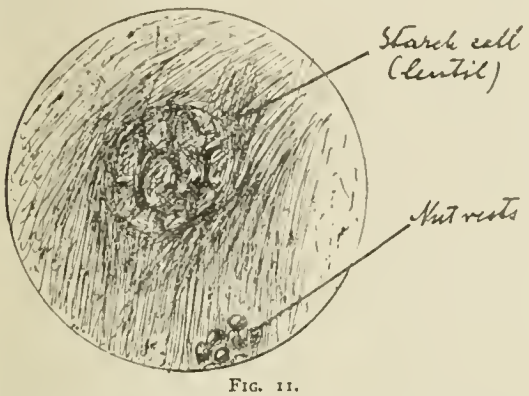

Fig. 11.

(30 per cent.) makes muscle fibers swell up. A solution of liquor kali caustici (15 per cent.) dissolves them. Millon's reagent stains them red. A strong solution of iodine (iodine 1.0; calium iodate 2.0; water 50.0) stains starch granules blue. A solution of potassium swells them up. For staining the bacteria it is necessary to use diluted solutions of Lugol's solution.

An alcoholic Sudan III solution stains neutral fats red. Heat melts the fatty acids into drops which turn into solid deposits as they cool off. Heating with an addition of acetic acid produces fatty acid crystals. Liquor kali caustici or alcohol dissolves them; otherwise they behave like neutral fats. Acids and heat make the soaps disappear, assuming the shape of drops. Sulphuric acid and heat make the soaps disappear and assume the shape of drops and calcium sulphate crystals (Fig. 4, *d*). Mere heat does not melt them. Acetic acid makes the structure of connective tissue disappear—with the exception of the elastic fibers which, on the contrary, assume a more distinct appearance—as against mucus which shows up more distinctly under acetic acid: precipitation.

Therapy.—In all disturbances of the intestinal function, with the exception of atonic constipation, the ingesta should, generally speaking, be prepared so as to be digestible without leaving any residue, which means that such food is to be discarded as

Fig. 12.—Soap and epithelia.

produces a great residuum or is digested with difficulty (vegetables, fruit, black bread, raw meat, smoked meat), or chemically irritate the intestine (spices, also pure milk in some cases). Patients' mastication should not be depended upon. Nor has the ingestion of recrementitious food proved an in-

variable success in the case of obstipation; on the contrary, the expected stimulating effect has frequently been absent (on account of the abnormal over-assimilation of food, vegetables even, etc.), in these patients, undesirable irritative manifestations having occurred instead. In these cases there should rather be rest of the digestive organs and reduced irritation. Frequently, by prescribing restful diet, long-standing obstipations may be removed (constipatio spastica).

In cases of gastrogenic diarrhea it is necessary to abstain for a time from all meat, in the place of which meat juice, milk in suitable form, soft-boiled eggs, and similar easily digested foods should be taken. In cases of putrefaction only gruels, milk, soups, and buttermilk, should be subscribed; later on meats may again be tried in small quantities, beef well boiled or fried, or fish.

Where there is disturbed fat digestion, fats with a low melting point which easily emulsify, should be ordered, as milk, cream, butter, and few eggs. In order to render the milk more easily digestible, Schmidt adds 0.2 salicylic acid to the quart, slowly increasing the quantity of the milk. The same object is often attained by diluting the milk half with water, or, better still, by mixing it with well-boiled cereals. This also applies to intestinal fermentation and putrefaction. By the use of properly prepared cereals, mixed with milk, the time is also shortened for which the food remains in the stomach.

In carbohydrate disturbances it is not necessary to forbid altogether carbohydrate products, but there should be careful preparation of the starch (cooking in a double boiler and straining). A rapid effect is often attained in intestinal fermentation by instituting a diabetes treatment or a pure fat meat diet with gradual additions of carbohydrates, omitting, however, potatoes. The order of starch digestibility is as follows: Wheatmeal, finest maize meal, rice meal, finely ground arrow root, grits, crackers, toast, sago, rice, white bread, potatoes.

Medication is frequently unnecessary. Hydrochloride acid and pepsin in gastrogenic diarrheas with achylia; pancreon in pancreogenic diarrheas; irrigations of the stomach in fermentation stool (gastric atony) and diastase have proved successful.

315 Second Avenue.

THE EARLY DIAGNOSIS OF CARCINOMA OF THE SIGMOID.*

REPORT OF A CASE.

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Gastric carcinoma may run such a latent course that no tumor is palpable during the entire illness. This is all the more true of carcinomata of the different portions of the intestine, and if one insist upon palpating a tumor before committing himself, an early diagnosis of carcinoma of the large intestine is often out of the question.

It was thought that the form of the stools and the presence therein of abnormal elements (*e. g.* blood and pus) might be of service in reaching a diagnosis, particularly in the case of carcinoma of the sigmoid flexure. Stools of the form characteristic of stenosis, however, are not always observed, and the presence in them of blood and pus indicates merely that there is an ulcerative process in the lower part of the large intestine, which is, of course, not necessarily carcinoma.

The following are the most important points in the diagnosis: (1) The gradual development and gradual increase of constipation in an individual formerly quite normal in this respect. (2) If this constipation require the exhibition of powerful cathartics until, finally, even high irrigations do not completely empty the bowel, a stenosis of the lower part of the large intestine is present. (3) If the patient be forty or more years of age, carcinoma is probably the cause of the stenosis.

The following case shows the importance of early diagnosis: The patient, B. H., age 63, was first seen in September, 1908, in consultation with Dr. Blitzer.

Past History.—Except for an attack of cough and "asthma" two years ago which lasted for one year and was relieved after going to the mountains, the patient has always been well. Bowels have always been very regular and there was never any previous abdominal disturbance. Has had two attacks of gonorrheal urethritis and two "chancres." An abscess developed in the left groin after one of these, thirty or more years ago. No history of secondary symptoms. Wife has had ten children and one miscarriage. Two childen died; the others are well.

Present Illness.—Began gradually ten to twelve weeks ago with cramp-like hypogastric pain. Eight or nine weeks ago noticed a rather sudden development of constipation. At first the ordinary cathartics overcame this more or less, but gradually grew less and less effectual until about ten days ago constipation became absolute; since then bowels move with enemata only. The abdomen has become enlarged and the patient has vomited nearly everything taken for the last four or five days. Has taken no solid food for eight days because of burning pain and vomiting that follow immediately. Has lost ten pounds in weight in about two months and feels very weak. At times pains are more marked in left side of abdomen.

Physical Examination.—General condition, poor; poorly nourished; emaciated though not cachectic; marked dilatation of venules of nose; temporal arteries prominent. Eyes, pupils unequal; right larger; outline irregular and fixed; left pupil small; reacts slightly to light and accommodation. Conjunctivæ congested, right more so than left. Media of right eye cloudy. Skin, dry and loose; shows an urticarial eruption about the abdomen. Lymph nodes, no special enlargement. Mouth, no teeth. Gums atrophic. Tongue moist and heavily coated. Pharynx and uvula relaxed; no adhesions. Chest, barrel shaped with marked flaring of free borders of ribs. Marked retraction above both clavicles. Lungs, signs of emphysema with marked dullness over both apices. Heart, borders obscured by emphysema. Sounds clear; no murmurs. Action regular and of fair force. Pulse, equal, regular and full. Artery wall moderately thickened. Abdomen shows increased prominence of hypogastrium, extending upward on both sides to about the level of the umbilicus; surface is rather uneven; one marked prominence corresponding to the sigmoid reaching from the anterior superior spine to the crest of the ilium. On palpation the swelling seems to be due to distended intestine. The abdominal wall is tense but not rigid. Sigmoid is palpable as seen, and over it gurgling is felt and peristalsis is at times visible. There

*Read before the Eastern Medical Association, November 12, 1909.

is marked tympany over the distended area. Moderate general tenderness, most marked in the umbilical region. No tumors felt; no fluid. Liver, dullness from sixth intercostal space to costal margin; liver not felt. Spleen not felt. Genitals, oval scar on left side of corpus cavernosum; scar in left groin; testes negative. Rectal examination not made. Extremities, knee jerks diminished; no edema. Urine, usually amber, clear, acid, 1018-1030, no albumin, few ephithelial and pus cells.

September 19, a preliminary operation for carcinoma of sigmoid was performed by Dr. Berg. The abdomen was opened by an incision passing through the fibers of lower part of left rectus muscle. The sigmoid was found distended but free and was delivered through the wound. A very marked annular constriction was found obstructing the bowel at the site of a tumor. The mesentery (meso-sigmoid) was exposed and a few very small lymph nodes were found and removed for examination. A large loop of sigmoid having been drawn out, the meso-sigmoid of this part was tied off. Peritoneum closed. Drainage. Dry dressing. Eight hours after operation the gut above and below the constricting tumor was opened and large rubber drainage tubes inserted. Profuse fecal discharge.

September 21, Tumor resected, tissues gangrenous. Pathological report, 13856. Adenocarcinoma. Dr. Mandlebaum. October 29, crushing of spur of artificial anus. Enterotribe applied for two and one-half hours. Redundant portion of lower loop removed. November 10, after repeated application of the enterotribe only about three-fourths inch of spur remains. November 11, operation; closure of artificial anus. Under local anesthesia the margins of the skin and the deeper layers were loosened up and the gut freed for a short distance. The granulations were trimmed away and a rough closure of the ends of the gut made with chromic sutures. Over this the layers of wound were closed. Drainage tube to the gut and wet dressing. November 14, profuse fecal discharge from wound which has broken down. Temperature, 103°. December 11, closure of artificial anus. After local anesthesia the mucosa was separated from the skin and the same technique employed as on November 11. January 5, discharge relieved; artificial anus persists. Temperature: On September 20, temperature rose to 104°. From September 21 to 22 it ran between 99° and 101.6°. On November 13 and 14 it was between 99° and 103°. From December 1 to 3, 99.2° to 104°; December 16, 103.2°; otherwise practically normal. In July, 1909, perfect closure of artificial anus. Patient gained in weight, 20 pounds.

123 East Ninety-Fifth Street.

EXAMINATION OF URINE AT THE BEDSIDE.

By GEO. RICHTER, M.D.,

ST. LOUIS.

Enterprising manufacturers have supplied us with a large number of contrivances for examination of urine at the bedside. There are test-papers, pellets, elegant little pocket-cases, and what not. The only drawback is, that, as occasion arises, we happen not to have the "multum in parvo" on hand, or it is somehow out or order. What we want to know when seeing a case for the first time is this: Is there albumin or sugar present? If so, then we must investigate further as to quantity, etc., and, meanwhile, we are sufficiently posted to act in an emergency, such as coma or convulsions.

The tests which I suggest are readily improvised in any household. No apparatus and no chemicals are required. As to their reliability, there is no question. They are among the most delicate; they are generally known; still, I believe, rarely remembered.

To test for albumin, take an ordinary spoon. Half fill with the urine, add a small pinch of salt, and heat over a lamp or a match. When it begins to steam and bubble, add a few drops of vinegar. This test will indicate the presence of albumin unmistakably, is more delicate than the Heller test, and possesses the advantage that the color of the urine is not changed while a white precipitate or turbidity appears.

To test for glucose is even simpler. Dilute one or two drops of urine with a few drops of water in a spoon. Carefully evaporate to dryness with little heat. Now slowly heat further, when, almost suddenly, a characteristic orange-brown spot and an unmistakable odor of caramel will prove the presence of sugar without the shadow of a doubt. One-fifth of a milligram (1/3 of 1 per cent.) is thus easily detected. Urine free from sugar colors a smoky black, and, on heating further, emits its peculiar urinous odor. When there is 1 per cent. or more sugar present, a very characteristic lump of sugar-coal is formed. *Probatum est!*

407 North Broadway.

LETTERS TO A NEUROLOGIST.

By JOSEPH COLLINS, M.D.,

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PHYSICIAN TO THE NEW YORK NEUROLOGICAL INSTITUTE.

IV.

My Dear Doctor:—Last summer I wrote to you about myself and you very kindly told me that I might send you a synopsis or outline of my case. I did not do so then because for some weeks after I received your letter I was free from the mental harassment which has been my curse for twenty years. Now it is upon me again and I want to know what course to pursue.

As I wrote you, my case is one of dual personality, or perhaps I should say, of two personalities. I presume nearly everyone is somewhat of a "Dr. Jekyll and Mr. Hyde," but I have never heard of any case like mine in real life. Then the fact that each one of my personalities is dominant for a certain length of time and that they have about equal strength, seems to me most unusual. For twenty years I have been conscious of this but I have never before spoken to anyone about it for fear of being misunderstood. I am not insane, but my mind is not as normal as it might have been had I received help many years ago. When A has the whip hand in my nature I am convinced X is crazy. I call my personalities A and X.

A is truthful, earnest, honest, generous, just and deeply religious. X is impish, impulsive, whimsical, humorous, destitute of moral responsibility, bent on harassing A, and willing to go any length to accomplish this purpose. The ceaseless warring of these two personalities has often brought me to such a state of desolation and despair that death has seemed the only happy solution.

I must have been about seventeen or eighteen when I began to realize that I possessed two distinct personalities. One of the first occurrences that impressed this on me was when I went to a store to buy a book. When I got there, I stole it. I had the

money in my pocket to pay for it, but X made me steal it in order to taunt A with her depravity. The next day I returned the book and told the proprietor what I had done and that I wished to make restitution. He returned the book to me and asked me to keep it. Apparently this action had a good effect upon me, for I do not recall having deliberately stolen anything of value since.

At this period I was in the high school and during the entire time stood first or second in the class. During my last year a principal came whom X liked to tease and humiliate, so she promptly lowered her standing to the bottom of the class, although A, if she had not been submerged, could easily have kept her place in the class. After graduation A wished to enter college, but being without funds and no scholarship being available at the time, it seemed impossible. However, she interested a friend, who presented her case to President ————————, and he appointed a meeting with A. When the day came, X would not let A go. A now took up painting, going to a studio, where her work excited much interest and where she made commendable progress. In the middle of the term, X left. This angered the artist very much and X was very much gratified. A again took heart and began the study of music and voice culture with an excellent teacher. X soon started a flirtation with him and his pupils began to leave him. A then returned to her books and studied at home alone for a year, and subsequently passed the teacher's examination for both State and City. She secured a position as substitute teacher for two years, and then as a regular teacher for five years. During four years of this time, A and X were each living separate lives. A's interests were in the cottage home with the aged father and crippled mother; in the primary class of which she was teacher, and in the church and Sunday-school. X one day entered a matrimonial agency and contracted with the proprietor to find a husband for her. She did not intend to marry, she did it for pure mischief. The delight of her life was in tormenting A by writing hundreds of letters to men, describing the quiet, honest face of A in language that would have made Venus tremble with envy. X also took a special delight in describing A's accomplishments, the record of her church works, her "form divine" and other attractions to ensnare the male sex. These were not true, for A is thin and tall and her looks are not of a nature to justify particular mention. (You recognize the fact that I claim A as the ego; yet I do not think I am really either A or X.)

X allowed two gentlemen from this agency to call upon her, three others she met upon the street by appointment, and she paid constant visits to the agency. The people who ran it became tired of X and asked her to keep to her contract, namely, marry or pay them a certain sum. X refused to do either. They threatened exposure, and when it came X delighted in it, but A nearly died.

X triumphed over A in another way shortly after this. On a Friday afternoon, without a hint to anyone, she closed the door of her schoolroom and never entered it again. She walked into the Commissioner's office and announced that she had resigned. Then followed eighteen months with X in the supremacy. She lived an out-of-door life, was happy because the sun shone, did not enter a church, went wherever she liked and at the end of that time demanded her former position as teacher. The members of the Board were astonished and perplexed. She had left of her own volition and had never made any complaint. X adopted an air of injured innocence, which deceived the public into believing her a martyr and the Board her persecutors. One gentleman of the Board, believing that X really desired to return, and displaying an unusual interest in her, told her to leave it with him, he would "manage it somehow," although there was no vacancy, only she "must not tell on him." X promptly told and got him into trouble.

I do not wish to weary you, my dear Doctor. I could tell you of incident after incident in all these weary years, some of them trifling and commonplace, others striking at the root of my existence, my daily bread.

A few years ago A got on top and squeezed X down for three years. She did this by taking up church work as a lay sister and going amongst the poor and uneducated, endeavoring to teach them how to live hygienically and morally. Wearing the garb and cross, every hour that she devoted to the crowded East Side was Heaven on earth for A, but the long years of mental conflict had so wearied the physical body that it was unable to bear the strain of this hard work, and A, with much heartache and many tears, gave it up. I do not think she would have been obliged to give it up if X had not nagged her constantly.

Then X had her way for a year and a half. During that time I got in very good physical condition and were it not that I did many things which met with my absolute disapproval, I should have thought that I was fairly well. Soon after this I accepted the position of missionary of a Sunday-school and kept it for two years, until I was offered the place which I now hold as assistant to the Pastor of ———————— Church, of this city. It is because of circumstances which have arisen here that I am writing you. Something must be done and I do not know what course to take. I am accustomed to being misunderstood, but repetition does not seem to render it any easier to bear. I am used to taking the blame for results for which I can give no cause. How can I say to the public, "Do not blame me; I am A, not X. I suffer only as a supersensitive woman can suffer at the misdoings of X, but I am powerless to prevent it." Suppose I should offer such an explanation, would I not be thought insane?

When the Pastor of this church came to it a few years ago he found a dilapidated building, a small congregation and no enthusiasm. By hard work he has tripled the membership, he has built a beautiful church and he has developed a true Christain spirit amongst his flock. When he asked me to work with him and offered me a small salary, I was delighted to do so, and for two or three months I did my work in a satisfactory manner. I worked with enthusiasm and felt that at last I had found a true mission. The spiritual contentment which came to me at that time is one of my pleasantest memories.

It so happened that I knew of the parentage and early life of this clergyman. X knew that there were certain features of it which would humiliate and chagrin him if they were communicated to his parishioners and X promptly communicated it. This made a great scandal, which pleased her impish self hurt the church and the clergyman, and, more than all, caused poor A indescribable suffering. X used her influence against the church and the clergyman in several instances. Many of the members sided with her and it was decided to give her a holiday. When I returned, X was still dominant. During

my absence, malicious reports were circulated about me, and on my return I received a cool welcome. I see many persons looking suspiciously at me and I am sure that when two or more of them gather together I am frequently the topic of conversation. The members all treat me as Christ would not have treated Mary Magdalen, out of whom he cast *seven* devils. People do not understand why I stay. I want to stay, hoping that they may understand, perhaps even help me.

What shall I do? No one but God knows what I am suffering. It seems as if I could not bear it any longer. Is there no comfort, no help for such unfortunates as I? Somewhere I have read that dual personality is a form of disease. I am sure that it is. If you do not treat sufferers like myself, can you tell me if hypnotism would be of any help to me, or can you suggest *anything* that would bring relief from the increasing ascendancy of X?

"Every man hath a good angel and a bad angel attending on him in particular all his life long."
BURTON. *"Anatomy of Melancholy."*

Dear Madam:—Your letter has interested me and I feel the most sincere sympathy for you. To answer it fully, I should have to write a treatise on life in its relation to mind and conduct. Whether I am able successfully to treat your case or to relieve your sufferings will depend entirely upon yourself. As you very truthfully say, had the opportunity to orient you come years ago, the task would have proved less difficult for both of us. Plastic youth, not rigid maturity, is the time to effect change.

One thing I must say to you in the beginning. You come to me for help and you tell of your troubles with much apparent frankness, but in reality you have withheld much, and you have consciously, or half-consciously, tried to place yourself in the best possible light, even though by so doing you have created a wrong impression. In the diagnosis of a case, a physician often reaches his conclusion more from the patient's manner, expression, attitude—more from what is unsaid or only partly said—than from the patient's words. This is especially true of the neurologist, for the troubles of the mind are often expressed by physical and unmistakable signs, and "he who runs may read." Moreover, in cases such as yours, interpretation of what the patient says is oftentimes a large part of the physician's problem. Emotional and psychopathic individuals are rarely able to give an accurate and dispassionate account of their ills.

Look back over the years of trouble you have had with X and think whether at times the gentle A has not become a little weary of well-doing and perhaps held out the welcoming hand of fellowship to X, only to regret in bitterness of spirit the consequences of her folly. Has not X at times become ashamed of speaking evil, lying and slandering, and thus paved the way for A to rise triumphantly? You have a dual personality, but that is not a disease, nor yet a crime; we all have a dual personality dating from the days when there were "two people in a garden" and the serpent whispered honeyed words in the ear of our first mother. Eve had her X as well as you; Cain was dominated by his X when he killed Abel; Saul forsook X and turned to A on the road to Damascus and his name was changed to Paul. In after life he taught that the material side of nature ought to be treated with contempt and that the spiritual side could be made to absorb it entirely. But, as someone has well said, Paul could never have become the vehement and vigorous spiritual apostle had he not profited by the passion and vigor of Saul, the persecutor. But the greatest encouragement for you is that Paul, after years of sacrifice, was still crying, "Oh, wretched man," finds peace at length and victory. I may remind you, although it may seem beyond the province of the physician to do so, that such saintly souls as Paul won their victory finally by the aid of the Matchless One, who was able to sympathize because he himself was tempted.

The psychological basis for the conflict that goes on within you is undoubtedly the presence of antagonistic instincts which are your birthright. Everyone possesses these antagonisms. They do not always conflict with our consciences. Take, for example, the instinct of sociability, which leads the individual to seek society, perhaps to be unhappy in solitude, and on the other hand, shyness, which leads him to avoid meeting people. This is one of the commonest conflicts. These "ancestral voices prophesying war" are common in even the lower animals. The deer is trapped, for instance, by appealing to his uncontrollably curiosity, which leads him to overcome his pronounced shyness. It is evident that this conflict goes on in every individual, for it is the basis and superstructure of our entire moral education. If we didn't have it, there would be little necessity for a moral code. In milder cases of dual personality without separation of memories, we are merely dealing with character tendencies more or less organized and systematic which pull in opposite directions. In your own case there is a little more definite organization of these tendencies, but if you are really sane as you say you are, you should not have much difficulty in orienting yourself.

Dual personality has been a favorite topic with the poet and the novelist. Possibly you have never seen this verse from the pen of one of our minor poets and sanest philosophers. Does it not describe your predicament?

"Within my earthly temple there's a crowd.
There's one of us that's humble, one that's proud;
There's one that's broken-hearted at his sins
And one that unrepentant sits and grins.
There's one that loves his neighbor as himself
And one that cares for naught but fame and pelf.
From much corroding care would I be free
If once I could determine which is me."

Do you not think that my friend, a man of saintly nature, childlike simplicity, and unalloyed morality, who wrote the following lines had a dual, a triple, or a quadruple personality?

"What, I say, know you
Of my deep, inward, real, wonderful life?
My wild emprizes, foolishnesses, fears,
Failures, and shames, and all but acted crimes;
My half-mad waking dreams, O, yes, stark mad;
My spiritual comedies, my glooms—
Unutterable, intense, and without hope;
My secret, true and unpraised heroisms;
My tragedies—played on the bare soul's stage,
With no eye witnessing but mine, alone—
Great God! not thine, I pray, not thine, not thine!
GILDER.

In reality, the explanation of your predicament is not a difficult one, though the moral struggle reaches at various times the intensity of a combat. Both A and X are *you;* that is to say, you have in your ego power for good and for evil. You must do

that which all your predecessors who have won out have done, namely, nurture the former and starve the latter. You cannot lay unction to your soul for the good deeds of A and lay the blame for all your misdoings on the broad shoulders of X as though X were a thing outside of you. Your heaven and hell dwells within your own breast and you must put it clearly and honestly in your mind that X is you and that you are responsible for X. You are ready to admit that A is you; why not X as well? You cannot resent being misunderstood by others when you do not understand yourself. We cannot progress without a knowledge of ourselves. Knowledge of self is often supposed to be merely a knowledge of our defects and shortcomings, whereas, in reality, it extends infinitely further and embraces our whole nature. To know oneself in repose is not enough nor is it enough to know oneself in the past or in the present. There are those who, by their knowledge of the past and keen insight into the present, have the power of knowing themselves in the future. These have faith in themselves, have control over themselves and verily are "captains of their own souls" because of their wisdom of thought and action. This is the reason why anything which leads to knowledge of ourselves is of value, and by knowledge of ourselves, I do not mean what we would be, nor what we would have others think us, but what we really are.

"Wad some power the giftie gie us, to see ourselves as ithers see us" is not of so much importance as to know ourselves for what we are worth; to be able to realize calmly and dispassionately all that we are capable of being and doing. To set up a true ideal, not a graven image with feet of clay; to have a broad, clear vision not only helps us, but makes the world a better place for others. Knowledge is power and knowledge of self is the greatest power of all, for to know the weak spot in one's armor is to guard against attack, while to know one's strength is to gain independence of thought and action. From this knowledge one is led simply and naturally to a knowledge of others and thus may be developed an intuitive sympathy with human nature.

There is said to be an aura, or atmosphere, surrounding each one of us, and the electrical negative or positive force emanating from this makes us magnetic or antagonistic to our fellowmen. Perhaps it is more a question of an understanding mind than an atmosphere, and a sympathetic soul than an electrical current. There are latent forces in the human soul, which, when known and understood, can be developed and used to control the worst in us and exalt the best. First we creep, then we crawl, then we stand alone, and finally we walk. This is typical of mental and moral, as well as physical development.

Specifically, what is the ego that you recognize has imperious possession of you for a considerable portion of the time? What are its distinguishing traits and characteristics? Lying, affectation, and folly, are they not? You have heard it said, I have no doubt, that the inclination to lie is a basic one; that is, it is natural to the species man in his early years, just as all creative effort is natural—and pleasing. Happily, it can usually be eradicated, but in some instances with difficulty, especially in those persons who have imagination. Liars idealize themselves, depicting occurrences and relating circumstances in order to make for the liar's advantage. As soon as he understands that his conduct in this respect is a solvent of social union of every kind—family, community, friendship—he realizes that it comes into violent conflict with the fundamental motive of conduct, namely, self-interest, and if it is not too fixed a habit, he gives it up.

Obviously, it has become a habit of your depraved ego, and so also has affectation, or the desire to be considered what you are not. This is certainly the only possible explanation of your conduct at the matrimonial agency. You wished to be thought not only a modern Juno, but a Daphne and Proserpine as well, when in reality you were only the daughter of an American working man, and had you comported yourself as such, it is not unlikely that you would long ere this have shared the joy of nature in generation.

If you have been forced to struggle with your native instincts and passions, you have not told me. You have not even hinted at this side of your nature, although I ought certainly to have some knowledge of this conflict if I am to advise you how to deal with it, how to utilize it in moral and social growth. Everyone in the world who amounts to anything, it matters not the sphere of life in which his energies have developed, has had materialistic propensities which at times have influenced him, at other times have overwhelmed him, but which he has finally subdued because of the appeal made to him by ideals of conduct.

In reality, what is it that you are seeking? Is it to have a spiritual life entirely and absolutely cut off from the material? If so, sometime when A is in the ascendency, you should take monastic vows and become a member of a community whose life is devoted to the spiritual and ascetic, but if you believe that you would not have been endowed with certain instincts unless there was a biological need for them and unless they had a definite significance, then you had better conform your conduct so that it will meet with the sanction of the community in which you live, realizing at the same time that you have rudimentary impulses which are as natural as the simple reflex impulses of sneezing and coughing.

You ask me finally if there is any help for you in hypnotism. Were I to answer that question categorically, I should say yes. But hypnotism is no mysterious occult power or force; it is merely suggestion acting in a soil which in one way or another has been rendered more fertile. A careful study of the life of St. Augustine ought to do more for you than hypnotism, or, if you prefer one of your own sex, of St. Theresa. They had dual personalities with a vengeance, and X had the whiphand a considerable portion of their lives. In reality, you have the same power to mold your life to your own will as they had, if you but see the necessity of it; that is, if you have the requisite motive. Self-control and patience will be your best medicines, and as surely as you have the sincere wish to conquer, so surely will the victory be yours. To live down the effect of the actions of X will be an effort, but take heart and do not be discouraged,

> "Our acts or angels are, for good or ill,
> Our fatal shadows that walk by us still."

Do not sit with folded hands, moaning or sulking over the difficulties to be overcome, or lamenting lost opportunities. Fight the battle valorously and you will find, month by month, that X will become more feeble as A becomes more dominant and insistent.

Let me hear of you soon again and let me hear of victories won.

Yours sincerely,

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THE INCREASED COST OF LIVING AND THE PUBLIC HEALTH.

BESIDES the personal problems of domestic economics which the increasing cost of living presents to all as individuals, there is a less apparent but none the less important feature of this question which presses for recognition and consideration by us in our capacity as the medical guardians of the public health and welfare. Whatever may be the cause of the present excessive and steady rise in prices, of its actual results there can be no doubt, nor can there be any question as to the profound significance of these results in relation to health matters with which, as physicians, we are directly concerned. In any thorough inquiry into the causes and prevention of disease, and especially in the study of its epidemiology, the earnest investigator soon finds himself necessarily passing beyond the confines of medical practice and following remote causes into the domain of sociology and industrial and political economics, with all that these imply. Predisposing conditions dependent on habits of life and environment play a most important part in the development of disease, and as such quite properly come within the purview of the medical man. Beside recognizing the existence of such conditions, he is also interested in ascertaining whether they and their consequences may or may not be avoidable. If the former, it becomes his duty as a humanitarian to insist that the proper remedy and corrective shall be applied.

The more one inquires into the causes of disease and suffering in mankind, the more the conclusion seems inevitable that, within certain limits, prevention is largely a matter of the expenditure of money. This applies to the group as well as the unit. The recent sanitary survey of Pittsburg, for example, showed that the heavy toll of sickness, sorrow, and death exacted by typhoid fever in that community could have been prevented at no excessive financial outlay; and applied to the individual it is a matter of common knowledge that such as can afford healthful surroundings and a generous standard of living will largely escape tuberculosis and other infectious diseases. It is, of course, quite a legitimate function of writers of textbooks on medicine and hygiene, solemnly to prescribe good food, proper shelter, suitable clothing, sufficient exercise and recreation, and abundant sunlight and fresh air as general essentials in the preservation of health. But of what practical use are such excellent recommendations to that large and growing class of poor persons whose best endeavors can probably never suffice to procure these sanitary essentials? All such things cost money, and often the items which are popularly supposed to be free to everyone, such as sunlight and fresh air, are really the most expensive of all. In New York, for instance, they are one of the most costly luxuries of the rich, as anyone who proposes to secure a sunny, well-aired residence in this densely populated community will very quickly learn. It is true that the public streets and parks afford fresh air and sunshine, but the very class which needs their benefits most is largely prevented by industrial and economic conditions from enjoying them. How is the man whose condition in life is such that the loss of a day's labor is almost a catastrophe, to make proper use of these public life-preserving privileges? He must work to live, even though such work actually shortens life itself.

The fact cannot be disregarded that there is a very large class in this country which habitually stakes the labor of today against a bare subsistence and shelter for tomorrow. While even among those better off the present increased cost of living is a matter of serious importance; among the first-named class such increase means nothing less than domestic tragedy which cannot long delay of due reflection in the statistics of disease and death. Those in comfortable circumstances may have to curtail the luxuries, but will still be able to procure the actual necessities of life, and some may even profit by the general and tremendous rise in prices. Members of trades unions, by threats and strikes, may or may not be able to bring about an increase in their wages commensurate with the cost of living, and more or less synchronous with rise in the prices of the necessities of life. But there is a still larger social element in the community, consisting of unskilled laborers, clerks, and others outside of the artisan class, whose lack of organization and cooperation prevents them from securing prompt adjustment and increase of income to changing and increased conditions of outgo. Few such have a margin of surplus sufficient to permit of their undertaking some new and more gainful occupation, and economic readjustment on a better basis is for them only gradually possible. The law of supply and demand takes a long time to work out in the favor of such, and they are forever and unavailingly pursuing the retreating ideal of a modest existence which shall be provided with the ordinary and reasonable decencies and comforts of life.

It is a matter of statistics that about sixty per cent. of the wage of the laboring class is expended for food. With the cost of food increased, as it has been, by an average of about one-half within the last five years, the unfortunate whose wages have not been proportionately raised in the same period now finds himself in a very serious situation, for it is not possible without such increase to maintain former habits of diet. It is quite true that with a scientific knowledge of dietary standards and the proximate composition of food stuffs, one can

devise bills of fare from the cheaper food materials which, if not quite so palatable, will still entirely satisfy the nutritive needs of the body; but it is equally true that the poorer class, for whom this would be specially desirable, can possess no such scientific knowledge. The laboring man secures his balanced dietary largely through instinct, the pleasure of taste, and the desire for variety. He does not know that in a dietary meats can best be supplanted by legumes and partly so by certain cereals, that vegetable oils are cheaper and just as nourishing as animal fats, or that oatmeal more generally meets the needs of the body than does rice. Finding that animal foods, which have chiefly yielded his protein and fats, are passing beyond his reach, he naturally turns to the cheaper and more bulky vegetable foods, which under his selection may usually be regarded as relatively innutritious and containing an excess of carbohydrates with deficiency of the other food elements. Such an insufficient or improperly balanced dietary results in more or less chronic malnutrition, which directly favors the occurrence of disease through the diminution in the defensive powers of the organism which it causes. Just as there probably never was a famine not accompanied or shortly followed by pestilence, so in a less spectacular way chronic malnutrition in the impoverished of a community results in their greater susceptibility to disease, the scattered cases of which are individually inconspicuous but loom significantly large when aggregated in vital statistics.

But under-nourishment and its direct results are not the only evils which the high price of food stuffs brings in its train. It means retrenchment all along the line. With the price of the prime necessity—food—steadily advancing, and with no wage surplus to fall back upon, in order to get enough of the general type of nourishment to which he is accustomed the worker will very probably have to move into a cheaper, less sanitary habitation, accepting through necessity the greater risks to health and life which attend overcrowding, dirt, and insufficient air and light. He must economize in the matter of artificial warmth, and cannot afford to buy either as many or as comfortable garments—especially since the price of the latter has greatly increased while their warmth and wearing quality have materially diminished. Recreation and physical idleness which relieve nervous strain and render the struggle for existence less wearing must be foregone.

With every step down and back in the scale of right living, forced by the excessive costs of ordinary necessities, the resistance to disease and the expectation of life must steadily diminish in the poorer classes. As physicians, it becomes our plain duty to inquire why such retrogression in comfort and health should be possible under our civilization. We tend too much, as a profession, to be easily satisfied with surface conditions. Our campaign for sanatoria for tuberculosis, for example, only reaches an ill which has been allowed to develop, and our education of the public in its prevention calls for habits, conditions, and modes of life which very few would not be glad to adopt, but which even fewer are ever financially able to secure. Too few of us stop to consider that health costs money, that increasing difficulty of maintaining a reasonable standard of living inevitably predisposes to sickness, and that we cannot do our full duty as humanitarians until, as citizens and men of affairs, we probe deeper and help to determine and remove the ultimate economic and industrial causes of disease and death from the body politic.

THE ROLE OF THE PHYSICIAN IN THE CAMPAIGN AGAINST TUBERCULOSIS.

The awakening of the general public to a vivid sense of the menace of tuberculosis and the consequent efforts which have been put forth to check its spread has been one of the most remarkable features of a public health character during the past twenty years. In some ways, the ordinary individual has become too greatly alive to the dangers of tuberculosis, and in several instances has gone to extreme measures in his endeavors to avoid contagion. Objections are being made in various parts of this continent to the presence in large numbers of personal suffering from pulmonary tuberculosis, and occasionally fear of the disease has carried communities to absurd and almost inhuman lengths. The consumptive has rights, and it must be borne in mind that a consumptive in a city is a greater menace than a colony of such persons segregated in the open country. However, the question before us is as to the bearing of the modern tread of medicine upon the medical man. It is obvious to all that the man in the street is taking a more or less intelligent interest in matters of health than was formerly the case. For this state of affairs, of course, the physician himself is chiefly responsible. He has made, to a great extent, medicine and surgery common property. He has drawn away the veil of mystery which used to surround matters medical, and the layman has been invited to judge for himself up to a certain point.

In the *Journal of the Michigan State Medical Society* for December, 1909, A. S. Warthin of Ann Arbor discusses the effect upon the changed order of things, or rather the coming changed order of things. He sees clearly that the rôle of the physician is becoming yearly more that of a preventor than of a treater of disease, and hails the time as an era of hope for the physician rather than one of despair. With regard to the aspect of affairs in connection with tuberculosis, Warthin deals with the relation of the rank and file of the profession to the crusade against tuberculosis, and asks the question as to whether physicians are taking their proper places as leaders of antituberculosis education in their own communities. So far as Michigan is concerned, he declares that physicians are not taking the places which belong to them by virtue of their calling. A year or so ago, the Michigan State committee appointed by the general committee of the International Congress on Tuberculosis, held in Washington in 1908, met in Ann Arbor to discuss plans for the inauguration of a State antituberculosis campaign. At this meeting one physician was chosen in every town in the State having a population of 1,500 or over, who should act as a local

organizer. One hundred and twenty physicians were chosen, and after repeated letters, pamphlets, reports, etc., had been sent to these local chairmen, only one-third of those chosen ever replied, and in some instances these responses were by no means enthusiastic.

Probably, if the whole country were canvassed in the same way as Michigan has been canvassed, the result would be similar. Medical men, as a rule, do not care to go outside the general routine of their work and excuse themselves on the grounds of being too busy, or that it will bring them into too great prominence and look like self advertisement. As Warthin points out, if the physician does not bestir himself the layman or laywoman, as the case may be, will take the matter out of his hand, and Christian Science bodies and Immanuel movements and the like will be founded to the detriment of society and the physician. The physician is the legitimate educator in questions relating to public health, and when the community at large demands education on such points, as it demands at the present time, the physician should adapt himself to the changed conditions, shake off his lethargy, and exhibit himself as a teacher and a pioneer in all that concerns the physical well being of the people.

Decapsulation of the Kidneys in Eclampsia.

During the past decade there has been an exceptionally large amount of research work done on the subject of puerperal eclampsia. Obstetricians, pathologists, and chemists have devoted their time and energies to the search for the cause of this obscure disease of pregnant womanhood with the result that, though the problem is yet far from solved, a number of more or less associated facts have been ascertained throwing considerable light upon the subject and pointing to the toxic origin of the disease. So far, however, as teaching us how actually to treat the eclamptic woman, these years have been sadly barren of fruit. It is a natural result when medical treatment fails to advance in any particular direction, that some should turn to surgery for aid. To a small degree this has occurred in the case of eclampsia, and in the *Deutsche medizinische Wochenschrift* for December 23, 1909, Johnsen has published a brief report of the performance of Edebohls' decapsulation of the kidney operation in three cases of this condition. Discouraged by his experience during the last two years, by a maternal mortality from antepartum eclampsia of 39 per cent., and in postpartum attacks of 55 per cent., he turned to surgery for help. His three cases were briefly as follows: The first was admitted in eclamptic coma. Before the spontaneous birth occurred there were eighteen convulsions, and, during the next three hours, five more. Then both kidneys were decapsulated without anesthesia, the deep coma rendering it unnecessary. The convulsions and suppression of urine lasted three days and disappeared, returned again on the fourteenth day, and finally cleared up on the twentieth. In all there were 148 convulsions, in spite of which the patient recovered, and was discharged well on the fortieth day. The second patient, also admitted in coma with marked edema, was delivered manually of a dead fetus. After this the sensorium remained clear and there were no convulsions. The patient, however, sank steadily, and on the third day was again unconscious and pulseless. Decapsulation was then performed. The mind cleared, the pulse returned, and the urine increased. The improvement was however but transient, and the patient died sixteen hours after the operation. The third woman was operated upon five hours after the birth of a dead child. A few convulsions occurred during the next few hours, after which the coma disappeared, and the excretion of the kidneys increased. On the fifth day, however, the temperature rose and the patient died of septicemia. Including these three cases, according to Johnsen, forty-two cases of kidney decapsulation have been reported in eclampsia, with eighteen deaths, a mortality of 43 per cent. As various other authors report their mortalities from eclampsia treated medically, as varying from 3.3 to 33 per cent., as it not infrequently happens that cases apparently hopeless do recover, and as recent research has pointed toward the condition being a manifestation of a general intoxication in which the kidneys play but a secondary part, it is scarcely likely that this operation will receive very general acceptance.

Hemorrhagic Varicella.

The occurrence of bleeding into the skin and from the mucous membranes during the progress of the acute eruptive fevers is far from a rare complication, and hemorrhagic varieties of measles, smallpox, and typhoid fever are common incidents in practice. In the case of varicella, however, though not unknown, it is extremely infrequent, and a fatal case of hemorrhagic chickenpox is a distinct curiosity. In the *Cleveland Medical Journal* for January, 1910, Elliott reports such a case. The patient was a boy four years of age. On the fourth day of what was apparently a very mild attack of chickenpox, he complained of pain in his stomach and vomited a small amount of blood. Upon examination at this time, beside the scabs of the healing eruption, were found pinhead-sized petechiæ, especially numerous over the face, thorax, and abdomen, and ecchymoses varying from 1 to 5 cm. in diameter on the scalp, forehead, abdomen, back, and thighs. In the mouth, under the tongue and on the tonsils, were seen circular slightly raised purple areas of hemorrhage. The internal organs appeared normal on examination, but there was a general enlargement of the lymph glands. The urine passed that night contained a large amount of albumin and much blood, but was free from casts. On the next day there were several fresh spots in the mouth, and those on the tonsils had become confluent and were oozing. The stools showed clots, but no fresh blood. The temperature varied from 99° to 100°. On that day, the child having inhaled a piece of chewing gum which could not be dislodged, tracheotomy was performed. From this he recovered uneventfully, and it was noted that the blood at the wound clotted in a normal manner. On the following day the urine was clearer but still contained some blood; the temperature was 100°, and the pulse 120. Hemorrhagic spots appeared on the eyes, one on the conjunctiva of the lid, and one just below the iris. The ecchymoses on the scalp were fading and those on the tongue and cheeks were practically healed. On the next day, the ninth of the varicella and the fifth since the appearance of the petechiæ, the child appeared to be recovering. His temperature was 100.5°, and pulse 130; the urine appeared normal; no blood was seen

macroscopically, and but a few cells under the microscope. The petechiæ were fading and the tonsils were much less swollen. He was bright and cheerful. Towards evening, after a normal sleep, he awoke with a slight convulsion, and almost immediately putting both hands to his head had a general convulsion, and died in a few minutes. As a postmortem examination was not permitted the cause of death could not be determined.

Antivivisection Argumentation.

The New York Antivivisection Society had a dinner on Tuesday of this week at which Mr. Stephen Coleridge, the secretary of a similar society in England, was a guest of honor and spoke in the style peculiar to his kind. He said, according to the newspaper report of the banquet, that dogs were daily being betrayed by beings that stand to them as gods, and then went on to speak of the things the antivivisectionists always picture to themselves and others as taking place in physiological laboratories. How competent he is to speak of such things may be gathered from the testimony he gave in court on one occasion, in which he said he had never seen an animal experiment and was "wholly unacquainted with the thing from personal knowledge." At the same dinner Mr. John De Witt Warner spoke of the Rockefeller Institute "where agony is distilled by mutilation and torment." Mr. Warner has written more or less on comparative mythology. The exasperating thing about antivivisectionists' charges is that they are so indefinite and general, and often so absurd in their wide departure from fact that it is impossible to refute them. As the *New York Times* says, commenting on the exhibition which the antivivisectionists have been giving in this city in preparation for the legislative campaign, "It would probably be unjust to say that the antivivisectionists know nine-tenths of their statements to be false and the remainder exaggerations and distortions. In some mysterious way they are able to convince themselves that vivisection is useless and cruel and wrong. Those assumptions made, they accept as true any assertion supporting that view and reject any evidence controverting it." It is even less possible to argue with them than with the Christian Scientists, for they are not only as foolish and as gullible, but they are, or pretend to be, even more ignorant of what scientific medicine stands for and what are its aims. They are as slippery in argument as many of them are knowingly and wilfully slanderous in their statements regarding the work of scientific investigators.

News of the Week.

Grace Hospital of New Haven, Conn., has recently, by vote of the Board of Managers, been opened to the general physicians of the city, who may treat their private patients there. Previously the use of the hospital has been restricted to homeopathists.

University of Pennsylvania.—At a meeting of the board of trustees held February 1, it was announced that the sum of $100,000 has been donated, through the influence of a medical alumnus, to the university for a chair in the Medical Department not yet designated. Dr. David L. Edsall has been prevailed upon to remain in the medical faculty, and it is to be the settled policy for heads of clinical departments to devote a considerable portion of each day to university work.

Army Supply Depot Burned.—The New York medical supply depot of the United States Army was destroyed by fire on February 4, 1910. The loss is estimated to be between $500,000 and $1,000,000. The New York depot was the most important one owned by the government for medical supplies of the army, as through it went two-thirds of all the army medical supplies. A large consignment intended for the Canal Zone was destroyed.

A New Surgeon-General of the Navy.—President Taft on February 4, 1910, nominated Surgeon Charles F. Stokes to be Surgeon-General of the Navy, with rank of rear admiral, to succeed Presley M. Rixey. Dr. Stokes is a native of New York and is 47 years old. He is a graduate of the College of Physicians and Surgeons in New York. He entered the navy as assistant surgeon on February 1, 1889. He was promoted to the grade of passed assistant surgeon on February 1, 1892. He has had the rank of surgeon since May 31, 1900. During the Spanish war he served on the hospital ship Solace, which was attached to the Atlantic fleet. He also commanded the hospital ship Relief from January 15 to December 1, 1908, while that vessel was attached to the Atlantic fleet. He is now on duty at the Naval Medical School Hospital in Washington. He stands tenth on the list of surgeons, and jumps above about forty others who are senior to him. Before entering the navy, Dr. Stokes was connected with several New York hospitals. In 1883 he was appointed an ambulance surgeon in the Chambers Street Hospital. In 1884 he was appointed house surgeon at Bellevue Hospital. From 1886 to 1889 he was visiting surgeon of the outpatient department of the New York Hospital. In 1887 he was a visiting surgeon of the outpatient department of Bellevue Hospital.

St. Petersburg Free from Cholera.—A dispatch from St. Petersburg says that the epidemic of cholera for this season is officially regarded as closed, the last cholera patient having been discharged as cured from the city hospitals. Since the outbreak of the epidemic in August, 1908, there have been 16,594 cases and 6,666 deaths, of which 7,631 cases and 2,680 deaths occurred during the year just closed.

Cocaine Sellers Sentenced.—Judge Mulqueen has imposed full limit sentences in General Sessions in New York City to two cocaine sellers who had pleaded guilty to attempting to dispose of the drug on the Bowery on January 5. Each received a year in the penitentiary and a fine of $500, with a day behind the bars for each dollar of the fine not paid. The arrests were made by detectives employed by the food and drug department of the Board of Health.

Dr. Lawrence F. Flick was the recipient of a silver loving cup from his associates on the staff of the Henry Phipps Institute for Tuberculosis at a testimonial dinner given in his honor at Philadelphia on the evening of February 1.

American Guild of St. Luke.—The second meeting will be held at Cathedral College, Fifty-first street and Madison avenue, on Wednesday evening, February 16, at 8:30 P. M. An address

will be delivered by the president, Dr. Charles E. Nammack, on "The Relation of the Doctor to the Church." Physicians interested are invited to attend.

The Johnson County (Neb.) Medical Society held its annual meeting at Tecumseh on January 20, 1910. The folowing officers were electe l: *President*, Dr. S. Howard of Elk Creek; *Vice-President*, Dr. J. W. Archerd of Cook; *Secretary-Treasurer*, Dr. A. P. Fitzsimmons of Tecumseh; *Censor*, Dr. J. W. Turner of Sterling.

The Oxford County (Ont.) Medical Association has elected the following officers: *President*, Dr. Odlum; *Vice-President*, Dr. McKay of Ingersoll; *Secretary*, Dr. Brodie; *Treasurer*, Dr. Neff of Ingersoll.

The Sanpete County (Utah) Medical Society has elected the following officers for the coming year: *President*, Dr. Steiner of Richfield; *Vice-President*, Dr. W. P. Winters of Mt. Pleasant; *Secretary*, Dr. Gledhill of Richfield.

The Sullivan County (N. H.) Medical Society, at a meeting at Claremont on January 12, 1910, elected the following officers: *President*, Dr. E. C. Fisher of Sunapee; *Vice-President*, Dr. E. P. Claggett of Newport; *Secretary*, Dr. E. M. Fitch of Claremont; *Treasurer*, Dr. David M. Currier of Newport; *Censors*, Dr. A. S. Marden of Newport, Dr. O. C. Young of Charlestown, and Dr. H. C. Sanders of Claremont.

The Associated Physicians of Long Island held its twelfth annual meeting in Brooklyn January 29, 1910. Major General Leonard Wood was the guest of honor and delivered an address. The following officers were elected: *President*, Dr. Thomas R. French of Brooklyn; *Vice-Presidents*, Dr. Frank Overton of Patchogue, Dr. William B. Brinsmade of Brooklyn, and Dr. George H. Meyneu of Brooklyn; *Secretary*, Dr. James Cole Hancock of Brooklyn; *Treasurer*, Dr. Charles B. Bacon of Blackwell's Island.

The Aberdeen District (S. D.) Medical Society met at Aberdeen January 25, 1910, and elected the following officers: *President*, Dr. Geib of Groton; *Vice-President*, Dr. Adams of Aberdeen; *Secretary*, Dr. J. B. Whiteside of Aberdeen; *Treasurer*, Dr. Gunderman of Selby; *Censors*, Dr. H. E. McNutt, Dr. E. J. Clemons of Aberdeen, and Dr. J. D. Jones of Groton.

The Fremont County (Colo.) Medical Society, at its annual meeting, held January 25, 1910, at Florence, elected the following officers: *President*, Dr. R. E. Holmes of Canon City; *Vice-President*, Dr. L. E. Rupert; *Secretary*, Dr. R. C. Adkinson.

Gloucester County (N. J.) Medical Society.—At the annual meeting held at Woodbury on January 22 the following officers were elected for the ensuing year: *President*, Dr. Cyrus B. Phillips of Pitman; *Vice-President*, Dr. J. H. Underwood of Woodbury; *Secretary and Treasurer*, Dr. G. E. Reading of Woodbury; *Reporter*, Dr. Howard A. Wilson of Woodbury; *Censors*, Dr. James Hunter, Jr., of Westville, Dr. Luther M. Halsey of Williamstown, Dr. H. A. Stout of Wenonah.

Atlantic County (N. J.) Medical Society.—At the annual meeting held January 14 the following officers were elected for the ensuing year: *President*, Dr. E. H. Harvey of Chelsea; *Vice-President*, Dr. Thomas Dunlap; *Secretary and Treasurer*, Dr. Edward Guion.

Delaware Co. (Pa.) Medical Society.—At the annual meeting held at Chester, January 14, the following officers were elected for the ensuing year: *President*, Dr. Francis N. Baker of Media; *Vice-President*, Dr. D. Forrest Harbridge of Chester; *Secretary*, Dr. C. I. Stiteler of Chester; *Treasurer*, Dr. D. W. Jeffries of Chester; *Reporter*, Dr. Walter E. Egbert of Chester.

The Adams County (Neb.) Medical Society held its annual meeting at Hastings, on January 11, 1910. The election of officers resulted as follows: *President*, Dr. J. V. Beghtol; *Vice-President*, Dr. M. W. Baxter; *Secretary-Treasurer*, Dr. E. A. Weir; *Censor*, Dr. M. W. Baxter.

The Androscoggin County (Me.) Medical Society held its annual meeting in Lewiston, on January 11, 1910, and elected the following officers: *President*, Dr. D. A. Barrell; *Vice-President*, Dr. H. S. Sleeper; *Secretary*, Dr. W. S. Garcelon; *Treasurer*, Dr. B. F. Sturgis; *Board of Censors*, Dr. R. J. Wiseman, Dr. E. V. Call and Dr. H. E. E. Stevens.

The Center District and Merrimack County (N. H.) Medical Society, meeting at Concord on January 11, 1910, elected the following officers: *President*, Dr. Arthur K. Day of Concord; *Vice-President*, Dr. A. A. Beaton of Franklin; *Secretary-Treasurer*, Dr. P. T. Haskell of Concord; *Chaplain*, Rev. W. Stanley Emery of Concord; *Censors*, Dr. A. M. Fernald, Dr. Charles H. Dolloff, and Dr. Anna M. Littlefield.

The Galveston County (Tex.) Medical Society has elected the following officers for 1910: *President*, Dr. D. H. Lawrence; *Vice-President*, Dr. H. O. Sappington; *Secretary*, Dr. James J. Terrill; *Censors*, Dr. H. R. Dudgeon and Dr. W. R. Carter.

The Hale County (Ala.) Medical Society, meeting in Greenboro, has elected officers for 1910 as follows: *President*, Dr. W. C. Gewin of Akron; *Vice-President*, Dr. S. C. Carson of Greensboro; *Secretary and Treasurer*, Dr. C. A. Poellnitz of Greensboro; *Censor*, Dr. R. J. Griffin of Moundville.

The Pierce County (Wash.) Medical Society met at Tacoma recently and elected officers as follows: *President*, Dr. J. B. McNerthney; *Vice-President*, Dr. J. H. Brown and Dr. W. D. Read; *Secretary*, Dr. E. O. Sutton, and *Treasurer*, Dr. R. A. Gove.

The Scott County (Ia.) Medical Society met at Davenport, January 12. The following officers were elected for the year 1910: *President*, G. F. Harkness; *Vice-President*, E. S. Bowman; *Secretary and Treasurer*, J. V. Littig.

The Warren County (Ky.) Medical Society has elected the following officers for 1910: *President*, Dr. F. D. Cartwright; *Vice-Presidents*, Dr. G. W. Lewis of Oakland and Dr. John H. Blackburn; *Secretary and Treasurer*, Dr. Lillian H. South.

The Barton County (Mo.) Medical Society met January 13, 1910, at Lamar, and elected the following officers: *President*, Dr. J. L. McComb; *Vice-President*, Dr. Allee; *Secretary*, Dr. Brown; *Censor*, Dr. Cromley.

The Jackson County (Okla.) Medical Society met at Altus, January 18, and held a meeting for the purpose of reorganization. The following officers were elected: *President*, Dr. J. W. Echols; *Vice-Presidents*, Dr. J. W. Wilson and Dr. A. O. Merrideth; *Secretary and Treasurer*, Dr. L. A. Hawkins.

The Holmes County (Miss.) Medical Society met in Lexington, on January 11 and 12, 1910, and elected officers as follows: *President,* Dr. W. S. Derrick of Goodman; *Vice-President,* Dr. M. L. Pollard of Thornton; *Secretary and Treasurer,* Dr. S. A. Eggleston of Lexington; and *Censor,* Dr. A. M. Newman of Acona.

The Tillman County (Okla.) Medical Society has elected the following officers: *President,* Dr. T. G. Priestly; *Vice-President,* Dr. J. H. Hansen of Grandfield; *Secretary and Treasurer,* Dr. A. B. Fair; *Censors,* Dr. Hays and Dr. Osborn.

The Fitchburg (Mass.) Medical Society held its annual meeting January 11, 1910, and elected officers for the coming year as follows: *President,* Dr. John W. Stimpson; *Vice-President,* Dr. Raymond Jones; *Secretary,* Dr. J. E. Luscombe; and *Treasurer,* Dr. C. H. Jennings.

The Waterbury (Conn.) Medical Association met January 10, 1910, and elected the following officers: *President,* Dr. John M. Benedict; *Vice-President,* Dr. Thomas J. Kilmartin; *Treasurer,* Dr. C. S. Rodman; *Secretary,* Dr. James L. Moriarty.

The Neenah-Menasha (Wis.) Medical Club was organized at Neenah recently. The officers are: *President,* Dr. J. R. Barnett, Sr.; *Vice-President,* Dr. F. M. Corry; *Secretary-Treasurer,* Dr. S. G. Todd.

The York County (Me.) Medical Society held its annual meeting at Saco on January 13, 1910, and elected the following officers: *President,* Dr. C. E. Thompson of Saco; *Vice-President,* Dr. F. E. Small of Biddeford; *Secretary,* Dr. L. L. Powell of Saco; *Treasurer,* Dr. L. E. Willard of Saco; *Board of Censors,* Drs. H. L. Prescott of Kennebunkport, E. L. Burnham of Sanford, and Paul S. Hill of Biddeford.

Obituary Notes.—Dr. William H. Taylor of Cincinnati died at his home February 6, 1910, aged 73 years. He was a graduate of the Medical College of Ohio in 1858. For thirty-six years Dr. Taylor was a member of the visiting staff of the Cincinnati Hospital. He was a member of the Academy of Medicine of Cincinnati, the Ohio State Medical Association, and the American Medical Assocaition. He was also a member and the first president of the American Association of Obstetricians and Gynecologists.

Dr. Rolin B. Gray of New York died in East Orange recently. He was a graduate of the New York Homeopathic Medical College in 1871.

Dr. William Lawrence Woodruff of Long Beach, Cal., died in that city February 4, 1910, aged 50 years. He was a graduate of the Hahnemann Medical College of Philadelphia in 1882.

Dr. Alvin Herbert Eccleston of Providence, R. I., died at his home January 23, 1910, as the result of a cerebral hemorrhage, probably caused by a minor automobile accident. He was 51 years of age. Dr. Eccleston was a graduate of the Albany Medical College in 1880 and was a member of the Providence District Medical Society and the Rhode Island Medical Society. In 1889 he served in the Rhode Island Legislature and in 1890 was a member of the State Board of Health. He was also Colonel of the United Train Artillery.

Dr. Herbert C. Bradford of Lewiston, Me., died at his home January 24, 1910, aged 77 years. He was a graduate of the Hahnemann Medical College in Philadelphia in 1857. He was for many years a member of the school board of Lewiston.

Dr. Evans E. Brubaker of Northfield, Minn., died at his home recently, aged 57 years. He was a graduate of Starling Medical College in 1878 and was a member of the Rice County Medical Society and the Minnesota State Medical Association.

Dr. James Monroe Dicks of El Paso, Tex., died in that city January 24, 1910, aged 26 years. He was a graduate of the University of Georgia in 1907 and was a member of the El Paso County Medical Society and the State Medical Association of Texas.

Dr. Charles Emerson Jones of Hartford, Conn., died at his home January 24, 1910, aged 54 years. He was a graduate of the New York Homeopathic Medical College in 1882.

Dr. Edward Raphael Joyce of Lewiston, Me., died at his home January 22, 1910, aged 29 years. He was a graduate of Holy Cross College in 1901 and of the Medical Department of Columbia University in 1905. He was a member of the Androscoggin County Medical Society and the Maine Medical Association.

Dr. Ephraim Luellen of Westfield, O., died at his home on January 16, 1910, aged 85 years. He was a graduate of the Eclectic Medical Institute of Cincinnati in 1863.

Dr. Raphael Owen Semmes of Mobile, Ala., died at his home January 21, 1910, aged 30 years. He was a graduate of the Mobile Medical College.

Dr. Augustus W. Stevens of Storm Lake, Ia., died at his home January 20, 1910, aged 79 years. He was a graduate of the College of Physicians and Surgeons of Keokuk.

Dr. Frederick A. Wright of Glen Cove, Long Island, N. Y., died January 30, 1910, in Newark, N. J., aged 63 years. He was a graduate of the Bellevue Medical Hospital College in 1871.

Dr. John B. Learned of Florence, Mass., died at his home January 24, 1910, aged 70 years. He was a graduate of the College of Physicians and Surgeons of New York in 1865. Dr. Learned was a member of the Massachusetts Medical Society and the American Medical Association and an ex-president of the Hampshire County Medical Society.

Dr. Samuel Wesler died at Philadelphia on Feb. 1, 1910, at the age of 26 years, as the result of an operation for appendicitis. He was graduated from the medical department of the University of Pennsylvania in the class of 1898 and he had served as resident physician and chief resident physician in the Mt. Sinai Hospital. He was a member of the Southwark Medical Society.

Dr. James H. F. Milton died at Philadelphia on February 1 at the age of 79 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1860. He enlisted in Co. A, 65th New York Volunteers at the outbreak of the Civil War and he was soon elevated to a captaincy, serving until the close of the war.

Dr. Francis McC. Christy of Altoona, Pa., died at Lancaster on January 30, at the age of 49 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1882.

Dr. Millson R. Allen of Norfolk, Va., died suddenly at his home February 2, 1910, aged 48 years. He was a graduate of the Hahnemann Medical College of Philadelphia in 1887, and was a member of the Virginia State Board of Medical Examiners.

Dr. Thomas F. Dunigan of Vichy Springs, Va., died at his home February 1, 1910, aged 55 years. He was a graduate of the Missouri Medical College in 1884.

Correspondence.

THE TISSUE DENSITY FACTOR IN RELATION TO ERGOT.

To the Editor of the Medical Record:

Sir:—I beg to add a few words in way of elucidation of a clouded point in Dr. Alfred T. Livingston's article on "The Peculiar Province of Ergot," in your issue of January 29. Dr. Livingston inadvertently failed to distinguish between the two varieties of muscle fiber, the striped and the unstriped. It will be recalled that authors have not heretofore granted to ergot any action upon the striped fiber. This I have had the honor of convincing Dr. Livingston and other interested medical men is an error; but instead of acting directly by causing shortening by condensation, as it does on unstriped or smooth muscle, ergot, adrenal extract, and other analogous preparations act also on striped fiber by shortening the equilibrium length of the muscle, which has the effect of increasing its functional capacity. All atonic or relaxed muscle exhibits a stretching out of its individual fibers, which constitutes simply the state of relaxation of smooth muscle, but in striped muscle it involves an extension of equilibrium length, which independently contracts and expands. In general it may be said that a muscle of extended equilibrium length is a weak muscle, and, conversely, that one of shortened equilibrium length is correspondingly strong.

The relation of tissue density to equilibrium length of muscle is very well illustrated by an ordinary rubber band, which, so long as it retains its elasticity, stretches and contracts independently of changes of the equilibrium length. The normal equilibrium length of a new rubber band is, say, two inches. This two-inch band, after use or age, becomes two and a half or three inches in length. It can be stretched to greater length, but never recovers its former length of two inches, returning to the last equilibrium length of two and a half or three inches. If this rubber band is examined it will be found to be much weaker than when of normal length. It is less dense and less thick. Striped muscle exhibits analogous features.

As either striped or smooth muscle becomes relaxed it is correspondingly reduced in density, and thus in surface tension and osmotic pressure. As substances in general are thus reduced they exhibit an increase in absorption powers, and tissues exhibit absorption corresponding to their density. For this reason pathological tissues absorb more than normal tissues, and they thus exhibit a selective power for the absorption of such medicaments as ergot, the therapeutic action of which is the condensation, the shortening of the fiber, and thus the rehabilitation of the involved muscles. This is the clinical observation of Dr. Livingston and the long list of contemporaries who have followed in his footsteps in harnessing this most potent drug for the service of man.

Tissue parenchyma (living substance) exhibits several attributes in close relation to its density. Tissues of low density exhibit not only the characters above discussed, but also corresponding hyperesthesia as contradistinguished from the normal state of sensibility of tissues of normal density. This explains the action of ergot in allaying irritabilities, insomnia, hysteria, mania, and so-called neurasthenia, which Immermann so well denominated "irritable weakness." In the reestablishment of the equlibrium of the distribution of the blood the action of ergot is attained by its exhibition of a predilection for those vascular walls which are morbidly dilated, and thus containing a disproportion of the blood, of which they are unable to rid themselves, until their greater porosity and absorbicity make them "preferred creditors" for ergot, hypodermically administered, when the dilated vessels contract down to their normal calibers, by virtue of which the excess of blood of such dilated vessels is ejected to other regions, and thus passive hyperemias cease to exist.

The action of ergot and other remedies of the adrenal extract type, as hemostatics, depends upon the basal fact that all hemorrhages by diapedesis are due to relaxed and expanded conditions of the involved tissues—in fact, to loss of the integrity of the walls of blood-vessels by virtue of pathologically excessive porosity and permeability to the blood. The counteraction-contraction produced by this type of drugs is the basis of the therapeutic action, though hemorrhage by rhexis is also more or less favorably influenced by the extreme action of this class of drugs. My own opinion is that for the forenamed purposes ergot excels adrenal extracts, but as a hemostatic and for the more transient, but perhaps prompt effects, adrenal extracts excel.

Dr. Livingston's introduction of the profession to the wider clinical uses of ergot, with all that that implies, will be appreciated by future generations as one of the crowning contributions of this age to the armamentarium of posterity.

Homer Wakefield, M.D.

New York.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

DOCTORS IN THE ELECTION—OATHS ACT—SCHOOL INSPECTION, FIRST YEAR'S REPORT—ULCER OF DUODENUM—HOSPITAL SATURDAY FUND REPORT—FATAL MISTAKE IN DISPENSING—OBITUARY.

London, January 21, 1910.

The general election has been the one absorbing topic all through the week. Parties are so divided and the excitement so intense that even doctors who are usually ready to sacrifice party to assist medical candidates are showing themselves as ardent politicians. Both sides are represented in the two dozen medical aspirants, about the same number that tried in the last election, of whom only half were successful. It is hoped that as many may this time, but half a dozen have already failed.

Sir William Collins and Sir Scott Robertson have retained their seats. Dr. Addison of Barts, a new candidate, has obtained a seat and should be an excellent representative of the profession. He seemed rather thin-skinned during the contest, complaining in the press that his occupation as professor of anatomy had been spoken of by his opponent as "cutting up bodies, which did not qualify him to cut up the empire." To this his opponent, whose name was Hay, replied that the doctor had previously for weeks placarded the constituency with "Vote for Brains—not for Hay."

Among the defeated candidates so far is Surgeon-General Evatt, whose earnest voice and pleasant personality will be missed by both sides. Sir J. Sherburn and Drs. Molson, Lunn, and Moon share his fate. The last named cannot be much disappointed, as it was only a forlorn hope in his case, created by a split in the opposite camp. There Lord Robert Cecil has gratified his spite, but he has greatly lost caste by his underhand methods. So has his principal supporter, Lord Ludlow, who originated a falsehood about the other candidate and after three denials had not the manliness to apologize or even reply to the challenges. The continual repetition of the falsehood in various forms reached the climax in a "last word" leaflet, which drew from the dignified and esteemed president of the Royal College of Surgeons an indignant protest against its suppresio veri and suggestio falsi which will increase the respect of both sides for Sir Henry Morris as a man; it cannot increase the respect of doctors for him as a surgeon. As for Lord Robert Cecil, when he found E. Marylebone resented crooked ways, he tried for a safe seat in Northern England. But the men of the North have grit and play the game, so they have rejected the "Hotel Cecil" and called the secretary of the caucus a "flunkey" and his obedient followers "snobs." You should understand that the caucus is the central party association and the secretary the chief whip, who announced he would use all the power of the association to force Lord Robert on the constituency on a technical point which at the same time he had decided in the opposite sense in another district.

The Oaths Act has no sooner come into operation than those who promoted it, or rather some of them, are expressing dissatisfaction with it and threatening to try to get it amended. They say the repetition of the words by the person sworn causes delay and that a mere assent to the terms recited by the officer of the court is sufficient. Some of them also object to holding a testament in the uplifted hand and declare the volume may be infected by a previous holder with some disease or other. The plan is certainly an advance on kissing the book, to which so much revulsion has been felt. In the present state of parliamentary affairs it is pretty certain that no amendment will take place for some time, during which the dissatisfied persons can watch the working of the Act.

Dr. Newman, the Medical Officer of the Board of Education, gives an account of the first year's work under the Act of 1907, which provides for the medical inspection of school children. The Act came into force on January 1, 1908, and the report shows that within the year much has been accomplished. Prior to the Act very few local education authorities had

taken any thought about medical work, but now all the 328 separate authorities are attempting to provide for medical inspection of the scholars and not a few are considering the many questions of school hygiene which have been raised by sanitarians or have been brought before them by their medical officers. Fears were expressed in some quarters lest the medical inspectors might be more or less completely separated from the public health department and so lead either to overlapping on the one hand or to friction on the other. In many ways the work of a school doctor is closely related to that of the Medical Officer of Health, *e.g.* notification of infectious diseases. In view of this a majority of the authorities have appointed their Medical Officers of Health to be their school officers also, giving him whatever assistants may be required for the additional duties thus placed upon him. In some cases a different course has been adopted, but in them an attempt to secure proper cooperation has been made and it looks as if the school medical service will develop as a subsidiary department of the State Sanitary Service. It is stated in the report that "the intention of Parliament was clearly that medical inspection should be of a practical character, and have practical rather than academic results." With this interpretation many will agree, but questions have already been raised as to how far the attempt to attain these "practical results" can be carried under the authority of the Act. Is inspection to be a prelude to treatment? And if so, are the ratepayers to be saddled with the establishment of school clinics, dispensaries, and infirmaries? Or are the school boards to arrange to pay for the treatment of the scholars at voluntary hospitals? Or ought they not rather to take proceedings to compel parents to do their duty to their children? In many cases it would seem that the relation of the scholars' condition to the sanitary state of his home must be of the highest importance—a fact evidently to be ascertained by the inspector, who would perhaps then have to pass on his information to the sanitary authority. Then in cases of poverty it would become a poor law case. But the two reports of the Poor Law Commission and the differences between the majority and minority reports have yet to undergo much discussion and the poor law service generally has to be completely reorganized.

The debate on ulcer of the duodenum was concluded at the adjourned meeting on the 11th, and I resume my analysis of the views expressed from the point where I left off. Dr. Robert Hutchison believes in hyperchlorhydria and, as I said, that it may give rise to "hunger pain," but this symptom had been marked in cases where at the post mortem there was no organic lesion of the duodenum. He admitted the need of operation in obvious cases and urged the necessity of prolonged after-treatment. Where this had been neglected he had seen disaster follow.

Dr. A. F. Hertz thought that with some reservations Mr. Moynihan's conclusions must be accepted as to the frequency of ulceration. He had no doubt that free acid was one cause of the pain, and this explained the success of alkalies in relieving it. But not the sole cause, for he had introduced several ounces of free hydrochloric acid, 0.5 per cent., into a patient's empty stomach without setting up the pain, though an operation performed soon afterward revealed gastric or duodenal ulcer. He could not recommend operation until rest in bed and careful diet for at least a month proved useless.

Mr. Paterson had operated on forty-one cases and pointed out the desirability of differentiating gastric crises from ulcer. He had not found the symptoms so typical as had been stated. Some of his patients said the pain came on immediately after food, some that it was continuous, and a few described the hunger pain.

Dr. N. Raw related a case of hunger pain in which chronic thickening of the pylorus was found, but no ulceration.

Dr. Craven Moore said hyperchlorhydria did not exist Dyspepsia might be associated with an excess of normal gastric juice and give rise to hunger pain, but this could not have the great significance that had been ascribed to it.

Mr. P. C. Childe had met with three cases in which perforation was the first symptom and so gastroenterostomy the only resource.

Mr. Moynihan, in reply, said it was generally admitted that ulcer produced the symptoms he had described, although text-books were quoted against his views by those who had not escaped from the bondage of the vocabulary. Acid dyspepsia and other misleading terms were, however, being gradually less used, and some authors were recognizing the facts which the surgeon had brought to light. The term hunger pain had been shorn of the qualities he had attributed to it. The varieties of this symptom had to be considered. By a careful study of anamnesis duodenal ulcer could be diagnosticated as accurately as any abdominal disease. Physical signs were of little if any assistance. He was confident that an ulcer which had caused protracted and recurring symptoms had reached the outer coats, and, instead of unnecessary search within, the gall-bladder and appendix should be examined when palpation and inspection did not reveal ulceration. "Appendix dyspepsia" was not at present generally recognized, but was important. If medical treatment failed in early cases, surgery should be resorted to. If the ulcer were small and single, excision would be a cure; if, as more often happened, large and multiple gastroenterostomy should be done. The precise indications were now better understood than formerly. He agreed that after the operation the patients needed supervision for some time.

The Hospital Saturday Fund collection for the year 1909 amounted to £30,708. It was a record year and shows an increase of £878 on the amount for 1908.

Death from misadventure was the verdict of a coroner's inquest in an extraordinary case which has excited much comment for the last fortnight. The doctor who supplied medicine to a patient who died after the first dose admitted that he feared he had committed the mistake of taking the solution of strychnine bottle for a chloroform one. The two stood near each other and were of the same size and shape. The other circumstances in the case make it evident that this was the true explanation and suggest various comments on the sad result.

Dr. T. D. Savill on the 10th inst. met with a premature death through an accident while traveling in Algiers. He was only 52, but had achieved a great position, both as a clinician and an author. You may remember his "System," which was written from the view of his own experience. Later he wrote much on neurology, became assistant physician to the West London Hospital, and held other appointments. His "Neurasthenia" and "Lectures on Hysteria" attracted much attention. He contributed to the societies and journals many articles and was for some time on the regular staff of the *Lancet*.

Dr. Morton Wilson died on the 6th inst., aged 43. His sanatorium was one of the first opened in England. He had been to Nordrach and it was hoped he was recovered from early phthisis. He came back and started his institution in 1900 and managed it with great skill and enthusiasm, but a recurrence of his malady has closed a promising career.

Dr. George Skene Keith, the elder brother of the late Thomas Keith, died on the 12th inst. in his 91st year. His "Fads of an Old Physician" and his "Plea for a Simpler Life" are interesting little works which aptly illustrate their titles.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

ESTHETIC ABLATION OF A BENIGN TUMOR OF THE BREAST—ABLATION OF THE SEMINAL VESICLES IN GENITAL TUBERCULOSIS—HYDATID CYSTS OF THE LIVER—TUBERCULOUS PYELONEPHRITIS WITH PRIMARY CALCULUS OF THE KIDNEY—NECROLOGY.

PARIS, December 31, 1909.

MORESTIN presented to the Surgical Society a patient in whom an esthetic ablation of a benign tumor of the breast had been performed. A small buttonhole incision was made in the upper portion of the axilla, four to six centimeters in length. From this wound to the tumor a long tunnel was worked out with a bistouri and scissors; the instruments worked beneath the skin to the neighborhood of the tumor; this was fixed with the fingers and was liberated and isolated; it was then spooned out with long forceps. This operation, from an esthetic point of view, gives an ideal result, which is to be considered in young women who must go decolleté into society, and who do not wish to show a cicatrix in a region which may be exposed to view.

The majority of surgeons consider deep tuberculosis of the genitals as inoperable, but Marion believes that

even if the operation is somewhat delicate it does not cause any immediate danger to the patient, and that we should not reject surgical intervention on the vesicles. Operation should be done in case of enlarged vesicles, and when there are fistulæ or urinary difficulties. Contraindications to operation should be bad general condition and coexistence of pulmonary lesions. There are two methods of removal of the seminal vesicles—the perineal and the inguinal. Marion prefers the perineal route, which should be employed whenever there is double vesiculitis, or vesiculitis and prostatitis. Legueu prefers the perineal route. He believes that operative indications are rare. The operation is indispensable when vesicular tuberculosis is present with tuberculosis of the testicles.

Pierre Delbet gave an interesting observation of hydatid cysts of the liver. After having resected ten to twelve centimeters of the walls of the abdomen, he incised the diaphragm and introduced his hand into the cavity and extracted the parent vesicle. To treat the large cavity he used a special procedure, consisting of aspiration of the air contained in the pocket. Having sutured the orifice, leaving only a small opening, he introduced a large aspirating needle and aspirated with a Potain apparatus. Under the influence of this procedure the liver tissue rose into position, hermetical sealing was done, and the walls sutured without drainage. The immediate results were excellent. Quenu thinks that multiple hydatid cysts of the liver are rare. They should be treated by independent incisions, followed by reunion without drainage of the pocket. Tuffier has observed three cases of multiple hydatid cysts of the liver which were treated by incision and drainage, followed by cure. Guinard thinks it preferable to puncture the cysts separately from the periphery toward the center, for there is less chance of puncturing the blood vessels or bile ducts. Exploratory puncture through the abdominal wall should be entirely prohibited, since this is blind work. Broca thinks that each cyst should be treated by a separate incision; this is the best way of avoiding complications. Auvray, after examining various statistics, thinks that the frequency of hydatid cysts varies around 20 per cent. From the point of view of treatment there are great advantages in making a separate incision for each cyst. On the contrary, there is danger in practising the opening of deep cysts through the cavity of a previously evacuated superficial cyst.

Tuffier presented the kidney of a woman of thirty-two who had a painful right kidney, while the left one was neither painful nor palpable. The diagnosis of pyelonephritis on the right side had been made. Radiography showed just above the twelfth rib a regular opacity which suggested a renal calculus. The endovesical separation of the urine with Luys' separator showed good function of the left kidney and the presence of pus only in the right kidney; the patient had a nephrectomy of the right kidney. In the pelvis of this kidney was found an irregular calculus moulded to the pelvis and calices of the kidney. Histological examination of the kidney made by Mauté showed that the entire cortical substance was infiltrated with tuberculous nodules, in which examination for the bacillus of Koch was positive. The chemical analysis of the calculus showed that it was formed of pure uric acid.

Professor Edouard Brissaud, member of the Academy of Medicine, died prematurely at the age of fifty-seven. Born at Basançon in 1852, he studied medicine at Paris. Externe, then Interne of the Hospitals in 1875, he was prosecutor for Charcot in the anatomopathological laboratory. Hospital physician in 1884, he became a professor *agrégé* in 1886. In 1899 he was called to the chair of History of Medicine, and in 1900 he became Professor of Internal Pathology. The great reputation of Brissaud came from his works on neuropathology in which he has studied not only original but compiled subjects. His fine Atlas of the Anatomy of the Brain of Man, his studies on cerebral localization, on aphasia, on the contractures of hemiplegia, and on tabes represent but a small portion of his neurological work. He was the promotor of a great medical publication, the "Traité de Médecine," which he published with Charcot and Bouchard; then with Reclus and Pinard he produced a compendium taking up all the questions of current practice, called "Medico-Surgical Practice." He had a luminous intelligence, harmonious thought, and an ironical wit that was quite original. It is but a month ago that he was taken in the midst of full health with an illness the gravity of which his colleagues at once recognized, and for which they at once called in the English surgeon, Horsley. His operation gave hopes which cruelly deceived, for Brissaud died Sunday, December 19, 1909.

Professor Malassez, Member of the Academy of Medicine, Director of the Laboratory of Histology of the College of France, President of the Society of Biology, died at the age of sixty-six years. His remarkable works on the blood are known to all. He was for thirty years a collaborator of Ranvier. He was one of the first and greatest of French histologists. He was occupied principally with pathological anatomy and with the histology of tumors especially.. Aside from these questions, he left numerous memoirs on genital lesions, tuberculosis, and parasitic affections. We may say that the name of Malassez belongs to the history of medicine for a third of a century.

Progress of Medical Science.

Boston Medical and Surgical Journal, January 27, 1910.

Infectious Diseases and the Mouth.—W. R. Woodbury calls attention to the care now paid to the teeth and the revelation that examination of school children shows that decayed teeth is the most common defect among them. Next come tonsils and adenoids. Enlarged tonsils are a predisposing cause of diphtheria. What is true of diphtheria is true to a less extent of scarlet fever and measles. Carriers of disease among school children work much evil. The close relation of school life is a determining factor in diphtheria epidemics. Dental cripples cannot get full nutritive value from their food. Partially digested food as it passes through the alimentary canal gives up but a part of its nourishment. It clogs up the system and leads to constipation, itself an evil and a breeder of evils. Bad teeth and tonsillar enlargement are closely related. Only about eight per cent. of the community take proper care of their teeth. Mouth conditions are of practical importance in tuberculosis. In this disease the greatest importance comes through sanitation. Mouth sanitation is of the greatest benefit. To prevent the malady from gaining a foothold, and to counteract it if it once gets it, a generous amount of uncontaminated food is demanded. Tuberculosis is a chronic disease and a continual reinfection through food only partly masticated and contaminated with infection stored in a dirty mouth is a hopeless fight against an insidious foe. Food mixed with tuberculous sputum is not a wholesome diet. There are signs that a better appreciation of bodily needs in this respect is growing in the community. Preventive dentistry is attaining a just place. The careful attention now being given to the examination of school children's mouths should make an impress in the next generation. Oral sepsis is a matter of comparatively easy attainment and a thing of splendid results.

The Correlation of Digestive Functions.—This subject is discussed by W. B. Cannon, who pays particular attention to the matters of the rate of passage of the food stuffs through the alimentary canal, their alterations in different parts of the canal and the regions of absorption. Under the latter heading he says that the processes of digestion and absorption emphasize the importance of the small intestine. In it are found the enzymes that finish the work begun by the enzymes of the mouth and stomach. There they make the final preparations for the entrance of the food into the body. In the small intestine most of the food is absorbed. The only other part of the canal beside the small intestine and proximal colon in which absorption occurs is the stomach. The amount of absorption taking place here is slight. The actions of the various parts of the canal are naturally related, and appreciation of this fact naturally requires a readjustment of attitude toward digestive disturbances. Any particular pathological state can no longer be regarded rationally by itself but must be considered in its bearings on the digestive activities that naturally precede or follow it. Can the parts of the alimentary tract adapt themselves when special demands may be placed upon them? These and other similar questions must be solved by future researches. There also comes in the question to what extent the activities normal in sequential dependence may become free and unconditioned.

New York Medical Journal, January 29, 1910.

Malignant Growths of the Sigmoid and Rectum.—J. F. Erdman studies a series of 32 personal cases, 15 being males and 17 females. Of this number 13 occurred in the sigmoid, 2 in the anus and rectum, and 16 in the rectum with invasion or extension upward into the lower sigmoid while the lower sigmoid and rectum were invaded and a

distinct annular growth was also present in the sigmoid six or eight inches above the lower. The age of the patients varied from a young boy of 17 years to an old woman of 86 years. The author refers to the various operations done in the series and quotes statistics as to prolongation of life, etc. Speaking of treatment in general he says that two classes of cases present themselves, those demanding immediate relief and those in whom a time of election can be taken. In the first case treatment resolves itself into the formation of an artificial anus either temporary or permanent. In the second type of case the position of the growth with the surrounding tissues will determine the particular operation. If in the upper sigmoid excision, an end-to-end or lateral isoperistaltic or antiperistaltic anastomosis should be done. If in the lower sigmoid the formerly called intraperitoneal rectum excision is also feasible with end to end suture or if there is considerable infiltrate with difficulty in making anastomosis, a combined operation for removal with artificial anus or abdominal implantation should be done.

The New Treatment of Spastic Paralysis by Resection of Posterior Spinal Nerve Roots with Description of the Surgical Technique.—The main proposition of this paper is considered by L. Pearce Clarke while the surgical technique is discussed by A. S. Taylor. The former refers to several cases reported by Continental clinicians, and says that the motor part of the reflex arc is obviously beyond attack, for while the contraction would be temporarily relieved, a complete palsy of the muscles involved would result. Neurectomy in the peripheral nerves proper could not be employed as these consist alike of sensory and motor nerves. Even alcoholic injection in "muscle group isolation" by Schwab does not seem to be permanent or fully adequate. Hence the posterior sensory roots near the cord dorsal to their individual ganglia is the point of operation if one seeks to attack the sensory side of the arc. Even though ataxia and lost reflex irritability should supervene in the operation, this state is much to be preferred to the spastic condition which it relieves. However sufficient data are now at hand to show that neither mishap obtains in the new operation. The author reports three personal cases on whom the operation of hemilaminectomy was done by Dr. Taylor who gives the following description of his operation: The incision is made just to that side of the spinous processes upon which the laminectomy is to be done and is carried close to the spinous processes down to their bases. Large deep rake retractors are used to pull the muscles outward (incidentally stopping the hemorrhage) and a periosteal elevator is used to denude the laminæ, to which the muscles are but loosely attached, until they are exposed as far outward as the articular processes. With a Doyen saw the laminæ are divided at the bases of the spinous processes and also externally near the articular processes. With a bone forceps the laminæ are then lifted out. One may prefer to remove one lamina by means of the saw and forceps, and then to remove the others by means of special rongeurs. In this way one may obtain spaces 1.8 cm., 1 cm., and 1.5 cm. wide in the cervical, dorsal, and lumbar regions respectively. The dura is opened longitudinally, and after the work for which the operation is done is finished, it is completely closed with a continuous catgut suture. The muscles and aponeurosis are closed with chromic gut and the skin with silk. No drainage is used. By this method he has resected posterior nerve roots three times in the cervical region, the posterior roots on both sides from the seventh to tenth dorsal inclusive without damage to the cord proper, in one case, and the lumbar roots on one side in one case. These patients have shown practically no shock, and have healed promptly by primary union, even though one of them had a locomotor ataxia of some years' standing. In each of these cases the escape of spinal fluid when the dura was opened was very free but neither then nor afterward was there any appreciable effect noticeable in the patient's condition.

Chronic Diarrhea Due to Pyloric Insufficiency Successfully Treated with Hydrochloric Acid.—The patient of E. Palier was a carpenter of 54 years. He had been sick for about two years before coming under observation. He was having a few evacuations daily and was on a very restricted diet. About one hour after a test meal and several hours after an ordinary meal clapotage in the stomach could be elicited. The patient was allowed a more liberal diet with plenty of water, which had been restricted before, even small amounts of fresh vegetables to guard against scurvy. He was fitted with an abdominal belt and given hydrochloric acid ten drops in water twice daily after meals and later only after supper. A larger dose seemed to promote costiveness. The author regards the statement of Cannon that this acid opens the pylorus as wrong. This acid retards the evacuation of the stomach contents by acting on the pylorus, hence comparatively small doses may prove efficient when the exhibition of this particular remedy is indicated. In some cases of hyperchlorhydria accompanied by constipation and very painful piles nothing acts so magically to relieve the patient as a good dose of bicarbonate of soda. It causes evacuation of the bowels and relieves the painful piles which have resisted all the anodynes. The author says that many of the deductions made by investigators from experiments on animals as to the gastrointestinal tract are totally at variance with clinical data in man. We know that some patients stand in mortal fear of the stomach tube, and when they know in advance that it will be used on them, they pass sleepless nights, and it can be imagined with what an appetite they eat their test meal. Nevertheless in such people the gastric juice at the first examination may be normal, or there may be hyperchlorhydria with excessive secretion, which is not the least affected by fear and anxiety. He has examined the stomach contents of tuberculous patients who not long before had had severe hemoptysis and were in a state of extreme anxiety and depression; nevertheless their gastric secretion was not affected thereby, and in such cases he found excessive secretion, normal secretion, and achlorhydria, as may have been the patient's usual condition. The secretion of saliva is certainly decreased under such a condition, but not the gastric secretion including the secretion of pepsin. Fear, anxiety, unpleasant meals increase gastric secretion in those suffering from excessive acidity of the stomach, as such patients usually feel worse under such conditions.

Total Absence of the Adrenals.—The case of a woman dying with a combination of pleurisy, Raynaud's disease, and Addison's disease and coming to autopsy is reported by C. R. Lowe. Among the autopsy notes are the following statements: Both kidneys were smaller than normal; the weight of each was about 128 grams; they were pale and slightly lobulated; the capsule as a whole stripped very readily; but in one or two small areas adhered to minute portion of cortices. On section the cut surface was paler than normal, but the markings were distinct in cortex and medullary portions. The cortices were about half the thickness of the medullary portions. The pelvis of each kidney was normal in appearance. Around each kidney was the usual amount of perirenal fat. No trace of the suprarenal capsules could be found. (Subsequent microscopical examination of the adipose tissue at the normal site of the suprarenal bodies failed to discover any suprarenal tissue.)

Journal of the American Medical Association, January 29, 1910.

A Plea for the More Conservative Treatment of Sarcoma of the Long Bones.—W. B. Coley refers to his paper published two years ago in which he refers to the disappointing results in the surgical treatment of sarcoma of the long bones. While his results from the use of the serum at that time were also disappointing yet he has persisted in its use under a new method proposed in that paper by which he hoped to save more lives and also a certain proportion of limbs. He has added nineteen new cases to his former list so that he has now ninety cases as the basis of his present study. The facts set forth in regard to the treatment of these cases are in his judgment sufficient to justify giving up the traditional method of treating them by immediate amputation. He believes that in most cases it is safe to wait two or three weeks for a trial of the antitoxin before amputation. It was thought that time had been wasted, but he believes such cases would be fatal any way. On the other hand in probably a small number of cases a limb can be saved by preliminary use of the toxins and when early improvement is not marked operation will be rendered safer and have more promise of success than if the toxins had not been first used. Their greatest value in sarcoma, he believes, will be found in a judicious combination with conservative operative treatment. By their aid hip-joint amputation, which has been the rule in sarcoma of the femur, will give way to amputation below the trochanters, leaving a useful stump for an artificial limb. The toxins will be administered for a considerable period after amputation in the hope of overcoming the cells which are left behind and which without their use might cause local and metastatic recurrence. The same rules will apply to sarcoma of the humerus. Coming to sarcoma of the tibia, fibula, radius, and ulna, particularly of the myeloid type, he thinks we can safely substitute either curetting of partial resection, followed by a thorough course of the mixed toxins, for the amputation

and the number of successes will be much greater than with operation alone. With earlier diagnosis, correct interpretation of *x*-ray plates, and the use of earlier exploratory operations, he believes we can have better success with these conditions than has heretofore been achieved.

Human Hair Sutures.—F. B. Guthrie and C. C. Guthrie suggests the use of human hair for sutures for vascular anastomoses. Light brown hairs of medium fineness, about eight inches long, were tested as to tensile strength and found to be stronger than the silk previously employed. Experiments of reuniting the severed carotid and the carotid and jugular veins in dogs were successful, the healing being rapid. The article is illustrated.

Pasteurization of Milk.—R. G. Freeman thinks that public opinion is apt to swing to extremes on the question of pasteurization of milk, and he asks: "How safe are the raw milks now furnished as food for infants?" Tuberculosis, he thinks, may be eliminated practically from the question by well aired and ventilated stables and repeated tuberculin tests. The greater dangers are typhoid fever, diphtheria, scarlet fever, and epidemic sore throat. No system of control can protect the milk supply from a mild walking typhoid case among the employees or from virulent diphtheria bacilli in the mouth of a healthy diphtheria carrier. The precautions of frequent bacteriological examination of dairy employees needed against these diseases are hardly practicable. Even certified milk is not absolutely safe. He discusses the questions of rickets, scurvy, marasmus, etc., as caused by pasteurized or sterilized milk, and finds that with proper methods these diseases should not occur. Commercial pasteurization, consisting in heating milk to a high temperature for a few seconds, he condemns. The only safety for the consumer is to obtain his milk sweet and raw, and, having obtained it, to render it safe by the smallest amount of heat compatable with safety. A temperature of 140° F., but little higher than the temperature in which one can bear one's hand, if continued for forty minutes, with the milk in a closed nursing bottle is sufficient to kill all the bacteria we know and fear in milk, at the same time changing neither the taste nor, so far as we know, the chemical composition or the ferments of the milk. He sums up as follows: "1. There is no absolute safety in any raw milk. 2 Commercial pasteurization of milk, employed to keep it sweet until it can be marketed, should be condemned. 3. Milk is in no way injured, either in taste or by chemical change or action on ferments, by pasteurization at 140° F. for forty minutes. 4. Pasteurized milk does not cause malnutrition, scurvy, or rachitis."

Renal Colic.—Bransford Lewis gives an account of a case of right sided renal colic in a woman aged 25, resisting treatment, from ½ to ¾ grain of morphin only giving relief for an hour or two, and sleep being reduced to about one or two hours in the twenty-four. The patient was not strong enough for operative treatment and something had to be done at once. She was therefore placed on the cystoscopic table, a catheter was passed into the right renal pelvis, and 20 minims of a 1 per cent. solution of alypin injected. The pain was relieved in 15 minutes, the catheter was withdrawn, and the woman had the first good sleep she had had for several days and nights. The colic returned again the next day with lessened severity, and 15 minims of the 1 per cent. solution of alypin were injected with the same good effects. The catheter was left in the ureter and secured by adhesive plaster, emerging from the urethra and draining into a vessel between the thighs, and the nurse was instructed to inject 10 minims of the alypin solution whenever the pain recurred. This had always the desired effect, and after three days the crisis seemed to be over and the catheter was removed, all menacing conditions having disappeared. Later, exploratory nephrotomy was performed, and recovery ensued. Lewis has not seen this treatment reported by anyone else. It was easily applied and without objections on the part of the patient who was highly in favor of it after experiencing the relief it afforded. The release from pain seemed to have a good effect on the renal secretion which increased from 15 ounces during the painful period to 35 or 40 ounces. The alypin, he asserts, caused no depression or other bad effect.

Pseudoperitoneum, Etc.—A. F. Hertzler says that his researches have convinced him that the cell is not primarily the active agent in the formation of fibrous tissue, but that the initial processes are chemical and are identical with those of blood coagulation, the cell playing an entirely secondary part. His studies have been mainly in the formation of fibrous tissue in wound healing, especially wounds of the peritoneum, and he describes his findings in some detail. The cells, he says, appear to play no part in the formation of the exudate and its conversion into fibers, for these processes may take place before the appearance of any cells whatever. The membrane which forms over any foreign bodies stitched to the peritoneum is produced in this way and, though identical with the peritoneum in structure and function, is entirely distinct from it. This he calls the pseudoperitoneum. If it is kept in mind that such coverings are really peritoneal the expression "tearing up adhesions" will not be heard so often. Properly planned, the removal of such membranes or of the foreign body beneath them can nearly always be accomplished without leaving a surface denuded of peritoneum. The pathological conditions in which this pseudoperitoneum is formed, simulating the action of a foreign body in the experiment, are noted. The purulent exudate about a gonorrheal tube is an example. Closely resembling the preceding in appearance, though very different in its pathogenesis, is a condition of the peritoneum in which the chief changes are in the blood-vessels, which he calls varicosity of the peritoneum. The peritoneal and omental vessels, as distinguished from those of the mesentery, are the ones involved. The peritoneum appears as a veil of blood vessels which obliterate more or less the anatomical structure beneath. The causes may be active and inflammatory or obstructive processes, or in some cases, and these are the majority, no prominent causative factor is apparent. The pathology is expressed in a hyaloid degeneration of the subperitoneal connective tissue, and the most pronounced symptoms are due to splanchnic irritation manifesting itself at the peripheral nerve plexus or at the ganglia or in a pronounced splanchnic neurosis. The treatment is dependent on the etiology. If, as in most cases, an affection of the appendix in the cause, removal of the latter may be sufficient. If the changes in the vessel walls are permanent the obliteration of the vessels may be required. A third condition mentioned by Hertzler is that described by Virchow under the term *Mesenterialschrumpfung*. The process is an increase, with subsequent contraction, of the connective tissue of the mesentery, and Hertzler calls it sclerosis of the mesentery. In the beginning the condition is a subperitoneal process. Hertzler speaks of the importance of a proper comprehension of these pathologic processes of the peritoneum and the underlying structures. The pseudoperitoneum, being an adventitious product, may be mischievous and require removal or, on the other hand, it may be performing a useful function, and which of these is the case must be determined before it is attacked. In any event, these pseudoperitoneums are not to be "torn up," but are to be dealt with as peritoneum with the object of preventing the reformation of mischief makers equal to those originally existing. The varicosities are the expression of a lesion elsewhere, the removal of which may cause a cure. If not, an obliteration of the lumen of the vessels must be brought about, but this must not be done by the removal of the entire membrane involved, as the condition is not a pseudoperitoneum. In the third type, the mesenteric sclerosis, if obstruction of the lumen is caused, a resection of the intestine will be necessary. If the offending tissue is band-like, subperitoneal section of such bands will be possible if the peritoneum is intact. These three conditions may not always be easy to differentiate and the surgeon's ability and knowledge of anatomy will be his guide.

The Lancet, January 22, 1910.

Four Cases of Congenital Acholuric (So-called Hemolytic) Jaundice in One Family.—The cases are reported by F. P. Weber and C. Dorner who refer to previously reported instances. Their own patients were a man of 53, a daughter of 32, another daughter of 13, and a son of 12. Jaundice seems to have been prevalent in the family connection. It appears also to have been congenital in the four patients. In all the spleen was enlarged. In none did the urobilin test in the blood give a positive result. The red cells appeared normal and rarely of a crenated shape. The blood viscosity was within normal limits. Bilirubin was always present in the blood serum and plasma. The feces were always well colored and the urine nearly always free from bilirubin. Except during exacerbations the patients had good health and were of full physical stature. This disease is supposed to be due to a peculiar congenital abnormality or an imperfect development of the bone marrow which manifests itself by some imperfection in the quality of the red cells. Probably they are destroyed more rapidly than they should be in the normal hemolytic processes of the body. Very decided anemia is not invariably present. In some instances the jaundice is intermittent instead of remittent. Subjective symptoms are often absent. There may be, however, abdominal pain, general depression, drowsiness, increase of jaundice, moderate fever, and paleness of the face. All the symptoms appear to be more pronounced in the acquired cases in adults. Occasionally

a chlorotic type of anemia is associated with the condition. As regards treatment there does not seem to be anything very definite known. In conditions of marked anemia iron should be given and especially in early life the patients should be protected from great cold. Detailed statements are given as to the blood conditions in the four cases.

Glare, Its Causes and Effects.—J. H. Parsons says that in most instances glare is caused by strong light reflected upward from the ground or sea. In most cases only feeble diffuse light enters the eyes for the source of light is high above the observer and the eye is protected from direct rays by the overhanging brow. The organ possesses a protective mechanism in the iris. In the milder forms of the condition we experience not pain but only discomfort. Pain is regarded as invariably due to the stimulation of certain afferent areas, the nerves of common sensation. The effects of glare may be mild or severe. With the greatest degree of intensity there is a scotoma and this may later be associated with anatomical changes in the retina pigmentation in the macular region, etc. Prolonged exposure to bright light in the tropics and at sea is not infrequently followed by night blindness. These cases thus show the effects of retinal exhaustion. It is almost certain that in these cases the retinal exhaustion is due primarily to the bleaching of the visual purple which is not restored with the usual rapidity. These changes in the purple are chemical in character and might be expected to be induced most readily by the most actinic rays of the spectrum, viz., the ultra-violet rays. These are known to be responsible for "snow-blindness," but this is a superficial inflammation of the mucosa covering the eye.

Acute Cerebrospinal Meningitis with Severe Choreiform Movements.—A case is reported by J. P. Johnson whose patient was a colored boy of 15 years, who died after an illness of 60 hours' duration. At first typhoid with severe brain symptoms was suspected. After a day or so there was an almost constant choreiform movement of the arms and legs. The limbs were constantly flexed and extended and the arms were frequently crossed in a purposeless manner on the chest. The movements were so excessive that it became necessary to bandage the feet and elbows over cotton wool to prevent ulceration at the heels and elbows. Lumbar puncture was performed and some faintly turbid fluid slowly oozed out. He died with rapid pulse, stertorous breathing, and rising temperature. Autopsy showed the brain soft, the dura bound down to the underlying cortex over a circular area about four inches in diameter, the center of which corresponded roughly with the mid-point of the longitudinal fissure. Pus was found along the larger blood-vessels and in the sulci of the convex surface of the brain. There was no actual pus on the surface of the convolutions, but the pia here was injected. This injection and presence of pus were most marked over the area corresponding to the adherent dura mater which included the upper half of the Rolandic area on both sides. It was probably this condition that produced the choreiform movements. In the fluid obtained by lumbar puncture the cellular elements consisted of a few lymphocytes and a large number of polymorphonuclears. Several deeply stained cocci were found, for the most part lying in the faintly stained protoplasm of the polynuclears in groups of from one to four pairs although diplococci were also found lying free. Examination revealed a pure culture of Weichselbaum's *Diplococcus intracellularis meningitidis.*

British Medical Journal, January 22, 1910.

The Blood-Tight Uterus.—G. H. Peake reports the case of a woman with retained placenta. He had no difficulty in removing it, but the womb did not contract after its removal. He expected a hemorrhage, but none came. The organ at first seemed like a leathery bag in which the hand moved freely. What struck him forcibly afterward when washing his hands was that he had unusual difficulty in cleaning them, having to peel off thin strings of blood clot which adhered firmly to them. It occurred to him then that as there was no muscular contraction to close the blood vessels the absence of bleeding must have been due to this sticky condition of the blood. Probably clots had already been formed in the uterus before the detachment of the placenta. Was this hemostatic power, he asks, accounted for by the increase of leucocytes and fibrin known to exist during pregnancy or is there at term some blood constituent produced perhaps at the placental site which favors coagulation?

Ulceration of the Face and Fauces Treated by Bacterial Vaccines.—J. C. McWatters reports the case of a man of 34 years who presented himself with an ulceration of the face, a sore throat, and a discharge from the ear. He had fumigated a room with carbolic acid a few weeks before and following this the ulcers had appeared and had run a chronic course, having lasted some six months. Staphylococci, streptococci, and the pseudodiphtheria bacillus were found in one of the ulcers on the lip. The usual vaccine treatment was instituted and the man recovered. It was some time before the causal relation of the carbolic acid use to the lesions was suspected. The lesions resembled those of syphilis, but a Wassermann test was negative. The first vaccines improved his condition but they failed to drive out two of the invading organisms. The streptococci continued until treated by an autogenous vaccine. The only local applications used were frequent bathings with a lotion containing sodium citrate 1.5 per cent. with common salt 2.0 per cent. At night the ulcers were covered with small dressings dipped in the same solution. The sequence of changes in the tissues was probably as follows: A chemical injury of the superficial layers of the skin and fauces producing a local reduction of natural immunity which was followed by invasion of the organisms which happened to be present. This soon led to a lowering of his general immunity from absorption of toxic products resulting in a chronic course till a rising tide of general immunity was set up by the inoculations of the specific vaccines. The condition in the ear was probably due to extension of the pseudodiphtheria bacillus through the Eustachian tube, from the fauces and nasopharynx. There was no use of antiseptics during the treatment.

Vaccine Treatment in Pyelonephritis.—C. F. Routh reports the case of a young married woman of 30 years, with one child seven years old who for many years had suffered from chronic constipation and an irritable bladder. In June, 1907, she had an attack diagnosed as appendicitis, which afterward proved not to be. In June, 1908, she again became pregnant and in October had another attack supposed to be due to the appendix. Some months later she had an attack believed to be severe pyelonephritis due to *Bacillus coli* and possibly complicated with some old-standing trouble. Examination of the urine showed this view to be correct. She was given a vaccine prepared from this organism, hexamethylamine, small doses of morphine, and a nightly purge. Her symptoms continued for some time and severe rigors were present. The vaccine dose was gradually increased and was given every eight days until six doses had been administered. On the last day of February a healthy child was born, the labor being in every way normal. The patient made an uninterrupted recovery and six weeks later the urine was free from pus. The disappearance of the old kidney pain and bladder irritation led the author to believe that mild poisoning from *B. coli* may have been present for many years. At the onset of the illness the previous attack and the character of the pain made the diagnosis very doubtful and even when the presence of pus in large amount in the urine pointed to definite trouble in the right kidney her history of many years' pain in that organ made the case still obscure. The chief point of interest was the rapid improvement in the patient's general condition after the first injection of vaccine though all other symptoms remained as before until her delivery, after which they rapidly disappeared.

The Treatment of Gonorrheal and Mixed Infections of the Female Genital Tract by Lactic Acid Bacilli.—D. Watson uses the *Sauercultur* made from skimmed milk. Filtration separates the casein and leaves a slightly opalescent whey containing lactic acid bacilli in large numbers as well as lactose, lactalbumen, and salts. The solution can be increased in strength by the addition of sugar of milk and if desired by a powdered tablet of lactic acid bacilli. The local parts are thoroughly disinfected and curetted if necessary, and after the removal of all excess of the disinfectant the lactic acid is introduced into the vagina. The first effect of the treatment may be an increase of discharge, the purulent appearance of which soon ceases and it becomes white and thin. This is removed by gentle swabbing with dry wool through a speculum. In most favorable cases the secretions are normal in a few days. Sometimes two or three weeks are required. Even cases in which the tubes are involved seem to benefit by the treatment and can be discharged from observation earlier than before. Many patients are met with in general practice in whom treatment is called for on account of a purulent vaginal discharge. In the author's experience the majority of them respond to the treatment detailed. As regards the use of the lactic acid bacilli for discharges from the male urethra remarkable results have been obtained in two cases in the author's experience, but he has had no further opportunity for observation. He finds that this treatment keeps down the number of patients in the

hospital for women under his observation. He has had disappointing results with the usual antiseptic methods of treatment. He has tried douching, vaginal swabbing, and when the internal os was patent, curetting and cauterizing the uterus followed by careful drying.

Berliner klinische Wochenschrift, January 10, 1910.

Appendicitis in the General Hospital at Malmö, Sweden.—Bauer has analysed 1361 cases of appendicitis occurring in his hospital since 1896, with a mortality of 5.1 per cent. He concludes his article by saying that the mortality in acute appendicitis can and must be reduced. This may be accomplished by the following means only: (1) The public must be given a knowledge of the symptoms of appendicitis. (2) A physician must be called to every patient with appendicitis as quickly as possible. (3) The patient must be sent to the surgical division of the hospital as soon as possible. (4) Every case should be operated on as soon as the diagnosis is established, unless there is some definite contraindication, or unless in mild cases the patient and his relatives after the situation has been explained to them decide upon expectant treatment.

Lesions of Motion and Reflex Activity in the Palate, Pharynx, and Larynx in Hemiplegics.—Graeffner has examined the mouth and throat in a large number of cases of nervous diseases of different kinds. He summarizes his findings as follows: (1) Among hemiplegics one finds frequently gross lesions of motility of the soft palate, more rarely of the larynx. (2) The loss of motion occurs usually, but not always, on the paralyzed side. (3) Isolated paralysis of the contralateral vocal cord is associated, provided no extra cerebral complication exists, not with a cortical but with a bulbar affection. (4) Tremors and ataxia of the vocal cords follow apoplexy much more rarely than tabes or multiple sclerosis. (5) The irregularity and variability in the direction of the uvula as it often occurs in the healthy cannot be considered as a sequel of apoplexy. (6) The loss of the reflex or reduced reflex of the palate, pharynx, and larynx is valuable as a symptom of disease.

Deutsche medizinische Wochenschrift, January 6, 1910.

Concussion of the Brain.—Trendelenburg discusses at length the differential diagnosis between concussion, contusion, and compression of the brain, and says that these conditions are rarely found singly, two or more usually being combined. The cardinal symptoms of concussion are the sudden coma, slow pulse and respiration, and loss of pupillary reflexes. Recovery simulates that from a narcotic or alcohol. In cerebral compression, usually from hemorrhage, the onset is slower and progressive, with localizing symptoms as convulsions or paralyses, and rapid recovery after operation. If the compression is due to a depressed fracture and not to hemorrhage it may be impossible to differentiate between it and concussion. In cerebral contusions there are usually clonic motions and tonic contractions of the extremities. The symptoms may be masked by those of concussion. Flaccid paralyses are rarer than in compression. In these cases the coma does not clear up, the temperature rises rapidly, and the patient dies in coma. At autopsy small capillary hemorrhages are found in the cortex. The most characteristic symptom of concussion is the immediate coma, gradually clearing up and leaving no after effects. In mild cases the patient may not become unconscious, simply for a few moments everything becoming black before the eyes. From these cases there are all grades to those in which the coma lasts for two weeks. Vomiting is another common symptom. Retrograde amnesia is a constant symptom of concussion. This may include only the moment of the accident, or may go back several days. It gradually disappears during recovery. Concussion may be called "traumatic narcosis." The pulse is slow and the temperature subnormal. In many cases after the recovery from the unconsciousness there is a marked reduction in the memory. In some instances there occurs a condition resembling somnambulism in which the subjects do their work for several hours, but know nothing of what they have done. Psychoses may occur, including hallucinations, fixed ideas, and delirium lasting for a few days and closely resembling alcoholism. Glycosuria and polyuria are not infrequent sequelæ of concussion. The retrograde amnesia differs from ether or chloroform anesthesia, but resembles carbon monoxide poisoning or strangulation. The physiology is discussed at length. An important point is that the intensity of the concussion is, within limits, in inverse proportion to the severity of the injury causing it. When the skull is fractured, concussion is not apt to occur. There are many theories as to the cause of concussion, none quite satisfactory. Increased intracranial pressure, rupture of capillaries, and cerebral anemia have been claimed as the immediate cause, but they do not explain the symptoms. Concussion of the medulla and cord, causing immediate transitory complete paralysis, has been described, but the author has never seen such cases. Peripheral nerve paralyses, due to a blow or pressure, are common; also sensory symptoms from the same cause. The name of acute cerebral compression has been advocated for the condition, but as it is not proven that the symptoms are in reality due to such a condition the author believes in retaining the name of concussion until further study teaches the real nature of the process.

Concussion of the Brain.—Windschied discusses the subject from the viewpoint of the neurologist. He says that the process is due either to a circulatory change or to an injury to the brain as a whole. The various theories are discussed. In considering the symptoms the author says the main ones are the unconsciousness, the bradycardia, and the vomiting. The symptoms of a pure concussion are entirely nervous and functional. The most important nervous sequelæ are discussed. The most characteristic is the loss of memory, especially of names and numbers, and easy exhaustion of the mind. The second is an increase of the irritability and anxiety. Most patients complain of headache, dizziness, mental weakness, and tinnitus, and all have an intolerance to alcohol. The reflexes are usually increased; the hands tremble; there is loss of power in the extremities; there is increased cardiac instability, and loss of vasomotor control. The author calls attention to the similarity between these symptoms and those of arteriosclerosis. He does not think that the injury causes the sclerosis, but says that a mild degree of sclerosis may exist without symptoms, as the regulating mechanism of the cardiovascular system may maintain the circulation intact. He believes that in such a condition that the injury may destroy the balance of this regulation, with the resulting appearance of symptoms in an arteriosclerosis which previously gave none. The greater part of the patients developing symptoms following accidents are at the age at which arteriosclerosis is in the process of development, and most of them give a history of hard work and alcoholism. The differentiation from accident neuroses is difficult, as one condition merges into the other. The reality of the so-called post concussion psychoses is doubted by the author. He believes that they are the result of other factors than the concussion *per se*.

Elevation of the Pelvis in the Treatment of Cecal Fistulæ.—Schmiz says that to promote healing of cecal fistula or artificial anus the pelvis should be elevated. This is purely a matter of mechanics. The intestinal contents at the iliocecal valve are decidedly fluid or may at least be made so by proper attention to the diet. By raising the pelvis the valve is raised above the cecum and the ascending colon, and the intestinal contents by their own weight flow through the colon, rather than through the fistula. As a result of this the utilization of the food is not decreased; water is not drained away from the body; the formation of granulations and the healing of the wound progress with less interruption; the skin in the neighborhood of the wound is not irritated and eczematous; the dressing remains cleaner and does not require such frequent changing; and, finally, the bad psychic influence, so often found affecting patients with fecal fistulæ, is absent. The author reports a case in which this method was successfully employed.

Rectal Instillation for Pylorospasm.—Rosenstern discusses the suggestion of Rosenhaupt (MEDICAL RECORD, Vol. 76, page 822), that the rectal injections of saline solutions in cases of pylorospasm of infants had a curative action by decreasing the gastric acidity and thus relieving the spasm. The present author has been using the method for two years. His method consisted in fixing a tube in the rectum by means of adhesive plaster, and so regulating the flow of solution that from 30 to 40 drops entered the rectum per minute. The instillations were made twice a day, and each treatment lasted two hours, thus allowing about 500 c.c. of fluid to enter. The solution used was Ringer's solution, namely, sodium chloride, 7.5 gm.; potassium chloride, 0.42 gm.; calcium chloride, 0.24 gm.; water, 1000 c.c. While this method was first used merely to reduce the loss of water, the effect upon the vomiting was so striking that a further study of the subject was made. Four cases are reported. In all four cases there was a prompt effect upon the vomiting, and in three of them an immediate gain in weight. The author strongly recommends the use of rectal injections for their direct effect upon the vomiting.

Book Reviews.

A Practical Treatise on Diseases of the Skin. For the Use of Students and Practitioners. By J. Nevins Hyde, A.M., M.D., Professor of Dermatology and Venereal Diseases in the University of Chicago, Medical Department (Rush Medical College). New (eighth) edition, thoroughly revised and much enlarged, with 223 engravings and 58 full-page plates, in colors and monochrome. Philadelphia and New York: Lea & Febiger, 1909.

The eighth edition of this book is distinctly welcome to student and specialist alike. Long acknowledged as one of the leading authorities on dermatology, the new edition needs description rather than praise. The work shows the greatest care in the new revision, which has been so complete as to necessitate its increase in size to the extent of 250 pages. The diseases of the warm climates have been considered in a separate chapter. New articles have been written on the following subjects: Prurigo nodularis, several forms of erythema, the fourth disease, paraffin prosthesis, osteoma and calcification of the skin, meralgia paresthetica, acrodermatitis pustulosa hiemalis, lichen spinulosus, keratolysis exfoliativa congenita, lipoma, Fordyce's disease, causalgia, leukemia and pseudoleukemia cutis, tinea ciliorum, and the brown moth dermatitis. Illustrations are probably of more importance in works on dermatology than in those on any other branch in medicine. This has been appreciated by the author, and in the present edition he has added twenty-four new plates and 120 new engravings, more than doubling the number found in the last edition. These are of exceptional excellence, showing the details of the lesions with almost startling vividness. The text is clear, concise, and well arranged. The type is good, and all the details of the bookbinder's art are well attended to.

A System of Medicine. By Many Writers. Edited by Sir Clifford Allbutt, K.C.B., M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge, Fellow of Gonville and Caius College; and Humphrey Davy Rolleston, M.A., M.D., F.R.C.P., Senior Physician St. George's Hospital, Physician to the Victoria Hospital for Children, Sometime Fellow of St. John's College, Cambridge. Vol. VI., Diseases of the Heart and Blood-Vessels. London: Macmillan & Co., Ltd.; New York: The Macmillan Company, 1909.

This volume differs from the corresponding volume of the first edition in containing articles on the heart and vessels (including the lymphatics) only, bringing them together from the two volumes formerly containing them, and excluding consideration of diseases of the muscles and nervous system. The volume contains much new matter necessitated by the new knowledge of the heart and its working, founded upon the discoveries of Kent, His, and others, and developed largely by Mackenzie. The introductory article is on the "Physics of the Circulation," written by Professor Sherrington and extensively revised and elaborated by Dr. Mackenzie. This, if not the most important in a practical sense, is by far the most interesting article in the volume, introducing the reader to the new views of the action of the heart and of the blood circulation and explaining the principles upon which the modern science of cardiology is based.

Following this are the sections on "Diseases of the Heart," divided into twelve articles, and on "Diseases of the Blood-Vessels and Lymphatics," in six articles. The new articles, in addition to the introduction, which is practically new, are on Stokes-Adams' disease, by Osler and Keith, and on aneurysm, by Osler. The article on "Overstress of the Heart" has been rewritten, and contains an interesting section by Dr. R. W. Michell on the effect of school and university athletics on the heart of a young man. The article is full of warning against excess in athletics, and the reader will hardly agree with the conclusion of Professor Allbutt that "the importance of muscular effort as a factor in cardiac injury has been much exaggerated." The article itself, the part written by Allbutt as well as that by Michell, shows that muscular strain is a very serious factor in producing cardiac injuries which may cripple the subject for life, and the blame for it cannot be put entirely, or even largely, upon "publicity and the patronage of the vulgar press," as Allbutt would have it. The only American contributor to the volume, now that we have lost Osler, is Welsh of Johns Hopkins. He wrote the articles on thrombosis and embolism in the first volume, but, as he "was at the last moment unable to revise his standard articles, this has been undertaken while the volume was going through the press by one of the editors" (Dr. Rolleston). The articles are excellent, but how much of this excellence is to be credited to the original writer and how much to the editor we are unable to say.

With this volume the strictly medical part of the work is apparently concluded, for the remaining volumes, if the scheme of the former edition is followed, will be devoted to diseases of the nervous system. These will no doubt be valuable, and the subscribers to the work will congratulate themselves on possessing them, but it is a question whether neurology is not now so strictly a specialty as not to be considered a part of internal medicine. One may, therefore, at this stage pass judgment upon the work as a guide to the internist, and this judgment can but be favorable. There have been some things to criticise in the arrangement of the volumes and the grouping of the diseases, such as including tuberculosis among the diseases of the lungs, and also in the treatment of some of the individual articles, but, taken as a whole, we have naught but praise for the treatise. In its therapeutics, the truly essential part of any work on medicine, it is distinctly hopeful and free from the taint of pessimism, from the blight of which present-day medicine is, fortunately, emancipating itself. The reader feels that his teachers look upon medicine as the science of healing, and not solely or chiefly as pathology; the laboratory is given its proper place as a valuable aid to diagnosis, but it is not made the end and all of medical study and practice. The reader finds all that he demands—etiology, pathology, and diagnosis, and especially therapeutics. With this excellent system of internal medicine he has what he needs to equip himself, so far as books can help him, for the practice of his profession and the cure of the ills of his patients.

Collectanea Jacobi. By A. Jacobi, M.D., University of Bonn (1851); LL.D., University of Michigan (1898), Columbia (1900), Yale (1905), Harvard (1906); Professor of Infantile Pathology and Therapeutics, New York Medical College (1860-1864); Clinical Professor of the Diseases of Children, New York University Medical College (1865-1869); Clinical Professor of the Diseases of Children, College of Physicians and Surgeons, Columbia University (1870-1899); Professor of Diseases of Children in the same (1900); Emeritus Professor of Diseases of Children in the same (1903); Consulting Physician to Bellevue, Mount Sinai, the German, the Woman's Infirmary, Babies', Orthopedic, Mintern, and Hackensack Hospitals, etc., etc. In eight volumes. Edited by William J. Robinson, M.D. New York: The Critic and Guide Company, 1909.

For a period of well over a half century the name of Dr. Abraham Jacobi has been recognized in America and the world as that of a leader in medicine and in medical progress. Though he has written no text-book, his writings have appeared in scattered form year by year in the medical journals of America and Europe. These have now been collected, arranged, and edited, and fill the present eight volumes of the "Collectanea." Volumes I., II., and III. are devoted to Dr. Jacobi's special field of pediatrics. Volume IV. contains articles upon the general subject of therapeutics. Volume V. is a collection of articles on pathology, especially the pathology of the child, and contains many of the author's earliest contributions. Volume VI. is entitled "Medical Addresses." These are largely formal orations made as a retiring president of a society or as a delegate to a congress or convention. Volumes VII. and VIII. are filled with the miscellaneous addresses and writings which have been prepared for commencement exercises, the laying of cornerstones, presentation of rewards, opening of hospitals, banquets, and all of the varied occasions when it becomes necessary for a man in the public eye to speak upon subjects but remotely appertaining to his profession. The entire series of eight volumes makes up a set of books of exceptional interest. Not only do they contain a huge mass of facts of clinical importance, but they give in a straightforward manner the thoughts of a thinking man as they have been evolved over a period of half a century. They are not recollections modified by time, but the thoughts of the moment, though that moment may have been several decades ago. As a panorama of medical development during the past fifty years the series has especial interest to all who are interested in medical history. The work of the editor, Dr. William J. Robinson, has been well done. The selection of articles has been careful, and the alterations from the original forms in which the papers appeared have been judiciously slight. Old spellings, old phraseology, and old terminology have been carefully retained, and the reader is carried back many years to the days before asepsis and before bacteriology, and then brought down, through the various steps of a long life, to the immediate present, even to the politics of the last gubernatorial election.

Society Reports.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Nineteenth Annual Meeting, Held at Omaha, Neb., December 20 and 21, 1909.

THE PRESIDENT, DR. ARTHUR L. WRIGHT OF CARROLL, IOWA, IN THE CHAIR.

Gastrointestinal Surgery.—Dr. THOMAS C. WITHERSPOON of Butte, Montana, called attention to an occurrence which he believed threw some light on the question of paralytic conditions observed in the stomach and bowels, and reported the following case as an illustration. A man, previously healthy, except for gastric symptoms, wiry and active, suffered from gastric ulcer of a chronic type. The ulcer was not situated in the pylorus, but to the left, and there was no obstruction to outflow from the stomach, nor was there dilatation. Eight days after a gastroenterostomy the stomach became acutely dilated until its lower curvature reached the pelvic cavity. A second operation, done because of the dilation, nine days after the first, proved the duodenum was normal; the bowels were flat, the gastrojejunal openings were still patulous, and there was no point of obstruction beyond the stomach which could be discovered. There was also no evidence of inflammation of the stomach or intestinal wall or peritoneum. A gastrostomy was performed and the fluid in the stomach had to be removed by pumping it out, as the stomach was completely paralyzed. The original incision in the epigastric area was not healed after eight days. It opened without instrumentation immediately upon snipping the stitches at the second operation. On the ninth day this man suffered considerable pain in the stomach area and behind to the left. Following the gastrostomy the pain ceased. The epigastric incision through which both operations were done was closed at the second operation by through and through silkworm gut stitches and healed without the slightest inflammatory reaction. The conclusions to which he came after observing this case were: "(1) The acute dilatation was the direct result of a paralysis of the stomach wall. (2) The lack of healing in the epigastric incision following a careful closure at the time of the first operation, and not associated with an evidence of infection, must be attributed to a trophic disturbance. (3) The stomach and epigastric abdominal wall are both innervated by the same spinal segment. It is a matter of logical deduction that the central apparatus was responsible for disturbance in both stomach and wound. (4) Some toxic agent only could have become so rapidly operative after eight full days of a normal condition following the operation, and this agent must have produced its effects by acting upon the ganglionic nerve cells in the spinal segment. (5) This toxic agent most probably took its origin from an abnormal fermentation within the bowel or the liver failed to render harmless some product absorbed from the bowel lumen."

Dr. LEONARD FREEMAN of Denver, Colo., doubted the absence of mechanical cause in addition to the action of the bacteria on the nervous system. They knew that there were certain individuals who had stomachs that were difficult to empty, due, perhaps, to a sagging of the intestines, large and small, particularly the large intestine, in pulling down upon the stomach and to a certain extent influencing the pylorus. Such cases occurred once in a while and accounted for many difficulties in the emptying of the stomach. He thought if they were to trace these cases of dilatation of the stomach, they would probably find in the stomach of those people who had such dilatations some difficulty in the emptying of the stomach originally.

Dr. CLIFFORD U. COLLINS of Peoria, Ill., said that Madelung some years ago reported a number of cases in which separation of the abdominal incision had occurred and came to the conclusion that the kind of suture material used for closure of the wound had nothing to do with the separation. Emil Ries a few months ago reported three cases in which separation of the incision had occurred. The separation began at the peritoneal layer, and was gradual until the skin was reached, the latter being the last process in the separation.

Dr. CHAS. H. MAYO of Rochester, Minn., said a great many more cases of dilatation of the stomach occurred than was generally believed, and he would recommend the more frequent use of the stomach tube.

Dr. I. B. PERKINS of Denver, Colo., said all knew that it was usual to have considerable nausea following anesthesia; for several years he had made it a practice to put the patient in the high Fowler position, and he found in that position patients had much lass nausea, they could take water freely, and it passed readily into the intestines, and there was much less dilatation of the stomach in these cases. He had had occasion to experiment a little on himself in this line. He took an anesthetic to determine whether or not it was the psychic effect of position or whether it was due to his theory of drainage. At any rate, he had had no nausea after he was put in the Fowler position.

Dr. CHAS. H. WALLACE of St. Joseph, Mo., stated that he thought they all agreed that the failure of union of abdominal incisions, or incisions anywhere, was due to sepsis, no matter whether the sepsis was preoperative or postoperative. There was another condition which he had encountered two or three times in the failure of union of the abdominal wall, which he thought was a factor in these cases, and that was the condition of the blood of the patient before operation. He recalled two cases in which there was pronounced anemia, although operation was imperative, and there was failure of union of the incision, evidently due to the general anemia that existed. Of course, this failure of union occurred in other constitutional dyscrasiæ, such as chronic nephritis.

Abdominal Contusions, with Special Reference to the Indications for Early Operation.—Dr. L. W. LITTIG of Iowa City, Iowa, reported four cases of contusions of the abdomen with a view to giving the indications for early operation. The author quoted Hertle, who said that 52 per cent. of the patients recovered when operated upon within the first six hours; 46 per cent. when operated upon during the second six hours; 21 per cent. when operated upon during the second twelve hours, and but 7 per cent. when operated upon during the second twenty-four hours. A history of the accident, the shape of the vulnerating body, and the direction of the blow were of considerable value. Blows directed toward the spinal column were more apt to result in rupture of the intestine then blows which were slanting and which were directed away from the spinal column. After discussing the symptoms and diagnosis of abdominal contusions, the author said that if there was a contusion of the abdomen and if the muscles were rigid, one should operate. Patients might be seemingly well for a number of hours or even days, and that injury to the mesentery might result in gangrene of the intestine and death. Given a case of abdominal contusion, followed by board-like rigidity of the abdominal muscles, which did not disappear quickly, a laparotomy should be performed immediately. This symptom might be absent during shock in the absence of pain, but its absence under these conditions must not be regarded as a favorable symptom. There might be some cases in which necessity for immediate operation was not clear. There would be other cases which did not seem severe, and in which an operation did not seem to be indicated. In neither of these cases should opinion be given.

Dr. Chas. W. Oviatt of Oshkosh, Wis., said a case recently came under his observation of a man who was struck in the right iliac region with a board from a circular saw. Rigidity was marked from the start, but other symptoms did not develop for forty-eight hours. The patient refused operation, and died. Autopsy revealed that the cecum was torn loose from its attachment, with a hole in the bowel. No symptoms which would seem to call for immediate operation presented themselves for at least thirty-six hours, and yet this case emphasized the importance of operating early when rigidity was marked.

Foreign Body in the Intestine.—Dr. Charles W. Oviatt of Oshkosh, Wis., reported the following interesting and unique case: A Swede, male, aged 53, was admitted to St. Mary's Hospital, February 22, 1908. It was impossible to obtain anything like a clear history of the patient's previous condition, and no account was given of the swallowing of the foreign body. He complained of pain low down in the right side, and upon physical examination a circumscribed area of resistance could easily be made out with pain on pressure at this point. The pulse and temperature were normal. The diagnosis of appendicitis was perhaps too quickly made, but the author's inability to get a clear history of the case was his excuse. Upon opening the abdomen through the outer border of the right rectus, a pointed foreign substance could easily be felt in the cecum. Through a very short incision into this viscus, a lead pencil, which he showed, seven and a half inches in length, was removed. The appendix was small, presented no evidence of disease and was not removed. On the day following the operation, the patient was shown the pencil and asked if he could account for its presence inside of him. He then remembered that about ten weeks before, while engaged in a game of cards in a saloon, acting in the capacity of scorekeeper, he had the pencil in his mouth and during a fit of laughter swallowed it. He stated that for a day or two following the accident he had some pain in his stomach, but after that had experienced no trouble and had forgotten the incident entirely.

Secondary (Posterior) Gastrojejunostomy Following Recurrent Ulcer at the Site of Anterior Gastrojejunostomy.—Dr. J. F. Percy of Galesburg, Ill., described a case of perforation of a gastrojejunal ulcer following an anterior gastroenterostomy performed eight years previously. The ulcer was on the left side of the union between the jejunum and the stomach. It involved not only the scar tissue of the anastomosis, but also adjacent portions of the stomach and jejunum. The perforation had been sealed by the omentum. He described three things belonging to the intraabdominal picture: First, an enormous thickening of the efferent and afferent loops of the attached jejunum; second, a perforated gastrojejunal ulcer at the point of the previous anastomosis; third, complete burial of the pylorus and adjacent liver region in a mass of dense adhesions. The most striking and insistent thing was the hypertrophy of the jejunum. Its walls were fully two and a half inches in diameter. The operation consisted in removing the jejunum from the stomach wall and closing up the openings, including the ulcer. A posterior gastrojejunostomy was then performed with the short loop.

Dr. L. L. McArthur of Chicago was inclined to agree with Percy as to the influence which an abnormal flow of bile might have in the maintenance of hyperacidity. The bile was naturally the antidote of the acid secretions, and irritation about the gall-bladder would not infrequently influence the condition of the stomach secretions. The theory advanced by Dr. Percy might be further elucidated by laboratory experiments, and he would like to suggest that he have them carried out.

Dr. Chas. H. Mayo of Rochester, Minn., stated that this paper brought to his mind one thing, and that was, that years ago, when there were comparatively few gastroenterostomies done, surgeons heard more about ulcers of the jejunum in proportion than they did to-day.

Diffuse Septic Peritonitis.—Dr. Byron B. Davis of Omaha, Neb., said the decrease in mortality of acute spreading infection of the peritoneum was due to the recognition of three important factors: (1) The chief absorption from the peritoneum was carried on by the diaphragm, seconded by the great omentum; (2) the Fowler position with free tubular drainage from Douglas' cul-de-sac had proven efficient in turning the current in the opposite direction, thus removing the toxines harmlessly; (3) the use of saline solution. As the transition from the older methods to those of the present was slower with some of them than with others, he could only include in his series of cases those operated upon since January, 1907. After the exclusion of cases which could not rightly come in the category of the cases under discussion, his records showed that since January, 1907, he had operated on thirty-nine cases of diffuse septic peritonitis, with three deaths. Thirty-five were due to appedicitis, with one death; two were caused by the perforation of a typhoid ulcer, with one death; one was a case due to puerperal sepsis, with an immense amount of free pus in the peritoneal cavity. This woman recovered. And there was one case of perforating duodenal ulcer which ended fatally. Twenty-eight were males and eleven were females. The average age of all the cases was 26 years and 10 months. The youngest patient was a little boy, aged 5 years, and the oldest was a woman, aged 48 years, the only fatal case due to appendicitis. The appendix was removed at the primary operation in thirty-two cases. In the remaining three the condition was so serious that it was not thought prudent to do more than simple drainage, and the appendix was left. Two of them had had their appendices removed by a subsequent operation. The third one recovered and was still carrying his appendix, but intended entering the hospital to have it removed this winter. In four cases fecal fistulæ persisted, which were cured by subsequent operation. There had been two cases of ventral hernia operated on, and he knew of two others with hernia which would be operated on, if troublesome. There were probably others, as he believed ventral hernia was frequent after such prolonged drainage. There had been no case of intestinal obstruction following these operations. The period of convalescence had in a few cases extended over a number of weeks, and in two of them four and five months respectively. In the greater number the convalescence had been comparatively brief, not longer than he expected after opening an appendiceal abscess.

(To be continued.)

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Twenty-second Annual Meeting, Held at Hot Springs, Va., December 14, 15, and 16, 1909.

The President, Dr. Stuart McGuire of Richmond, Va., in the Chair.

(*Concluded from page 171.*)

President's Address: Latent and Active Neurasthenia in Its Relation to Surgery.—Dr. Stuart McGuire of Richmond, Va., emphasized the importance of refusing to operate on a neurasthenic patient unless the symptoms could be plainly shown to be due to organic disease, and he impressed the necessity, if an operation was undertaken on a patient with either latent or developed neurasthenia, of protecting the nervous system from physical or psychical shock, not only by a proper preliminary preparation, but by careful and often prolonged post-operative and post-

hospital treatment. If neuroses existed without anatomical disease, an operation would do no good and might result in harm. If neuroses were found coincident with pathological lesions, an operation might prove of great benefit, but in relieving the physical disease care should be taken to avoid increasing the nervous disorder. If neuroses were present, reflex in character and due to remedial causes, an operation might be undertaken with assurance of complete success. In other words, surgeons should divide these cases into three classes: The first to be avoided, the second to be undertaken with caution, and the third to be cheerfully given the relief to which they were entitled. In discussing the management of neurasthenic patients requiring surgical intervention, he divided the subject into the preliminary examination, the preparation for the operation, the post-operative and the post-hospital treatment. He pointed out the necessity of certain patients remaining for some time at the hospital, and taking a modified form of rest cure, and impressed the point by contrasting the conditions of hospital and home life. The surgeon usually attempted to direct the treatment of patients after they returned home by giving them verbal instructions when they left the hospital, and by subsequently corresponding with them, but the end desired could be more effectively and properly secured by referring the patients back to the family physician. With the rapidly increasing amount of surgery and the consequent number of convalescing patients requiring treatment, an educational move ought to be instituted for the study of the many peculiar factors involved. When surgeons appreciated the influence of neurasthenia on the results of an operation, and the influence of an operation on the production of neurasthenia, when the family physician was educated in the many details of post-hospital treatment and was given legitimate work with proper compensation, then, and not until then, would there be harmony in the profession and the greatest good accomplished to the greatest number of patients.

The Diagnosis of Hyperthyroidism or Exophthalmic Goiter.—Dr. Charles H. Mayo of Rochester, Minn., said that an effort has been made to consider hyperthryoidism a finished product to be diagnosed as such only within the narrow limits of the imperfect descriptions of the few cases described by Parry, Graves, and Basedow nearly a century ago. It was not considered that the thryoid played a more important part than the heart or nervous system. Many marked cases failed in some particular and were classed as *fruste* or pseudo until the lacking symptom appeared. There was a present tendency to drop some of the old classifications and acknowledge that there were various stages; acute, chronic, mild, severe, and irregular forms based upon an increase, probably with some changes of secretion and its delivery. The laboratory findings should show an increase in parenchyma, (a) more cells in the alveoli, (b) more alveoli, (c) papillomatous increase of cells in existing colloid goiter. These changes might be general or in scattered areas. Terminal degeneration of essential organs followed degeneration of the gland in the advanced cases. In this stage the patient might be improved and the disease checked, but not cured by operation. Forms of myxedema were not uncommon in patients who had survived the hyperthyroidism until degeneration destroyed the major portion of the gland. Eye symptoms and heart signs must de differentiated from chronic Bright's disease and from myocardial changes. Leukemia of the neutrophilic polymorphonuclears and the percentage and absolute increase in the lymphocytes should be looked for as diagnostic laboratory aids of some importance. An early diagnosis had become more important since surgery invaded this field than when it was purely medical, in order that a prognosis of the probable result of an operation could be given. In some cases this might mean before eye changes appeared, and in others, before the goiter became a prominent feature.

An Experimental and Clinical Research into Nitrous Oxide and Ether Anesthesia.—Dr. George W. Crile of Cleveland stated that in his service they had given nitrous oxide 575 times for major operations. Among these were included many of the hazardous risks in which ether was contraindicated. Comparing the nitrous oxide cases with ether cases nausea occurred in 17 per cent. as compared with 42 per cent. in ether. This included all cases. Post-operative nausea was, of course, not wholly due to the anesthetic, *i. e.* peritonitis and certain visceral operative trauma might cause nausea independently of the anesthetic. Nausea in nitrous oxide cases in which there was no other nausea-producing factor rarely occurred. In the course of the operation, nausea, in nitrous oxide, as in ether, was usually due to uneven administration. At the conclusion of the operation the patient was fully awake and in unclouded possession of all his faculties in two or three minutes. There was unmistakably a great diminution in surgical shock. Indeed the immunity from shock was as striking in the clinic as in the laboratory. Nitrous oxide as compared with other general anesthetics was technically difficult and expensive. It had certain dangers which were almost wholly in the control of the skilled anesthetist; it was not the anesthetic of choice for the uninitiated, but only for the highly trained anesthetist. Properly supplemented and skillfully given, it might be used as a routine anesthetic in general surgery. Once the operation was over the patient was strikingly better off than after ether anesthesia. In routine operations the combination of scopolamine and morphine given one and one-half to two hours prior to nitrous oxide anesthesia formed so effective a combination that in over 50 per cent. of his patients the day of operation was robbed of all operative memory, and in the remainder it dulled the edge of both the physical and the mental distress.

Gallstones with Reference to Cancer of the Gall-Bladder.—Dr. Albert Vander Veer of Albany, N. Y., detailed his observations on this subject. Of seventy-seven cases not previously reported, there were nineteen males and fifty-eight females, illustrating the fact that females suffered more than males from gall-bladder complications. The diagnosis before operation of the seventy-seven cases was as follows: Gallstones, 64 cases; cholecystitis, 10 cases, and gallstones and carcinoma, 3 cases. Operation revealed a variety of conditions, al lof which were given in tabular form. A study of the mortality list impressed the author with the statement that had been made by other operators that stones in the common duct of long standing were very difficult to reach, and the percentage of deaths was much greater here than in simple cholecystotomy, where there were no such complications. The mortality in the latter cases was very small. One case of the group illustrated most forcibly that marked cholemia was not always fatal after an operation. The experience of surgeons throughout the world during the past ten years indicated that early diagnosis was of the greatest importance to the affected individual.

Acute Suppurative Peritonitis from a Ruptured Pus Tube.—Dr. J. Wesley Bovée of Washington, D. C., said he collected 56 cases of this character that, with the exception of his case, had been previously published. He considered the condition of tube perforation occurring so suddenly as to not permit Nature an opportunity to create a barrier to the outpouring of an infectious fluid accumulation as very rare. In this opinion he believed he was supported by the small number of recorded cases, and the termination of them. The symptoms were quite similar to those of tubal pregnancy, undergoing rupture

or abortion. The collapse, however, was usually greater in this condition than in tubal abortion, and later the symptoms of peritonitis afforded ample ground for making a correct diagnosis. Of the fifty-six cases included in my table, eighteen patients died without the peritoneal cavity having been opened, and necropsies were relied upon for a diagnosis, except in one of Boldt's cases. In the other thirty-eight cases, all operated upon by having the peritoneal cavity opened, though perhaps only drainage was added to the procedure, fourteen, or 37 per cent. died. In one no result was given, and in the twenty-three remaining successful operations, twenty were done during the first day following rupture. But the mortality rate of the operations done on the first day after rupture, in which the results were reported, was 21 per cent., or five in twenty-four. For those done on the second day its was 100 per cent. (3 in 3); for those done on the third day, 67 per cent. (2 in 3), and for those done after the third day 57 per cent. (4 in 7).

Some Therapeutic Adaptations of Cecostomy and Apendicostomy.—Dr. Charles A. L. Reed of Cincinnati stated that these operations, now being done largely at the instance of medical men as adjuncts to their treatment of certain otherwise intractable cases, were based upon the principle that disease within the colon called for treatment addressed to the colon. The advantages of this method of access embraced (*a*) exemption of the stomach for medication, (*b*) escape from impairment of the general health from deranged digestion incident to medication, and (*c*) relief from the uncertainty of remedies that had been subjected to indefinite and undeterminable chemical reaction in the upper digestive tract. The anatomy of the parts pointed to cecostomy rather than appendicostomy as the operation of choice. Among the conditions for which ostiomatic operations of the cecum were now being successfully employed were: (1) amebic dysentery in which it opened the way to treatment more phenomenally successful than has heretofore been realized in the history of this malady; (2) chronic catarrhal or mucous colitis, usually very intractable but which, as shown by his own cases, were cured by this method more promptly and in larger percentage than by other treatment; (3) chronic constipation depending upon atony and not complicated with enteroptosis was readily brought under control as indicated by his own reports confirmed by those of other surgeons; (4) acute septic peritonitis in which, after the operation, the cecum was opened and utilized to flush the colon—"a hot water bottle on the inside"—followed by saline infusion by the drop method, the "coloclysis" of the author with a record of uniform success in the cases in which he had applied it; (5) defective flora of the colon was remedied by the installation through the cecal tube of bacilli chiefly of the lactic acid series; (6) autointoxication of intestinal origin was successfully treated by repeated flushings of the colon through the cecum, the cases recorded embracing cures by this method in chronic headaches, idiopathic epilepsy, rheumatoid arthritis, and pernicious anemia. The recorded experience of his own and that of other surgeons forced the conclusion that: (1) the establishment of colonic irrigation through the cecum, whether by cecostomy or appendicostomy, was a procedue attended with the minimum of surgical risk; (2) the application of the operation as an adjunct of medical practice was based on the principle of direct treatment of the colon for conditions that were local to the colon; (3) the results so far realized justified the continued use of the operation and the more extended application of the principle that it embodied.

Successful Enucleation of a Meningeal Endothelioma Involving the Motor Cortex.—Dr. Stephen H. Watts of Charlottesville, Va., reported the following case: Mrs. S. K., aged 33, housewife, was admitted to the University of Virginia Hospital, September 27, 1909, complaining of headache, vomiting, and dimness of vision. Her family history and previous history were unimportant. The present illness began two years ago with convulsions which she described as beginning in the right corner of the mouth, passing to the right arm and then to the right leg when she would become unconscious. Had had almost constant severe headache which was worse on the left side of the head. Frequent spells of vomiting. Gradual failure of eye sight. Weakness of right arm and left first noticed three or four months ago. Sight was impaired, but she could count figures held in front of her. Marked choking of both optic discs. There was definite motor aphasia. Partial paralyisis of right side of face and right arm, the muscles of the latter being somewhat atrophied. There was little, if any, sensory disturbance. These symptoms and signs seemed to point to a tumor in the lower portion of the left percentral gyrus. On October 5, 1909, an encapsulated tumor 3 by 4 cm. in diameter which proved on microscopical examination to be a meningeal endothelioma involving the arm and face areas of the left motor cortex was removed. The patient made an excellent recovery from the operation. There was no return of the headache or vomiting and when she was discharged on December 1, 1909, the paralysis of the face and arm had almost entirely cleared up. The most disappointing feature of the case was that the sight improved little, if at all, atrophy followed the choking of the discs. This illustrated the importance of earlier operation in such cases.

Surgical Treatment of Epilepsy.—Dr. W. P. Carr of Washington, D. C. made a further report of results of twenty operations for idiopathic epilepsy of severe type and long standing. Six of the twenty cases might be called cured, having passed three or more years without seizures. All except one of these six had been well for four years or more. One as long as ten years. With one exception, those not cured were benefited in being free from convulsions for from two to seventeen months, or in having them in much lighter form and at greater intervals. One was not improved. He believed that the operation had not been tried in the systematic way since improved technique had made it possible and safe and that his results warranted a further trial by surgeons of experience in brain surgery.

Surgical Shock.—Dr. J. G. Earnest of Atlanta gave a description of three cases illustrating some of the phases of surgical shock. In the first very pronounced and profound shock occurred from what would seem to be a trivial cause, uncomplicated with either drugs or hemorrhage, and seemed to the author to favor the theory of reflex paralysis rather than reflex spasm. The second case was a prolonged fight for life in which the patient was kept alive and finally saved by artificial respiration and electricity. The third case was apparently an illustration of delayed shock.

Skin Sterilization by Tincture of Iodine.—Dr. I. S. Stone of Washington, D. C., in his paper gave several good reasons for the use of a better method of skin sterilization, the chief of which were as follows: 1. To save time. The patient was ready for operation immediately after sleep was induced by the anesthetic. No time was spent in washing, etc., which, to be effective, required at least ten minutes. 2. The patient might be kept warm and dry during the entire seance, including the time of anesthesia and operation. 3. If the incision must be extended or one made in another place, this quick method was most desirable. 4. The operator's hands might be sterilized with iodine, as the stain could be removed by a weak solution of aqua ammonia.

Gastromesenteric Ileus Following Gastroenterostomy.

—Dr. Thomas C. Witherspoon of Butte, Montana, reported a case which taught the lesson, (1) of the uselessness of gastroenterostomy as a means of drainage for a paralyzed stomach; (2) the need of early stomach washing before marked paralysis and dilatation could be detected to relieve tension and possibly to diminish intoxication: (3) if after several washings the stomach continued to dilate, the necessity of making free drainage by means of gastroenterostomy should be considered; (4) the necessity of keeping the stomach and bowel as free from alimentary material during the first week or ten days after operative procedures on the alimentary canal as the patient's general condition would allow. He believed the nitrogenous foods were the most harmful. He had seen a reasonable number of these cases and he believed the majority of gastromesenteric ileus attacks were due to a similar cause, and this case threw light on the entire class. He believed it was reasonably apparent that the attack resulted from a trophic change in the spinal segment which had to do with innervating the stomach. The probability was that injury, operative shock, psychic shock, overfeeding, and other causes which upset normal alimentary function or led to intoxication might bring about this condition. The author suggested that every case of gastromesenteric ileus which resisted stomach washing should be drained by means of a gastrostomy, and that such a drain be maintained until the stomach wall had regained its tone.

Extraperitoneal Drainage After Ureteral Anastomosis.—Dr. John E. Cannady of Charleston, W. Va., discussed the theoretical and practical value of extraperitoneal drainage after wounds of the ureter. Wounds of the ureter closed rapidly, even though there was considerable leaking of urine from the ureter. There was great difficulty in making an anastomosis of the ureter that would not leak. The author reported a case and described the technique followed in making an anastomosis and rendering the wound extraperitoneal. He spoke of the ease with which the wound was walled off by the sigmoid and parietal peritoneum. The success of the technique described was evinced by the easy convalescence of the patient. The technique described obviated the danger arising from either primary or secondary leakage at the point of union.

Dr. Thomas S. Cullen of Baltimore detailed an interesting case of large cystic tumor, developing from the iliopsoas bursa, which contained large free cartilaginous masses, and communicated with the hip-joint.

Dr. Wm. S. Goldsmith of Atlanta described a simple method of excising varicose veins.

Dr. Randolph Winslow of Baltimore discussed some acute abdominal conditions in infants under one year of age. He reported three cases of intussusception in infants; one case of strangulated hernia in an infant three weeks old. He then discussed appendicitis in infancy; congenital hypertrophic stenosis of the pylorus; congenital malformation of the anus and rectum; extensive obliteration or total absence of the rectum; imperforate anus, and cited cases illustrating each condition.

Dr. J. E. Stokes of Salisbury, N. C., detailed the symptoms and ultimate treatment of hydatidiform degeneration of the chorion, and reported an instructive and interesting case.

The following papers were also read: "Skin Grafting," by Dr. Arthur C. Scott, Temple, Tex.; "Recent Observations on Surgery of the Pancreas," by Dr. Joseph C. Bloodgood, Baltimore, Md.; "Anatomic Pathologic and Clinical Studies of Lesions Involving the Appendix and Right Ureter, with Special Reference to Diagnosis and Operative Treatment," by Drs. John Young Brown and Wm. Engelbach, St. Louis, Mo.

Officers.—The following officers weer elected for the ensuing year: *President,* Dr. W. O. Roberts of Louisville; *Vice-Presidents,* Drs. Joseph C. Bloodgood of Baltimore and Lewis C. Morris of Birmingham, Ala.; *Treasurer,* Dr. Wm. S. Goldsmith of Atlanta; *Secretary,* Dr. William D. Haggard of Nashville, Tenn. Nashville was selected as the place for holding the next annual meeting.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held January 7, 1910.

Dr. Charles N. Dowd in the Chair.

A Case of Noma, Followed by Cicatricial Contraction of Jaws.—Dr. William C. Lusk presented this patient. (See page 268.)

Two Cases of Multiple Operations on the Kidney.—Dr. Martin W. Ware said that, after reading the title of the paper which was to follow on "Errors of Diagnosis in Surgical Lesions of the Kidney," he thought it might be well to present these cases to show the pitfalls and errors they were exposed to in trying to meet the indications and relieve these cases.

Case I. This patient was admitted to the genito-urinary department of Mt. Sinai Hospital last August. He could not pass his water and the question arose, Did he have any to pass? The house surgeon said he had none to pass. None flowed through the catheter that was introduced. The man also stated that he had not passed his water for four days, and that during June he had had a similar experience, not passing any urine for three days. The attack passed off. He was forty-two years of age and without family. About nineteen years ago or longer he contracted gonorrhea, following which he was never free from cloudy urine. Nothing was thought of the condition of the kidney, although one doctor said he had stone in the kidney. After entering the hospital he was kept under observation for twenty-four hours, in order, if possible, to determine just what the actual state of affairs was. At the end of this time the anuria had existed five days. He was then cystoscoped and from the mouth of the right ureter was seen to flow an inspissated material like a tooth paste. On the left side nothing was noted to escape. It was surprising to find a man with an anuria lasting five days, yet with absolutely a normal condition so far as temperature and pulse were concerned. His general condition was that of well-being. His tongue was moist. The *x*-ray examination was unsatisfactory. A mass was found occupying the right hypochondriac region. The patient was again examined with the cystoscope and catheterized; the catheters entered either side with great ease; nothing escaped from either ureter. The anuria had now existed for six days. A boric acid solution that was injected returned tinted with a putrid material; this came from the right side, and nothing came from the left catheter. When 6 c.c. of the fluid was thrown into the right side the patient complained of pain and it was thought that there existed a renal colic of the left side. It was finally elected to operate upon the side where the tumor was felt, the right side. The anuria of the left side it was thought might have been due to a reflex condition. Under cocaine the right side was entered and a large kidney found from which pus and stones were removed. The catheter was left in the left kidney and the patient returned to his bed. It was three hours before any appreciable amount of urine was noticed. During the following twenty-four hours three or four ounces of urine were collected. Some purulent urine appeared to be discharging through the nephrotomy wound. The urine coming through the catheter was surprisingly clear. The urine soon began to be secreted in enormous quantities. The *x*-ray taken later

showed two shadows; one was a stone situated near the junction of the ureter with the pelvis of the left kidney. After all it was found that an obstruction existed upon the side not operated upon. Whereupon a ureterotomy was also done under cocaine and the stone removed from the ureter was exhibited. Later the patient was again subjected to an operation; the right kidney was removed and it was found to contain many stones. The pathologist reported this kidney to be also the seat of tuberculosis. The very large kidney was removed piecemeal. The treatment of the stump was very difficult.

Case II. This patient appeared in the spring of 1908 after repeated attacks of renal colic and without other symptoms except painful urination. Following this the urine become cloudy and he had chills and fever. Through the right ureter was found issuing a little urine, but it was impossible to appreciate anything coming from the left ureter. The *x*-ray showed a calculus in the lower end of the left ureter. The urine was very turbid. The calculus, which was situated intramurally, was removed by way of the bladder and the patient made a nice recovery. But the urine did not clear. The *x*-ray showed vague shadows at the time on the opposite kidney. The urine remained turbid. This continued for over a year. At the present time the *x*-ray again showed aforesaid shadows that looked like finger mark prints in the kidney region. There was appreciable swelling in the region of the right kidney just below the border of the ribs. A nephrectomy was done for a huge kidney filled with stones and the patient made an uneventful recovery.

Appendicostomy for Amebic Dysentery.—Dr. Frank Clark Yeomans presented a boy, 13 years old, who was admitted to the New York Polyclinic Hospital, June, 1909, suffering from amebic dysentery. The diagnosis was made by an examination of the stools. On June 29 an appendicostomy was done. There were found only a few adhesions about the appendix. He weighed at the time of operation 82 pounds; he now weighed 94 pounds, and he had gained three or four inches in height. Two or three months ago his irrigations were stopped. No more amebæ were found, although recently some mucus was found at times. The opening in the appendix was left open so that the irrigations could be given again if indicated. The chief sequellæ of appendicostomy were infection of the wound, resulting in hernia and leakage of feces. There had occurred no hernia and no leakage in this case, and the patient was shown to illustrate the end result of an ideal appendicostomy. Prior to the operation the boy was practically an invalid.

Carcinoma of the Ascending Colon. Excision.—Dr. Aspinwell Judd presented a patient, 16 years of age, who had been admitted to the Post-Graduate Hospital October 13. He came in with the diagnosis of appendicitis. Examination revealed a mass about the size and shape of a kidney, but as the kidney could apparently be percussed and palpated it was decided that it was a colon tumor. Upon going down upon it he found that this mass involved almost the entire ascending colon, almost to the hepatic flexure. The retroperitoneal glands were involved. The peritoneum was split on the outer side of the tumor and a section of the growth was sent for a frozen section and microscopical examination. The pathologist reported that the growth was an epithelioma. Dr. Judd then exsected the entire head of the colon, removing about four inches of the small intestine. The anastomosis was made by means of the Murphy button, as a lateral anastomosis was found impossible. He could not get the hepatic flexure down because of the adhesions. This was the fourth case of this nature that he had had and two of them he had presented before the section a year ago. In all the cases he took four or five inches of the ileum away as well. He tied off the blood-vessels as did Dr. Brewer: that is, they were tied close to the colon and he had no difficulty whatsoever. By stripping the layer of peritoneum from the outer side he was enabled to get hold of the mass and glands very satisfactorily. An uneventful recovery followed. Since the operation the patient had gained fifteen pounds in weight. This woman had symptoms of a chronic intestinal obstruction: the lumen of the gut was almost obliterated. The chief interest in the case was that a young girl, only 16 years old, should have such a carcinomatous condition. The Murphy button was passed fifteen days after the operation.

Errors in Diagnosis in Surgical Lesions of the Kidney.—Dr. Alexander B. Johnson read this paper. (To be published later.)

Cystoscopic Findings in Tuberculosis of the Kidney.—Dr. Benjamin Stockwell Barringer gave a lantern slide exhibition of these findings.

An Epidemic of Noma.—Dr. Harold Neuhoff reported an epidemic of noma that occurred in the New York Hebrew Infant Asylum in the spring of 1909. This institution accommodated 150 children. During the epidemic there were 140 children in the asylum under the age of six years. Three cases of noma occurred in the asylum during fourteen years, one in 1902, one in 1907, and one in 1908. All three patients died. The epidemic of noma of 1909 complicated an epidemic of measles. Although special attention was paid to the mouth, ulcerative stomatitis occurred in fully 25 per cent. of the children, and it was among these children that most of the cases of noma developed. There were eight cases of true noma and three doubtful cases. The association of noma with the infectious diseases, especially measles and pertussis, was well known, and the pronounced tendency for noma to appear in the spring and fall might depend upon the greater frequency of the infectious diseases in these seasons. There was no conclusive proof that noma was contagious. The majority of recent observers found no evidence of contagiousness in the epidemics they had studied. With an exposure favorable for the spread of contagious disease, only a few of the patients were attacked by noma and no connection could be demonstrated between the isolated cases. Noma might appear at any age and among all classes of patients. The large majority of the cases occurred among the poorly nourished children, during the first and second dentition, and many developed from ulcers around the teeth. Inasmuch as noma so often followed ulcerative stomatitis, many writers considered noma an advanced stage of stomatitis. It was shown, however, that a definite bacteriological picture was found in noma and not in ulcerative stomatitis. There were usually no constitutional symptoms until gangrene had begun to spread. The child was usually quiet and languid, but he might be restless and irritable. Often he was profoundly prostrated, but he might feel well enough to sit up in bed and play, although the gangrene was spreading over his face. Marked pallor was an early symptom. The pulse soon became rapid and small; there was slight or no temperature and generally no pain. Thirst was marked, although the tongue was moist. Diarrhea was a serious symptom. Bronchopneumonia was the most frequent and fatal complication. It was of the aspiration type and not infrequently led to abscess or gangrene of the lung. The ulcer was usually the first lesion observed, and this soon became gangrenous; the adjoining portion of the cheek became intensely infil-

trated and the gangrene extended to it and often to the adjacent maxilla. The peculiarly penetrating foul odor from the mouth might be the first sign to call attention to the disease. As the overlying skin became involved it assumed a violaceous hue, later turned black and was covered with vesicles; finally the gangrenous ulcer broke through. The mortality ranged from 70 to 100 per cent. Many different kinds of treatment had been recommended. Some men advised applications of alcohol, or hydrogen peroxide, or potassium chromate, nitric acid, etc. Others advised cauterization of the ulcer, and others practised excision of the diseased area. Dr. Neuhof offered the following conclusions: Noma usually appeared in epidemic form; its contagiousness had not yet been proven. The disease was an entity and not a later stage of ulcerative stomatitis; the latter offered a good soil for the development of noma. There was regularly present in noma a streptothrix characterized by a thick mesh-work of mycelium at the border line between the normal and necrotic tissue; fine rods and spirilla extended from the mycellum into the adjacent tissues. The constant presence of the streptothrix, to the exclusion of other bacteria, indicated that in all probability it stood in etiological relationship to noma. The streptothrix was present in noma before the disease was fully manifested, in the pregangrenous stage. It was in this stage of the disease that radical treatment has to be practised; after the ulcer had spread the best results were obtained by conservative measures. General anesthesia should not be employed in any form of treatment because of the pronounced tendency to the development of septic pulmonary disease.

Dr. Arthur D. Dryfoos said that the streptothrix described by Perthes in 1893 had been previously described by Babes in 1892. Ranke, also Seifert, Blumer, and MacFarlane, had isolated the same organism, but Babes did not regard it as being specific. The general consensus of opinion, according to Wassermann and Kolle, was that under certain unknown favorable conditions various bacteria could cause noma. This probably explained the fact that Walsch and others regarded noma as diphtheritic. The cases shown were certainly not of this category, as several received large doses of antitoxin without any apparent benefit. One of the patients had primarily a diphtheria of the vulva. This cleared up promptly under a very large dose of antitoxin, but shortly afterwards developed an ulceromembranous stomatitis. Noma, ulceromembranous stomatitis, and Vincent's angina were regarded by Rona and most observers as being merely different stages and localizations of the same disease. Noma was invariably preceded by ulceromembranous stomatitis; but on the other hand every case of ulcerative stomatitis, even if it was attended by a certain amount of localized necrosis of bone and superficial ulceration of the mucous membrane, was not noma. Dr. Neuhoff's cases seemed to have been a rather severe form of ulceromembranous stomatitis, but could not be properly classed as noma. There was a third type of mouth infection which he also had the opportunity of seeing during this epidemic. They were cases of so-called Vincent's angina. These cases gave a great deal of trouble, as diphtheria was also prevalent and it was impossible to differentiate the membranes. Babes had also described a bacillus, which he found in an epidemic of scurvy, and which was either identical with Vincent's bacillus or was a variety of the same. He said that most observers agreed that these bacilli (Perthe's, Vincent's, etc.) could also occur normally in the mouth, and that they proliferated and produced enormous destruction of tissues under favorable conditions, not as yet determined. Israel and Partsch ascribed a great rôle to carrous teeth in the production of ulceromembranous stomatitis. Dr. Dryfoos thought that these authors had confused cause and effect. It was well known to dentists that caries of the teeth was often associated with an acid saliva. Mosler ascribed the caries of the teeth occurring in diabetes to the action of acid saliva, which was produced by lactic acid fermentation. This was certainly true only in part. Wright had demonstrated experimentally that there was a reciprocal relation between the acidity of the gastric juice and the reaction of the saliva; it was very probable, therefore, that contagious diseases, such as measles and diphtheria, were associated with subacidity of the gastric juice and marked acidity of saliva. This altered reaction of the saliva was, he believed, the factor which favored the development and heightened the virulence of these mouth bacteria. It was very interesting to note that Bierens de Haan, reporting an epidemic of ulceromembranous stomatitis among the Boer troops, said "that the epidemic was largely due to a lack of salt in the diet, inasmuch as it began to disappear as soon as a proper supply of this substance was obtained." Litten in a monograph on scurvy expressed a similar view; he said "that scurvy may be looked upon as an infectious disease of non-contagious character, caused by a microorganism which finds suitable conditions for development in a soil poor in potassium salts." It was possible that scurvy represented merely a hemorrhagic form of mouth infection, of which noma was another variety. Noma as such was not contagious, but ulceromembranous stomatitis was readily communicated from one child to another by means of eating utensils. It was to be noted that the epidemic reported by Blumer and MacFarlane, and referred to by Dr. Neuhoff in his paper, ceased as soon as a strict isolation was observed.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners, State of Florida.

Jacksonville, November 10 and 11, 1909.

ANATOMY.

1. Describe the clavicle.
2. Name points of interest on the external surface of the occipital bone.
3. Describe the liver.
4. Name regions of abdomen and contents of each.
5. Give description and branches of the largest nerve of the brachial plexus.
6. Give apparent and real origin and exit of facial nerve.
7. Give branches of the axillary artery.
8. Name most important branch of the occipital artery, and state chief function it has to perform upon ligation of the carotid.
9. What forms the torcular herophili?
10. Name veins that compose the portal circulation, with a description of any one of its branches.

PHYSIOLOGY.

1. Give the composition, reaction, and uses of blood.
2. What changes take place in the composition of the blood as it passes through the kidneys?
3. What is respiration, and what is its purpose?
4. Do variations in the rate and force of respiration affect the heart, and if so, in what manner?
5. What is asphyxia, and what are some of its causes?
6. What is gastric juice, and what part does it play in digestion?
7. What gland secretes amylopsin, and what is its action in digestion?
8. What are the principal uses of water when taken into the body?
9. What is metabolism?
10. —Give the functions of the pneumogastric nerve, particularly its action upon the heart.

MATERIA MEDICA—THERAPEUTICS.

1. Mention some of the conditions which affect the dosage of medicines, and give the general rule for calculating doses for children.
2. How are the iodides best administered, and in what class of cases would you prescribe them?
3. Give the dose of salol, indications for its use, and the two drugs it is subdivided into in the stomach.
4. Describe the physical properties and physiological action of heroin. Give some of the indications for its use.
5. Name some of the drugs that are incompatible with calomel, and state why.
6. Give the symptoms of a toxic dose of digitalis and your treatment of such a case.
7. Describe and give the indications for the use of cardiac sedatives, with an example.
8. Why is it best to combine atropine with morphine, and in what doses would you use it?
9. What are the three preparations of opium most used, and how much of each dose does it take to represent one grain of opium?
10. What are antipyretics? By what methods do they act? Name the ones most generally used.

CHEMISTRY.

1. What is the difference between a molecule and an atom?
2. How is the equivalence of atoms expressed, and how termed in notation?
3. What is the result of water being subjected to electrolysis, and how does it take place?
4. What is ethyl hydrate, and how obtained?
5. Give some of the reactions illustrating the incompatibilities of $Hg_2 Cl_2$.
6. Describe Fehling's test for sugar.
7. How is glucose made, and what used for?
8. Give a test for morphine.
9. What are the reactions analytically between mercuric and mercurous chlorides?
10. How would you test for urea?

SURGERY.

1. Define infection, inflammation, suppuration.
2. Define atrophy, hypertrophy.
3. Define hydrocephalus, hydrocele.
4. Define thrombosis, embolism, aneurysm.
5. Describe the healing process in an incised wound. Healing by granulation.
6. How would you treat a case of gangrene?
7. What are the reasons for ligating a blood vessel?
8. What are the contraindications for the use of chloroform, ether?
9. What is a tumor? How are they classified?
10. What is the principle on which the serum treatment of diseases is based?

GYNECOLOGY.

1. Give location, size, shape, and supports of a normal uterus.
2. What is anteflexion? Give its symptoms and treatment.
3. What is retroflexion? Give some of its causes and symptoms.
4. Describe briefly the following conditions:
   (a) Amenorrhea.
   (b) Vicarious menstruation.
   (c) Supplementary menstruation.
   (d) Menorrhagia.
   (e) Metrorrhagia.
5. Define dysmenorrhea and give some of its chief causes.
6. Give tissues lacerated in incomplete laceration of perineum. Same in complete laceration.
7. Mention some of the physical changes that take place during the menopause.
8. Give etiology, symptoms, and trreatment of cancer of cervix.
9. Define cystocele. Rectocele. Give principal causes and symptoms.
10. Describe briefly the operation for radical cure of cystocele.

OBSTETRICS.

1. Give the symptoms of pregnancy prior to the beginning of the fourth month.
2. What are the positive signs of beginning labor?
3. Describe in detail the management of a normal case of labor at term.
4. Under what conditions are the use of forceps justifiable?
5. Describe the manner of application of forceps.
6. What is placenta prævia, how recognized and treated?
7. Describe the postpartum hemorrhage, and give best methods for its treatment.
8. Define eclampsia, and describe its management.
9. What are the dangers incident to breech presentations, and how are such conditions best managed?
10. Describe the best methods of resuscitating a stillborn child.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS, STATE OF FLORIDA.

Jacksonville, November 10 and 11, 1909.

ANATOMY.

1. The *clavicle* forms the anterior part of the shoulder girdle; it articulates internally with the first part of the sternum, and externally with the acromion process of the scapula. It is broad and flattened at its outer end, and thick and rounded at the inner end. It consists of a double curve, the outer part is concave forward, the inner part convex forward. The bone has two surfaces, superior and inferior, and two borders, anterior and posterior. On the under surface are the conoid tubercle, a groove for the subclavius, a rough impression for the rhomboid ligament. *Muscles attached to it* are: Deltoid, trapezius, pectoralis major, subclavius, sternomastoid, and sternohyoid. *Ligaments attached to it* are: Interclavicular, rhomboid, conoid, trapezoid, and capsular (of sternoclavicular and acromioclavicular articulations).
2. External occipital protuberance, external occipital crest, superior, inferior, and highest curved lines, foramen magnum, condyles, basilar process, pharyngeal spine.
3. See Cunningham's "Anatomy" (1909), page 1108; or Gray's "Anatomy" (1907), page 1334.
4. The regions of the abdomen and their contents are shown in the following table. It is to be remembered that the contents will vary according to the position of the lines drawn; these are arbitrary, and nearly every writer differs from every other. In the following table the superior horizontal line extends between the cartilaginous ends of the tenth ribs, the inferior between the anterior superior iliac spines. The vertical lines pass upward from the iliopectineal eminences, at right angles, to the upper horizontal line.

The viscera situated in each region are as follows:

RIGHT HYPOCHONDRIAC	EPIGASTRIC.	LEFT HYPOCHONDRIAC
Liver.	Liver.	Stomach.
Right kidney.	Stomach.	Spleen.
Hepatic flexure of the colon.	Gall-bladder.	Left kidney.
	Duodenum.	Splenic flexure of the colon.
	Pancreas.	
RIGHT LUMBAR	UMBILICAL	LEFT LUMBAR
Right kidney.	Transverse colon.	Small part of left kidney.
Ascending colon.	Duodenum and small intestines.	Descending colon.
Ileum.	Great omentum.	Small intestines.
RIGHT ILIAC	HYPOGASTRIC	LEFT ILIAC
Cecum.	Small intestines.	Sigmoid colon.
Appendix.	Bladder in children.	Small intestines.
Last coil of ileum.	Distended bladder in adults.	
	Pregnant uterus.	
	Sigmoid colon.	

5. Median nerve. See Cunningham's "Anatomy" (1909), page 627; or Gray's "Anatomy" (1907), page 1004.
6. FACIAL NERVE. *Apparent origin:* Medulla oblongata, in groove between olivary and restiform bodies. *Real origin:* Nucleus in floor of fourth ventricle. *Exit:* Through stylomastoid foramen.
7. Superior thoracic, alar thoracic, acromial thoracic, long thoracic, subscapular, anterior circumflex, posterior circumflex.
8. The most important branch of the occipital artery is the arteria princeps cervicis; after ligation of the carotid, it anastomoses with the superficial cervical (of Transversalis colli) and deep cervical (of subclavian or superior intercostal).
9. The torcular herophili is formed by the superior longitudinal, lateral, straight, and occipital sinuses.
10. The gastric, splenic, superior mesenteric, and infe-

rior mesenteric veins make up the portal vein. For description of one of these veins, see Cunningham's "Anatomy" (1909), page 903; or Gray's "Anatomy" (1907), page 768.

PHYSIOLOGY.

1. The *constituents of the blood* are plasma and corpuscles. The *plasma* consists of water and solids (proteids, extractives, and inorganic salts). The *red corpuscles* consist of water and solids (hemoglobin, proteids, fat, and inorganic salts). The *white corpuscles* consist of water and solids (proteids, leuconuclein, lecithin, histon, etc.). Its *reaction* is alkaline. Its *functions* are: To carry oxygen from the lungs to the tissues; to carry carbon dioxide from the tissues to the lungs; to convey the absorbed food to the tissues; to protect against bacteria; to carry waste material to skin, lungs, and kidneys for excretion.

2. As it passes through the kidneys the blood loses: water, mineral salts, urea, uric acid, oxygen, and carbon dioxide.

3. Respiration is the act of breathing; it includes both inspiration and expiration. Its purpose is to introduce oxygen into the system and to excrete carbon dioxide.

4. Yes; increased frequency of respirations generally cause increased frequency of heart beats, but not always in the same proportion.

5. Asphyxia is suffocation, due to depriving the lungs of oxygen. It is caused by preventing oxygen from reaching the lungs; by obstruction of the respiratory passages; by inhaling a gas without oxygen, or one which strongly tends to displace oxygen from the hemoglobin, as carbon monoxide; or by interfering with the change of gases which should take place between the air and the blood.

6. Gastric juice is the product secreted by the glands of the stomach. It changes proteids into proteoses and peptones, and coagulates milk.

7. Amylopsin is secreted by the pancreas; it changes starches into sugar.

8. *Uses of water in body:* "It enters into the composition of the tissues; it is the chief ingredient of all the fluids, and maintains their proper degree of dilution; it moistens the various surfaces (mucous and serous membranes), and so prevents friction; it furnishes blood and lymph with a fluid medium by which food may be taken to remote parts of the body and the waste matter removed, thus promoting rapid tissue change; it serves as a distributor of body heat; it regulates the body temperature (by absorption and evaporation)."

9. Metabolism is a name given to the entire series of changes that occur in a cell or organism during the processes of nutrition. It is of two kinds: (1) anabolic, or constructive, and (2) catabolic, or destructive. The changes produced in the cells by the oxygen or nutrition conveyed by the blood come under the class of anabolic changes.

10. *Functions of the pneumogastric nerve:* "Throughout its whole course the vagus contains both sensory and motor fibers. To summarize the many functions of this nerve . . . it supplies (1) *motor* influence to the pharynx and esophagus, stomach, and intestines, to the larynx, trachea, bronchi, and lungs; (2) *sensory*, and, in part, (3) *vasomotor* influence, to the same regions; (4) *inhibitory* influence to the heart; (5) *inhibitory* afferent impulses to the *vasomotor center;* (6) *excito-secretory* to the salivary glands; (7) *excito-motor* in coughing, vomiting, etc."—(Kirkes' *Physiology.*)

MATERIA MEDICA—THERAPEUTICS.

1. The conditions which affect the dosage of medicines are: Age, body weight, body temperature, drug habits, idiosyncrasy, method of administration, intervals between doses, cumulative action of drug, disease, and race.

Let x = the age of a patient; then $\frac{x}{x+12}$ = the fraction of the adult dose which the patient should receive. Thus, a patient of four years old should receive $\frac{4}{4+12} = \frac{4}{16} = \frac{1}{4}$ of an adult dose.

2. The iodides are best administered in a syrup, such as the compound syrup of sarsaparilla; and no other drug should be administered at the same time. Iodides are prescribed in: Syphilis, chronic rheumatism, for absorption of inflammatory products, arteriosclerosis, interstitial nephritis, asthma, goiter, skin diseases, lead and mercury poisoning.

3. SALOL. *Dose:* gr. vijss. *Indications for use:* As a disinfectant, in inflammations of mouth and pharynx, in cystitis, as an intestinal antiseptic in typhoid fever, in muscular rheumatism, in intestinal indigestion and fermentation, in cholera. In the stomach it is subdivided into salicylic acid and carbolic acid.

4. *Heroin* is a fine white powder, insoluble in water, soluble in dilute acids. It is a respiratory sedative, but has very little hypnotic or analgesic effect. It is used for coughs and bronchitis.

5. *Incompatibilities of calomel, with reasons:* Solutions of alkalies and their carbonates convert calomel into a black mass, usually the black oxide; ammonium hydroxide and carbonate form with it a complex black compound; iodides, bromides, cyanides, and other reducing agents convert it into mercury and a mercuric compound; oxidizing agents oxidize it to the mercuric state; exposure to sunlight gradually decomposes calomel; this is accelerated by the presence of iodoform and other organic substances."

6. *Symptoms of poisoning by digitalis:* "Nausea, and occasionally vomiting. Sometimes colic and diarrhea. After two or three hours, marked diminution in the frequency of the pulse, which may fall to 40 or even 25. Dyspnea, attended by a sense of oppression in the chest and coldness of the extremities. Headache, vertigo, and tendency to sleep. Usually attacks of syncope occur, provoked sometimes by the slightest movement of the patient. Death is generally by syncope, sometimes after several hours of coma succeeded by convulsions. *Treatment:* The patient must be kept strictly in the recumbent position. The stomach should be washed out with infusion of tea by the stomach tube. Stimulants should be given."—(Witthaus's *Essentials of Chemistry.*)

7. *Cardiac sedatives* are drugs which lessen the force and frequency of the heart's action. They are used to quiet palpitation of the heart, also to slow the pulse in some fevers. Aconite, antimony, potassium, chloral, digitalis are cardiac sedatives.

8. Atropine is often combined with morphine when the latter is used, for the following reasons: (1) To prevent nausea and insomnia; (2) to intensify the effect of the morphine, and so a smaller dose may suffice; (3) to neutralize the effect on the pupils. The dose of morphine could be gr. ⅛ to ¼; of atropine, gr. 1/150 to 1/100.

9. (1) Tincture of opium; ten minims = one grain of opium. (2) Camphorated tincture of opium; half ounce = one grain of opium. (3) Dover's powder; ten grains = one grain of opium.

10. The following table (from Potter's "Materia Medica") gives the chief temperature depressants, with their manner of action: Temperature depression may be done by five different actions working upon two principal lines, viz., by:

(*a*) *Lessening heat production, by*
- (1) diminishing tissue change.
- (2) reducing the circulation.

(*b*) *Promoting heat loss, by*
- (3) dilating cutaneous vessels, thus increasing heat radiation.
- (4) promoting perspiration—its evaporation lowering the temperature.
- (5) abstracting heat from the body.

The following list of antipyretics includes a few for each of the above named actions, to which the numbers refer in each case, viz.:

Quinine, 1.	Aconite, 2.	Alcohol, 1, 3.
Phenol, 1.	Nitrous ether, 3, 4.	Antimony, 2, 4.
Salicin, 1.	Acetanilid, 1, 4.	Cold bath, 5.
Digitalis, 2.	Phenacetin, 1, 4.	Cold drinks, 5.
	Antipyrin, 1, 4.	Wet pack, 5.

CHEMISTRY.

1. An *atom* is the smallest quantity of an element that can enter into chemical action, or that can enter into the composition of a molecule. A *molecule* is the smallest quantity of any substance that can exist free. It is made up of atoms.

2. The equivalence of atoms is expressed in terms showing ratio with that of hydrogen: univalent, bivalent, trivalent, quadrivalent, quinquivalent, etc.

3. The water is split up into hydrogen and oxygen gases which can be collected.

4. Ethyl hydrate is alcohol. C_2H_5OH. It is made by alcoholic fermentation of grape sugar:

$$C_6H_{12}O_6 = 2CO_2 + 2C_2H_5OH$$

grape sugar — ethyl hydrate

5. $Hg_2Cl_2 + Ca(OH)_2 = CaCl_2 + H_2O + Hg_2O$.

And see MATERIA MEDICA, question 5, and CHEMISTRY, question 9.

6. *Fehling's test:* Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out. [The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and Solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use, equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

7. Glucose may be made by heating cane sugar with dilute sulphuric acid. It is used as a sweetening agent, and as a vehicle for medicines.

8. Solution of neutral ferric chloride gives a blue color with morphine.

9.

MERCUROUS.	MERCURIC.
H_2S a black ppt., insol. in NH_4HS, HCl, or HNO_3.	ppt. at first white, then orange, then black.
NH_4HS a black ppt., insol. in excess.	ppt. white to black, insol. in excess, except in presence of organic matter.
$(NH_4)_2CO_3$ a dark gray ppt., sol. in hot HNO_3, insol. in H_2SO_4.	white ppt., sol. in great excess of reagent, in H_2SO_4, or in NH_4HO.
KHO a dark gray ppt., insol. in excess.	yellowish-red ppt.
NH_4HO same as KHO.	white ppt., slightly sol. in excess, strong acids, or NH_4Cl.
KI a greenish ppt.	yellow to salmon to red ppt., easily sol. in excess of KI.

10. To a small amount of the suspected fluid add equal amount of colorless nitric acid; if urea is present crystals of urea nitrate will quickly appear.

SURGERY.

1. *Infection* is a process due to the access of living, virulent, pathogenic bacteria to a part whence their toxins may act on the tissues of the body.

Inflammation is the succession of changes occurring in a part as the result of an injury which is not sufficient to destroy the part.

Suppuration is the process when inflammation is followed by liquefaction of the tissues; it is due to the presence of pyogenic bacteria.

2. *Atrophy* is decrease in the amount of a tissue owing to diminution in size or number of the histological elements of which it is composed.

Hypertrophy is an increase in the size, weight and functional activity of a part beyond the limit of health, and due to an orderly enlargement or multiplication of all its normal constituents.

3. *Hydrocephalus* is a condition characterized by excess of fluid in the ventricles of the brain, or outside the ventricles but within the cranium.

Hydrocele is a collection of fluid other than pus or blood in the neighborhood of the testis or spermatic cord, generally in the tunica vaginalis of the testis.

4. *Thrombosis* is the coagulation of blood within the vessels during life.

Embolism is the inpaction of solid substances circulating in the blood in vessels which are too small to allow them to pass.

Aneurysm is a cavity containing blood, and communicating with the lumen of an artery.

5. Healing in an incised wound, if aseptic, and the edges are in apposition, occurs by *first intention.* "Exudation of plasma from the neighboring blood-vessels occurs, and its fibrinogen is converted into fibrin, so gluing the edges of the wound together. Leucocytes are poured out and infiltrate the wound, absorbing any blood clot present. These are followed by fibroblasts (connective-tissue cells), which take their place. New capillaries form by budding out from adjacent ones, and vascularize the new tissue. Fibrous tissue is formed by intercellular exudation from the fibroblasts and so the fibrocicatrical union is complete, for at the same time epithelium is spreading over the narrow surface line."

Healing by granulation or second intention occurs when the edges of the wound have not been brought together. "Exudation of plasma and leucocytes occurs, followed by fibroblasts and budding from the capillaries, thus forming granulation tissue. The dead tissues or sloughs are separated, and a red area of granulation is then exposed. The deeper layer of granulation tissue is converted into fibrocicatricial tissue, which contracts, and so the wound gradually lessens in size. In the meantime epithelium spreads in from the edge over the surface, and so the scar is completed."—*Aids to Surgery.*

6. See Rose and Carless' Surgery (1908), pages 102, 104, 106, 107, 109, 110, 112, 114, 115, and 117; or Da Costa's Surgery (1908), pages 170, 172, 174, 176, 177, 178, 180, and 183.

7. *Reasons for ligating a blood vessel:* To stop hemorrhage, to cure aneurysm, to starve a tumor, and as a preliminary to some bloody operations.

8. The following contraindications for ether and chloroform are from Hare's *Practical Therapeutics:* "*Ether* should not be used by inhalation in bronchitis or acute nephritis, because of its irritant properties; in peritonitis or gastritis, because it is apt to induce vomiting; in aneurysm or in the presence of marked vascular atheroma, because it may rupture a blood vessel by raising arterial pressure; nor in diabetes, lest it produce diabetic coma; and if anemia is present and an examination of the blood shows that the hemoglobin is below 50 per cent., the use of the drug should be avoided if possible.

"*Chloroform* is not to be used in cases of fatty heart or dilatation of the heart, in those with a known idiosyncrasy, nor in the so-called lymphatic persons with overgrowth of lymphoid tissues, as, for example, adenoids. In the latter case it is particularly apt to cause sudden death. In valvular disease of the heart chloroform may be used with caution, although ether is preferable. Given a case of valvular disease that must be subjected to operation, the chances are bettered with an anesthetic than without it, as the pain and mental shock are worse for the heart than is the anesthetic."

9. A *tumor* is a pathological new growth which tends to persist independently of the structures in which it lies, and which performs no physiological function.

Tumors are classified as follows:—

I. Those derived from mesoblast:
   (*a*) *Benign:* Lipoma, fibroma, chondroma, osteoma, myxoma, myoma, neuroma, glioma, angioma, lymphangioma.
   (*b*) *Malignant:* Sarcoma.

II. Those derived from epiblast or hypoblast:
   (*a*) *Benign:* Adenoma, papilloma.
   (*b*) *Malignant:* Carcinoma.

III. Cystic tumors.

IV. Teratomata.

10. "*Serum therapy* proper is the prophylactic and curative treatment of certain infectious diseases by the subcutaneous or intravenous administration of a blood serum containing an antibody which is specific to the particular disease." (Potter's *Materia Medica.*) *Examples:* (1) Diphtheria antitoxin; (2) antitetanic serum; (3) antivenomous serum.

GYNECOLOGY.

1. In the nulliparous adult the uterus is about three inches long, about two inches wide at the upper part, and about one inch thick. The uterus lies between the rectum behind and the bladder in front; it is below the abdominal cavity, and above the vagina. Its position is one of slight anteflexion, with its long axis at right angles to the long axis of the vagina. The anterior surface of its body rests on the bladder, and the cervix points backward toward the coccyx. The uterus is not fixed, but moves freely within certain limits. It is held in place by ligaments—broad ligaments, round ligaments, vesicouterine, and rectouterine.

2. *Anteflexion* is an anterior displacement of the uterus, in which the uterus is bent upon itself. *Symptoms:* Dysmenorrhea, sterility, and various reflex nervous phenomena (such as disturbances of the bladder). *Treatment:* Dilatation of the cervical canal or a plastic operation (division of the cervix).

3. *Retroflexion* is a posterior displacement of the uterus, in which the uterus is bent upon itself. *Causes:* Distended bladder, retrouterine peritonitis; chronic cystitis; small fibroid in posterior wall of uterus; too long a period in the recumbent position after labor, or too tight bandaging; tight lacing; infection during puerperium; pressure of tumors; inflammations of uterus and its appendages; gonorrhea. *Symptoms:* Bladder disturbances; constipation and painful defecation; dysmenorrhea, or amenorrhea, or hemorrhages from the uterus; leucorrhea; sterility, or frequent abortion.

4. (*a*) *Amenorrhea* is absence of menstruation during

the period of sexual activity. (*b*) *Vicarious menstruation* is a flow of blood from some organ (other than the uterus) recurring at the monthly periods and taking the place of menstruation. It may occur from the hemorrhoidal vessels, the lungs, the skin, the nails, the mammary glands, ulcerated surfaces, and many other parts. (*c*) *Supplementary menstruation* means a menstrual flow from the uterus and also from some site (as given under vicarious menstruation. (*d*) *Menorrhagia* is a condition characterized by excessive loss of blood during the menstrual periods. (*e*) *Metrorrhagia* is a hemorrhage from the uterus at other than the menstrual periods.

5. *Dysmenorrhea* is painful menstruation. *Chief Causes:* Pelvic congestion, pelvic inflammationfi malnutrition, overwork, lack of development, neuralgia, stenosis or obstruction of the cervix, prolapse or displacement of uterus.

6. In *incomplete laceration of the perineum* any of the following tissues may be lacerated: Skin, mucous membrane of fourchette, Constrictor vaginæ, Transversus perinei, and Levator ani. In *complete laceration* the sphincter ani and the anterior surface of the rectum are involved, in addition to the structures named above.

7. *During the menopause:* Menstruation first becomes irregular both in periodicity and quantity, and then ceases; the patient suffers from hot flashes, giddiness, pains in breasts, abdomen or limbs; indigestion, flatulence, constipation and obesity may be present. The ovaries become smaller and wrinkled, the vagina becomes smaller, the cervix atrophies, the body of the uterus diminishes in size, the pubic hair becomes less, and is shed, the external genitals atrophy.

8. *Cancer of cervix:* "Laceration and erosion are predisposing factors. It occurs most frequently between the ages of 35 and 50. The symptoms are hemorrhage, pain, and discharge. The diagnosis is made on the physical and microscopical examination. The cervix is hard and nodular, and the mucous membrane seems immovably fixed to the underlying tissue. These nodules break down, the entire cervix becomes ulcerated, or large cauliflower-like masses may fill the upper part of the vagina. The diseased tissue is friable and bleeds upon touch. The prognosis is unfavorable unless a radical operation is performed. The treatment consists in removal of the entire uterus, but is contraindicated when the disease has extended to inaccessible organs. The palliative treatment consists in relieving the pain by morphine and in the removal of the diseased tissue by the scissors, curet, or caustic for the relief of the hemorrhage and discharge."

9. *Cystocele* is a hernia of part of the bladder into the vagina, covered by the mucous membrane of the anterior vaginal wall. *Rectocele* is a hernia of the rectum into the vagina, covered by the mucous membrane of the posterior vaginal wall. The two conditions are generally found together. *Causes:* Lacerated perineum, prolapsed uterus, relaxation of the structures forming the pelvic floor, and subinvolution of the vagina after labor. *Symptoms:* A dragging sensation in the lower pelvic cavity; a feeling of distention at the vulva; loss of power in urination or defecation; tumor of anterior or posterior vaginal wall (or both) more apparent on straining; prolapse of uterus.

10. *For radical cure of cystocele:* "The patient is placed in dorsal position. The posterior vaginal wall is kept out of the way with a weighted speculum. The cervix is drawn down with a bullet-forceps. With a pair of tenacula the sides of the prominence are drawn together in the median line in order to see how much of the wall is redundant, and these points are marked with small nicks. Next, the whole surface is put on the stretch between four pairs of forceps —one at each of the sidemarks, one near the cervix, and one at the transverse ridge at the inner end of the urethra. With a pair of scissors curved on the flat, a strip about ¼ inch wide is cut out of the mucous membrane. Similar strips are removed on both sides until an oval is denuded. Finally a running suture of chromieized catgut is passed under the whole pared surface, uniting the edges from side to side." If necessary, a perineorraphy should be done at the same time.

OBSTETRICS.

1. Cessation of menstruation, changes in the breasts, morning sickness, pigmentation, increased frequency of urination, the cervix is soft; none of these are definite or conclusive.

2. The uterus sinks, the bowel and bladder evacuations are more frequent, free vaginal secretion, a slight discharge of blood or bloody mucus, dilatation of the os, and characteristic rhythmic uterine pains.

3. See Williams' "Obstetrics" (1909), page 303; or Hirst's "Obstetrics" (1909), page 312.

4. *Indications for the use of forceps* are: (1) *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (a) Impending exhaustion; (*b*) arrest of head, from feeble pains. (2) *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. (3) *Passenger at fault:* A. Dystocia due to (*a*) occipito-posterior, (*b*) mentoanterior face, (*c*) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). (4) *Accidental complications:* Hemorrhage; prolapse funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both. *Conditions necessary for the use of forceps* are: (1) The rectum and bladder must be empty; (2) the os uteri must be fully dilated; (3) the membranes must be ruptured; (4) the pelvis must be of sufficient size.

5. See Williams' "Obstretrics" (1909), page 403; or Hirst's "Obstetrics" (1909), page 811.

6. *Placenta prævia* is the condition in which the placenta is attached in the lower uterine segment, and may be near or over (partially or completely) the internal os. *Symptoms:* Sudden hemorrhage, accompanied by syncope, vertigo, restlessness, and feeble pulse. *Treatment:* Stop the hemorrhage by a vaginal tampon; this must be tight and thorough. *Accouchement forcé* is indicated; this consists of dilatation of cervix, version, and immediate extraction of the child.

7. See Williams' "Obstetrics" (1909), page 818; or Hirst's "Obstetrics" (1909), page 585.

8. *Puerperal eclampsia* is an acute morbid condition, occurring during pregnancy, labor, or the puerperal state, and is characterized by tonic and clonic convulsions, which affect first the voluntary and then the involuntary muscles; there is total loss of consciousness, which tends either to coma or to sleep, and the condition may terminate in recovery or death. *Preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ. *Curative treatment:* (1) Control the convulsions (by chloroform, veratrum, or chloral); (2) eliminate the poison or poisons which are presumed to cause the convulsions; (3) empty the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

9. See Williams' "Obstetrics" (1909), page 289; or Hirst's "Obstetrics" (1909), page 424.

10. See Williams' "Obstetrics" (1909), page 846; or Hirst's "Obstetrics" (1909), page 939.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION
Alabama*	W. H. Sanders, Montgomery	Montgomery.... June —
Arizona*	Ancil Martin, Phoenix	Phoenix..... April 4
Arkansas	F. T. Murphy, Brinkley	Little Rock..... May 10
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco.. April 5
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver..... April 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven .... Mar. 8
Delaware	J. H. Wilson, Dover	Dover..... June 21
Dist. of Col'bia	Geo. C. Ober, Washington	Washington..... April 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville..... April 4
Georgia	E. R. Anthony, Griffin	Atlanta..... April —
Idaho*	W. F. Howard, Pocatello	..... April 5
Illinois	J. A. Egan, Springfield	Chicago.....
Indiana	W. T. Gott, Crawfordsville	Indianapolis..... July 12
Iowa	Louis A. Thomas, Des Moines	Des Moines.....
Kansas	F. P. Hatfield, Olathe	Topeka..... June 14
Kentucky	J. N. McCormack, Bowling Green	Louisville.....
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans..... May 17
Maine	F. W. Searle, Portland	Portland..... Mar. 8
Maryland	J. McP. Scott, Hagerstown	Baltimore..... June 7
Massachusetts*	E. B. Harvey, State House, Boston	Boston..... Mar. 8
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QUAIN'S ANATOMY. By E. A. SCHÄFER and J. SYMINGTON. Vol. 3, Part 1. 8vo; cloth; 421 pages; illustrated; 15 shillings net. Longmans, Green & Co., New York.

PREVENTION AND TREATMENT OF ABORTION. By FREDERICK J. TAUSSIG, A.B., M.D. 8vo; cloth; 179 pages; illustrated. C. V. Mosby Co., St. Louis, Mo.

INTERNATIONAL CLINICS. Edited by W. T. LONGCOPE, M.D. 8vo; cloth; 320 pages; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

BIBLIOGRAPHY OF TRYPANOSOMIASIS. Compiled by C. A. THIMM. 8vo; paper; 228 pages; 4 shillings net. Royal Society, London, England.

ÜBER DIE BERECHTIGUNG DES TELEOLOGISCHEN DENKENS IN DER PRAKTISCHEN MEDIZIN. Von A. BIER. 8vo; paper; 19 pages. August Hirschwald, Berlin, Germany.

LA CURE RADICALE DE LA HERNIE INGUINALE. Par le Docteur LUCAS-CHAMPIONNIÈRE. 8vo; paper; 192 pages; illustrated. G. Steinheil, Paris, France.

TEXT-BOOK OF DISEASES OF THE EAR. By MACLEOD YEARSLEY, F.R.C.S. 8vo; cloth; 452 pages; illustrated; $4 net. Chicago Medical Book Co., Chicago, Ill.

PREVENTABLE DISEASES. By WOODS HUTCHINSON, A.M., M.D. Cloth; 12mo; 441 pages; $1.50 net. Houghton, Mifflin Co., Cambridge, Mass.

NERVOUS AND MENTAL DISEASES. By GUSTAVUS P. HEAD, M.D. 12mo; cloth; 248 pages; illustrated; $10 for 10 Vols. Series; $1.25 separately. Year Book Pub. Co., Chicago, Ill.

ELÉMENTS D'OBSTETRIQUE. Par le Dr. V. WALLICH. 12mo; cloth; 718 pages; illustrated; 8 francs. G. Steinheil, Paris, France.

DISEASES OF THE STOMACH. By S. H. HABERSHON, M.A., M.D., F.R.C.P. 12mo; cloth; 565 pages; illustrated; $2.25 net. Chicago Medical Book Co., Chicago, Ill.

DESIGN IN NATURE. By J. BELL PETTIGREW, M.D., LL.D., F.R.S. Folio, 421 pages; cloth; illustrated; 3 vols.; pp. 1416; price, $16.00 net. Longmans, Green & Co., London, England.

A TEXTBOOK OF MEDICAL TREATMENT. By WILLIAM CALWELL, M.A., M.D. 8vo; cloth; 630 pages. Longmans, Green & Co.

OPHTHALMIC SURGERY. By CHARLES H. BEARD, M.D. 8vo; cloth; 674 pages; illustrated; $5.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

FUNDAMENTALS AND REQUIREMENTS OF HEALTH AND DISEASE. By THOMAS POWELL, M.D. Half Morocco; 8vo; 602 pages. Powell Publishing Co., Los Angeles, Cal.

DIE BEDEUTUNG DES TYPUS DER HOSPITALBAUTEN IM KAMPFE MIT DEN INFEKTIONSPANKHEITEN. Von INGENIEUR E. MELTZER. 8vo; paper; 55 pages. L. Ricker, St. Petersburg, Russia.

A PROPOSITO DA PESTE BUBONICA NO RIO GRANDE. 8vo; paper; 240 pages; illustrated. Pintos & C., Rio Grande.

DISEASES OF THE HEART. By JAMES MACKENZIE, M.D., F.R.C.P. Second Edition. 8vo; cloth; 419 pages; illustrated. Oxford Univ. Press, New York.

THE METAPHYSICS OF THE NATURE AND THE CORRUPTION OF THE SOUL. By JOSEPH CLEMENTS, M.D. 12mo; cloth; 112 pages. The Roxburgh Publishing Co., Boston, Mass.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of February 5, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	650	184
Diphtheria	397	42
Measles	1,095	17
Scarlet Fever	635	26
Smallpox	—	—
Varicella	146	—
Typhoid Fever	19	4
Whooping Cough	31	3
Cerebrospinal Meningitis	3	10
Malarial Fever	—	—
Totals	2,976	286

Nasal Perforations Due to Salt.—McKenzie reports an examination of eight persons working as packers of table salt. Four of them showed perforations of the nasal septum. In other respects they were unusually healthy. There was no history of syphilitic infection or signs of the disease. Legge reported 126 cases of septal perforation among 176 men employed in the manufacture of bichromates.—*Proceedings of the Royal Society of Medicine.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 4, 1910:

			CASES.	DEATHS.
CHOLERA				
Java, Batavia	Dec.	12–18	26	10
India, Rangoon	Dec.	12–18	..	7
Norway, Friedershald	Dec.	31–Jan. 3	*a*1	1
			From a vessel from Riga.	
Philippine Islands, Manila	Nov.	21–Dec. 18	53	33
Provinces—				
Albay	Nov.	21–Dec. 11	1	1
Bataan	Nov.	21–Dec. 18	54	48
Bohol	Nov.	21–Dec. 18	61	47
Bulacan	Nov.	21–Dec. 18	36	52
Capiz	Nov.	21–Dec. 18	3	2
Cavite	Nov.	21–Dec. 18	97	65
Cebu	Nov.	21–Dec. 18	292	216
Leyte	Nov.	21–Dec. 18	14	11
Pampagna	Nov.	21–Dec. 18	15	12
Oriental Negros	Nov.	28–Dec. 11	9	2
Rizal	Nov.	21–Dec. 18	38	26
Tarlac	Nov.	21–Dec. 4	2	2
Zambales	Nov.	21–Dec. 11	6	5
Russia, general	Dec.	19–Jan. 1	112	40
Baku, government	Dec.	19–25	5	4
Baku	Dec.	19–25	1	..
Don, territory	Dec.	19–25	5	7
Ekaterinislav, government	Dec.	19–Jan. 1	3	..
Moscow, government—				
Moscow	Dec.	26–Jan. 1	26	9
St. Petersburg, government—				
St. Petersburg	Dec.	19–Jan. 1	11	2
Taurida, government	Dec.	19–25	6	6

a From the Veröffentlichungen des Kaiserlichen Gesundheitsamtes, January 10, 1910.

YELLOW FEVER.				
Brazil, Manaos	Dec.	19–Jan. 1	..	5
Para	Jan.	2–8	4	4
PLAGUE.				
Brazil, Bahia	Dec.	18–24	5	..
Egypt, Provinces—				
Assiout	Jan.	1–6	3	3
Beni Souef	Jan.	2	1	..
Gizeh	Jan.	2	1	..
Japan, Kobe	Dec.	26–Jan. 1	..	1
Russia, Astrakhan, district	Jan.	1–7	37	34
Dschedda	Jan.	7	..	Present
Uralsk, district	Jan.	1–7	11	12
Turkey in Asia, Jiddah	Jan.	5–11	1	..
SMALLPOX.				
Argentina, Buenos Aires	Nov.	1–30	..	14
Brazil, Bahia	Dec.	18–24	16	10
China, Hankow	Dec.	19–25	..	..
Present among natives.				
France, Paris	Dec.	26–Jan. 1	4	..
Germany, general	Jan.	2–8	13	..
Great Britain, Liverpool	Jan.	9–15	2	..
Greece, Athens	Dec.	12–18	.	2
Java, Batavia	Dec.	12–18	2	..
India, Rangoon	Dec.	12–18	..	2
Italy, general	Jan.	3–9	4	..
Naples	Jan.	3–9	13	3
Japan, Kobe	Dec.	19–25	..	1
Mexico, Aguascalientes	Jan.	10–16	..	2
Chihuahua	Jan.	11–23	2	1
Monterey	Jan.	17–23	..	2
Philippine Island, Manila	Nov.	21–Dec. 4	2	..
Portugal, Lisbon	Jan.	8	14	..
Russia, Libau	Dec.	27–Jan. 9	8	..
Spain, Madrid	Dec.	1–31	..	40
Turkey, Constantinople	Jan.	2–9	..	1
Uruguay, Montevideo	Nov.	1–30	..	5

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Original Articles.

THE THALAMIC SYNDROME.

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THE description of the thalamic syndrome, first conceived by Déjerine in 1903[3]; made more precise, and apparently named for the first time by him and Thomas before the February 4, 1904, séance of the Paris Neurological Society,[4] and finally elaborated by Déjerine and Roussy[9] in 1906 on the basis of the histological examination of the first case of Déjerine and Egger, and by Roussy in his Interne Thesis,[11] is one of the most striking of the recent contributions to clinical neurology and to the anatomy and physiology of the sensory components of the central nervous system. Some eighteen to twenty cases of this syndrome have been reported, of which four are by Coriat, of the United States. A critical analysis will undoubtedly reduce the number somewhat.

Through the courtesy of Dr. E. C. Fassett, of this city, I am enabled to record the case history of a patient who exhibited the syndrome as a part possibly of a progressive disorder the exact diagnosis of which is still a matter of uncertainty.

CASE. November 3, 1909. W. P. S., aged 40, single, real estate. A man of considerable activity and force. Hereditary history is negative; his parents were not related, and there is no history of nervous or mental disease in the ascendants. Epilepsy, alcoholism, suicide, diabetes, and syphilis are absent from the family history.

His was a normal birth, and he learned to walk, speak, and read normally; did not suffer from teething cramps, nor rachitis, and had no severe children's disorders; no childish bladder difficulties. School normal—well educated man; nonalcoholic. Of later diseases, chancre 13 years previous. Was treated by Dr. E. L. Keyes for two years. One year later he reports having had a loss of power in the left arm of about four weeks' duration, the nature of which is obscure. Since that time he has been well, save for the past couple of years, when he noticed he grew tired readily, and that his work, which requires a very intense kind of effort, exhausted him.

In August, 1908, he was found unconscious in his bathroom at 5 P. M. The next day his temperature was 101° F., respiration 35, pulse 36. His pupils were small and irregular, the right larger than the left. According to the nurse, he had vomited and had had some convulsions. He showed exaggerated reflexes and was semi-conscious for two days. There was no loss of sphincter control. He was amnesic from the afternoon of the day he was taken, remembering only that he felt a little dizzy. He recovered without any paralysis. He spoke at first a little thickly, and jumbled his words. He had no difficulty in walking. There were no sensory defects.

The history of this attack, which lasted a few weeks, is somewhat fragmentary, but is suggestive of a paretic attack. He was placed upon mixed treatment and made a rapid recovery. He went to business in May, June, and July, but his head bothered him a great deal—it felt thick.

He came under Dr. Fassett's care in March, 1909, suffering from a severe vertiginous headache which was controllable by potassium iodide and ergot. On the morning of October 10, 1909, when the patient woke he was sick, vomited, and noticed that he was weak in the right side of the body, his arm and leg commenced to get heavy; he was unable to walk, save with help, and he could not govern the movements of his right hand. The afternoon before he had had an unpleasant feeling in his head, with dizziness. The symptoms were suggestive of a functional hemiparesis and hemianesthesia at that time.

Examination, November 3, 1909.—Patient is well-built man, muscular, compact and stocky, not large, with abundant fatty deposit, and good state of nutrition. His general organs are all healthy. Skull not painful on percussion.

Cranial Nerves.—I. Smell: r = 1; symmetrical; asafetida and oil of turpentine, as tests.

II. Sight: r = 1; 20/20; no hemianopsia; no color changes; no limitation of visual fields, fundus normal.

III, IV, VI. Eye movements free and ample in all directions; no nystagmus; no double vision; slight tendency to ptosis of right eyelid while face is at rest. Pupillary reactions: to light slightly sluggish; pupils, irregular, small, the left is more dilated than the right; to accommodation prompt and ample, the two are equal.

V. Trigeminal sensory area negative; motor power; masseters normal; corneal, palpebral, and conjunctival reflexes, present, r = 1 symmetrical. Supraorbital and infraorbital and mental points are negative. Occasional twitches of pain in the right side of the face, but nothing severe.

VII. Motor functions, r = 1, symmetrical; slight tendency to flattening of right nasolabial fold at rest; nares equal and symmetrical; all movements of the facial muscles, wrinkling of forehead, closure of eyes, whistling, puffing cheeks, equal and symmetrical; emotional movements equal and symmetrical; speech short and jerky; test phrases—no stumbling; tongue protruded in middle line; no tremor, atrophy, no scars; slight tic-like movements lips, eyelids, etc.

VIII. Hearing: Watch 1 foot right side; left, 3 feet; no buzzing, nor dizziness; Rinné, positive.

IX, X, XII: Negative; pharyngeal reflexes r = l; symmetrical.

XI: Slight weakness of the muscles of the right shoulder, not marked; turning of neck, slight paresis right side.

Upper Extremities.—Atrophy: Slight flabbiness on right side; left side normal. Hypertrophy: o; r = l. Spasms: o: r = l. Hypotonus: slight, on right side. Muscular force: right side weaker than the left, difference marked in smaller muscles of hand; no paralysis, but distinct paresis; large associated groups performed well; finer movements poor on the right side.

Marked adiadochocinesis, right side, none on the left.

Triceps reflex, + +, right greater than the left, not marked.

Radius periosteal reflex, + +, right greater than the left, not marked.

Tremor: Wrist, at rest, o; static, o; locomotor, ataxic, and irregular choreoathetoid movements slow, twisting and then jerky on right side only, which are made worse when motion is thought of. It is not an intention tremor, but becomes steadier and steadier as motion progresses.

Finger-Nose Test: Coarse irregular, static swaying with marked inability to find nose on right side; left side normal. Excess of motion in right side by finger-nose test and by line test. Finger-finger test same as with preceding.

Sensory Perceptions.—Muscle position sense; right side gone. Patient could not imitate movements, nor place arm or hand in position of left hand. Sense of joint movements flexion, abduction, pronation and apposition lost on right side. Left side normal.

Stereognosis: Right side, patient unable to recognize any objects, nor qualities of objects, whether rough, smooth, square, round, or triangular. The movements of the fingers in palpation are clumsy and irregular.

Light touch (brush) somewhat but not markedly impaired; the patient localizes light touch fairly well over the upper arm, but there is more loss in hand. The diminution is therefore centripetal. The loss is segmental and not radicular. Point and head of pin confused throughout the lower half of the forearm and hand. The distribution segmental and centripetal confusing as to outlines where arm and trunk coincide, growing more definite—errors less on ascending arm and descending the trunk. No sharp line of demarcation. These changes were confined to the right side.

Stern Test: Mistakes constant in forearm and hand, less marked in forearm and trunk. Left side negative. Slight pains in right shoulder; irregular; pains in irregular attacks but not extremely severe, and not requiring special treatment. Heat and cold sense indefinite on the right side. Bone conduction diminished on right side; lost in bones of hand.

Trunk: No paralyses nor atrophies. Patient on back shows no ataxia; no static fixation; no cerebellar catalepsy on back. Dermographia, o; pressure points, o. Abdominal reflexes, +, r =l, symmetrical. Cremasteric, +, r = l, symmetrical. Sensory disturbances not marked. Pain sense somewhat diminished on right side. Left side normal throughout.

Lower Extremities.—Atrophy, o, r = l, symmetrical. Hypertrophy, o, r = l, symmetrical. Spasm, o, r = l, symmetrical. Hypotonus, +, right greater than left. Muscular power diminished on the right side, less marked than in the upper extremities. Knee jerks, +, r = l, symmetrical. Ankle clonus, o. Achilles, reflex, + +, r = l, symmetrical, active, almost a clonus. Plantar; right, not Babinski in type; slight separation of smaller toes; large toe not flexed nor extended. Occasional plantar response; left, prompt plantar response. Oppenheim, o: paradoxial, o; Romberg, slight; Rosenbach, +; Lasègue, o. Nerve stems not painful to pressure.

Walk: Patient walks with knees spread apart, the right leg usually in advance. No asynergia. With eyes closed, no marked change in walking. No propulsion, lateropulsion, nor retropulsion.

Sensory.—Heel-knee test; slight ataxia right side, left negative. Light touch appreciated fairly well throughout; r = l. Brush not felt on right foot, left foot normal.

Pain: Pin-point and head well distinguished, mistakes much fewer than in upper extremity on the right side; left side, no mistakes. Stern test, no mistakes.

Sense of position and of limb not markedly impaired.

Temperature sense not impaired. No trophic disturbances. Cloth stuffs to feet fairly well differentiated. No loss of bone conduction in hips and thighs, but slight reduction in right foot.

Mental Examination: Patient showed no loss in attention, power to add, divide, subtract, and do complicated problems in his head. Backward associations excellent. Memory tests showed no change notwithstanding complexity; 12 numbers forward and 8 numbers backward promptly given. The only noteworthy feature, and that was slight, was the patient's apparent indifference to his serious state. He was inclined to be a little light hearted rather than serious, yet gave an impression perhaps that he did not want to appear too deeply interested. It was in part this approach to the *belle indifference* that perhaps led to the feeling at first that it was a functional disorder.

Summary.—An adult of forty with a syphilitic infection thirteen years previously, has an apoplectiform attack from which he makes a good recovery. One year later he has a second attack, without loss of consciousness, and an examination one month later shows: (1) Slight hemiparesis of the right upper and lower extremities; (2) marked ataxia in right upper, slight in right lower extremity; (3) choreoathetoid movements of right arm; (4) disturbance of pain sense, of deep sensibility, of postural sense in right upper extremity, the right lower extremity slightly but not markedly involved. No absolute loss of light touch in either extremity; (5) astereognosis in right hand, involving recognition of qualities of object as well as object itself; (6) definite though not marked pains in right shoulder. In addition there were pupillary anomalies and a possible alteration in the patient's general emotional tone suggesting a *belle indifference*. Clinically this is a fairly clear example of the thalamic syndrome of Déjerine.

The chief symptoms of this syndrome as outlined by Roussy in his monograph just quoted are: (1) A superficial persistent hemianesthesia of an organic nature, more or less marked for superficial sensibility, tactual pain, temperature, but always very marked for deep sensibility. (2) A mild hemiplegia, usually without contracture, and rapidly regressive. (3) A mild hemiataxia, and more or less complete astereognosis. (4) Severe pains on the

hemiplegic side, persistent paroxysmal, often intolerable and not yielding to any analgesic treatment. (5) Choreo-athetoid movements in the members of the paralyzed side.

The only variation, in the case cited, from the general symptomatology laid down by Roussy, are the absence of severe paroxysmal pains; in some of the cases reported these came on later than one month, and the patient's slight pains now felt may increase in severity.

Turning for a moment to the cases reported in literature, those cited by Coriat, the only ones in English literature, are latest in point of time.

Case I is probably not one of the thalamic syndrome. There was no ataxia, no astereognosis, no choreic or athetoid movements, no asymbolia, and no loss of touch localization. He had pain in the left side, hemihypoalgesia and hypoesthesia, and slight hemiplegia. Wherein this conforms to Déjerine's and Roussy's criteria it is difficult to say.

The author[23] on page 466, in describing Case I, says there is "no ataxia" and "no astereognosis," and yet on page 469 in the same article, in discussing Cases I and III, he says these two cases presented a fairly clear picture of the pure thalamic syndrome, "such as the presence of sensory disturbances, motor weakness, *astereognosis*, pain, and *ataxia*." How the author can reconcile these two absolutely contradictory statements regarding the same case, and in the same article, it is difficult to understand. Case I is not a case of the thalamic syndrome, and the meager case history does not permit a satisfactory diagnosis.

It is also extremely doubtful that Case II is one of the thalamic syndrome. The internal capsule is markedly involved both in the motor and sensory carrying fibers. There is no evidence to show that it is not an ordinary capsular lesion with sensory implications not necessarily thalamic. The pain described is "dull and heavy," not the sharp paroxysmal pain of a thalamic lesion. There is complete involvement of the entire motor-carrying portion of the internal capsule—no choreic or athetoid movements. Motor and ideational apraxia —not a part of the thalamic syndrome at all and indicating cortical-callosol involvement as well. Lesions above the capsule can produce just this picture.

Case III of Coriat's is possibly a case of the syndrome—although the choreiform and athetoid movements are absent and the pain is mentioned as a precursor of a convulsive attack and is not mentioned in the symptom picture after the onset of the convulsions. Under mercury and iodides the conditions markedly improved, writes Coriat, but he makes no distinction as to what improved save the headache. If the sensory symptoms cleared up then we have further evidence of its not being a case of the syndrome under discussion. There is enough positive evidence to warrant its exclusion in my opinion. It would be worth while for the author to give a fuller neurological and particularly a mental status.

Case IV is certainly not a case of the syndrome. There is no pain, no choreoathetoid movements, and the involvement of the motor fibers of the internal capsule was very extensive. Further, the case is complicated with sensory aphasia. Coriat only claims it as a case of the mixed syndrome, but there are serious doubts even as to this. There is no good evidence to show that the lesion is not all in the capsule, or above the capsule sensorially, and negative evidence as to the thalamus itself being involved in the classical situation as claimed by Roussy.

For these reasons I am inclined to rule all of Coriat's cases out, reserving a doubt as to my judgment on his Case III.

The cases that Coriat has described have been current in literature since Carpenter in the sixties of the last century first called attention to the optic thalamus as the seat of sensation, and their better understanding was made possible by Ferrier, Renzi, Nothnagel, Oppenheim, and v. Monakow. The later work of Déjerine and Roussy has been to isolate certain cases from among the large general group of cases like those reported by Coriat that showed fairly definite anatomical lesions and to which the name "thalamic syndrome" could be correctly attached.

It is for this reason that perhaps a detailed account of the findings in patient Jossaume of Déjerine and Egger may be given here, since it must serve as the type on which the thalamic syndrome was erected. Inasmuch as it is not available up to the present time to English reading students, a complete presentation of the history and findings in this case seems justifiable.

The patient Jossaume was first reported by Déjerine and Egger[3] in a study on incoordination of central origin. It is here given as reported by Roussy in his Thesis on the Optic Thalamus and the Thalamic Syndrome.

Obs.—Patient named P. J., 76 years of age, entered the Salpétrière, Salle Parrot, July 11, 1902, after an attack of left hemiplegia. Nothing of note in her heredity. Menses appeared at 10½, and she was married at the age of 22. Her husband died of a gastric tumor. One child, who is well. No miscarriages. No syphilis and no alcoholism. Toward the age of 60 patient was affected by a gouty rheumatism of the upper extremities. The crises became so intense that she was obliged to abandon her business. After twelve years these phenomena had retrogressed, and her general health was better.

History of Illness.—On April 1, 1902, at 7 in the morning, after having eaten well, the patient was suddenly taken with vertigo; she fell to her knees, everything about her seemed to be going round, and she then had intense and protracted vomiting. She did not lose consciousness, but was unable to take care of herself. Put to bed, she had an imperative desire to urinate, but had no power to satisfy herself. Vesical tenesmus was painful, radiating in the lower abdomen. In the evening, on her admission to the hospital Lariboisière, she was catheterized, but she obtained no relief, and notwithstanding that she was catheterized three times a day vesical pains persisted in all their intensity—becoming more and more exasperating at the period of desire and more and more frequent. This condition, which tormented the patient day and night, continued about two months.

On her admission to the Salpétrière the retention had disappeared, and had given place to a frequent imperious micturition which obliged the patient to remain constantly on the closet. In the beginning the hemiplegia was complete for the two extremities; the patient could only move her shoulders and hips. The rest of her members were inert. The facial was not involved, and there was no deviation of the mouth. Fifteen days after her attack, volun-

tary motion came back little by little, and on her admission to the Salpétrière the patient could move her arm and leg.

Actual State 1903: Notwithstanding her 76 years, the patient shows no signs of senility.

Objective Sensibility: Tactile (examined by brush). Left hemianesthesia characterized by centripetal diminution. The hand is totally anesthetic, as is also the lower fourth of the forearm. Higher up the anesthesia is replaced by a hypoesthesia which diminishes as one approaches the shoulders. In the foot there is marked hypoesthesia and centripetal diminution for the rest of the extremity. The left half of the face is anesthetic to light touch; the buccal, pharyngeal, palatine, and lingual mucosæ, and the cornea and conjunctiva of left eye are hypoesthetic. As may be noted in the accompanying chart, there was also a diminution of tactile sensibility in the right lower extremity, the which, although less marked than that on the left, is none the less very evident. [NOTE: Chart omitted here.]

Pain: Prick of pin: There was a period of three months in which pin pricks caused only dysesthesia, that is, there was no specific sensation. The point of the pin caused the sense of disagreeable formication. Actually the prick is felt as such, but less strongly on the hand and foot than on the points near the shoulders and hips. Strong excitation stirs up sensations lasting several days.

Temperature (50° C.). The trunk and the face are more sensitive to heat than the extremities on the left side. There is retardation of perception of some 14 or 15 seconds in the hand and some 15 to 25 seconds for the foot. On the forearm the retardation is reduced to 3 or 4 seconds, and the thigh and arm feel the contact with the heat almost immediately. The face is hypoesthetic to heat, hyperesthetic to cold, the same as the extremities. Pressure is felt in the fingers, although feebly, and it augments proportionately as one approaches the root of a member.

Skeletal Sensibility: The vibrations of the diapason are not felt on the left side of the skeleton; they cause, on the contrary, an intense feeling of burning even in the region where thermoanesthesia is present. The skin, on the contrary, feels the vibration of the tuning forks. Comparison of the two halves of the body shows slight involvement of the lower right limb. At this level the vibrations of the diapason are feebly felt and contrast strongly with the intensity perceived in the right upper limb.

Segmentary passive position. The position of attitude is completely lost in the left upper extremity. The patient has no idea at all of the position given to any portion of this extremity. Flexion or extension, adduction or abduction, pronation or supination are not recognized.

In the digits of the left foot the sense of attitude is enfeebled. The patient, although feeling the passive motion, cannot indicate exactly the nature of the movement. The same thing is true for the knee joint. For the right leg the idea of passive movement and of passive attitude is conserved. In short, there is abolition of perception of passive movement and attitude in the left upper extremity, and diminution of the same perceptions for the left lower extremity.

Stereognostic Sense: Astereognosis of the left hand is complete; the patient does not recognize the form, nor the physical properties of an object and cannot name it. The sense of weights is completely lost.

Subjective Sensibility: Since the attack the patient complains day and night of active continuous pains, occupying the left half of the face and radiating into the arms. At the moment of the crisis it seems that the left eye is being torn out and that something is pressing on the orbit. The temple, auditory canal, the left half of the tongue and mouth are the seat of paresthesiæ and of intense burning. The same is true for the left nostril.

Motility: All of the movements of the left extremity are perfectly conserved; the muscles of associated movements, as well as isolated and specialized movements. The musculature of both extremities is soft and shows neither contractures nor hypotonus. As to the muscular force, it is considerably diminished. Flexion of the forearm on the arm brings out slight resistance; all the other segmentary positions of the leg and arm are easily overcome. As to the muscular force of the left lower extremity, it is also considerably diminished if one compares it with that of the right arm. It is easy to overcome the resistance of the flexor, and of the extensors of the leg on the thigh. (The last are a little stronger than the former.) The plantar and dorsal flexors are similarly weak. There exists a light paresis of the left of the mouth. On pressing the puffed out cheeks the air escapes to the left side of the mouth. No trace of paresis in emotional mimicry.

Reflexes.—The knee jerks and Achilles reflexes are exaggerated on both sides, but more on the left than right, biceps, triceps, radials, and flexor reflexes equal on both sides. Babinski negative but cutaneous plantar reflex present both sides. Tickling of the plantar surface of the right foot produces dorsal flexion of the right foot, and at the same time of the left foot, although excitation of the left plantar alone determines a dorsal flexion of the foot of this side.

Choreic Movements.—There is further to note that the left arm of the patient is from time to time animated by a choreic trembling. This tremor consists of small movements of pronation and of suspination, of flexion and of extension of the arm, of the hand and of the fingers. One can readily bring it on by faradization. Even the evocation of the sensori motor image of the arm suffices to make the movements appear. If, for example, one asks the patient to inform us of the position of his arm, it commences to enter into choreiform movements, movements which the patient feels, but which she is unable to control and to arrest. The attempt to stop them makes them worse. In turning the patient's attention by asking her questions which bring out other images, the movements are arrested.

Hemiataxia.—Hemiataxia of the left side is manifest, but the patient, after a certain hesitation, succeeds in carrying her index to the top of the nose with the eyes closed. She can also limit the incoordination as the object nears attainment.

Eye.—Beginning cataract of both sides. Traces of ancient hemorrhages in the left retina. No pupillary irregularity. Reflex to light normal. No dyschromatopia, achromatopsia, no hemianopsia, no limitation of the visual fields. Slight nystagmoid movements of both eyes in extreme lateral position left and right. No external ophthalmoplegia.

Hearing.—Slight diminution on left side.

Smell.—Slight diminution in left side.

Swallowing.—One observes troubles in swallowing in this patient. When she wishes to take a swallow of milk, for example, she is obliged to take

it in three or four fractions. The same is true for solid food, even when well chewed and divided. She experiences a certain difficulty in transferring the bolus into the pharynx. Objective examination reveals no paralysis, or paresis of the palate, the tongue, or of the pharynx. The patient complains further of a continued dryness of the left side of the mouth (xerostoma). She seems to lack saliva to moisten her food and when she eats it is always on the right side that she holds her food.

General State.—Nothing particular to notice in the thoracic or abdominal viscera. The heart, liver, and kidneys are normal. No sugar nor albumen in the urine. Pulse, 66. Intelligence is active and lucid and the patient replies perfectly to all questions that one can ask her and gives evidence of perfect judgment.

Autopsy, March 18, 1904.—Normal cortex, nothing to note in the meninges. The left hemisphere presents nothing of importance. The right hemisphere is normal in aspect, and in volume. One can see on the ventricular wall at the level of the thalamus an ochracheous cicatrix. On horizontal section, following a line passing superior to the optic thalamus and to the corpora striata one sees an ochracheous focus as large as a nut, in the posterior portion of the thalamus and penetrating into its depth.

The right pyramid is a little smaller than the left. Several granular bodies on the left lateral cord of the cord in the fresh state.

After 48 hours in 1 per cent. formal the pieces were placed in Müller's fluid and left for hardening five months for the brain and three months for the cord.

The results of an anatomical study (p. 249) shows: (1) The seat of the central lesion which is capable of giving the picture of the thalamic syndrome. (2) The consecutive secondary degenerations.

Primitive Lesion.—This occupies the posterior and external part of the optic thalamus at all its levels but does not go beyond it above or below. As a matter of fact, in the upper portion of the thalamus the lateral internal and external (mesial) nuclei are destroyed in their posterior third (section 416). Lower, the focus diminishes in extent, involves always with predeliction the external lateral nucleus, and in the sections passing above our series, 416, one sees that the primary focus disappears rapidly in extent and disappears at the superior level of the thalamus. This lesion involves principally the posterior third of the external (lateral) nucleus of the thalamus, which it destroys entirely. It encroaches within upon the internal (median) and median (NLVI of Marburg) nuclei and behind upon the pulvinar. At the inferior part of the optic thalamus (section 325, Fig. 64) the lesion is represented only by a trail traversing right through the external (lateral) and internal (median) nuclei.

From without and in all its levels it sections the posterior part of the posterior segment of the internal capsule and the posterior portion of the lenticular nucleus.

In the superior thalamic region (section 416) it also wounds the retrolenticular segment of the internal segment.

Secondary Degenerations.—(*a*) Above the lesion there exists a degeneration of the posterior part of the posterior segment of the internal capsule, which one can follow from below above just to the base of the corona radiata, and which may be followed in this to the base of the convolutions. This degeneration is difficult to interpret. Is it a retrograde degeneration, consecutive to a lesion of the capsule, or an ascending corticopetal degeneration of the thalamo-cortical fibers? It is possible here that the two processes are at work. But also, as we have seen, the cases of old lesions of the thalamus, like this one, are unfavorable to the demonstration of the existence of thalamocortical fibers. The method of Marchi permitted us to well establish them in the animal as in our monkey 1 and in man. (Case of Kaiser, Obs. IV.)

(*b*) At the level of the lesion (thalamic region). There are involved by the primitive focus and from the degenerations following at a greater or lesser distance. (1) The radial fibers of the different nuclei of the optic thalamus. (2) The internal (median) and the external (lateral) medullary laminæ of this organ. (3) The internal (median) and supplementary medullary laminæ of the lenticular nucleus in their posterior portions. (4) The striothalamic and thalamostriate fibers destroyed by the capsular lesion. (5) The vertical projection fibers of the internal capsule. (6) The fibers of the sagittal layer of the parietal lobe in small numbers.

(*c*) Below the lesion (subthalamic region). In this region, apart from the light coloration, noted apropos of section 266 (Fig. 65) we have seen that the ansa lenticularis, the lenticular bundle, the fibers of the region of the median lemniscus and a contingent of the subthalamic striæ were perfectly intact.

(*d*) In the encephalic trunk. In the pes pedunculi, the degeneration of the pyramidal tract is limited to the external second fifth. Outside, the Türck's bundle is absolutely normal. This pyramidal degeneration goes through the pons and the medulla to the cord where it is less marked in the direct, but very distinct in the crossed pyramidal tracts. The lemniscus is normal in the tegmentum of the peduncles, pons, and medulla. There is absence of atrophy of the median lemniscus, notwithstanding the extent of the thalamic focus and the age of the lesion (2 years).

This case shows:

(1) As to the different clinical signs the patient shows on the left side: Superficial and deep hemianesthesia, a hemiplegia which regressed rapidly, mild hemiataxia, astereognosis, severe and persistent pains in the paralyzed side, corresponding anatomically to a primary lesion of the optic thalamus destroying entirely the posterior third of the external lateral nucleus, encroaching within on the internal (median) and median nuclei, behind the pulvinar and sectioning from without the posterior segment of the internal capsule and the posterior part of the lenticular nucleus.

(2) That a lesion of the posterior part of the posterior segment of the internal capsule, such as we have here, does not give very marked motor disturbances and such are not any more pronounced in the lower extremities than in the upper. There does not then seem to be in the internal capsule the grouping of fibers corresponding in stages to the distribution of the motor zone as the experimental facts of Horsley and Beevor (Translations of the Royal Society of London, Vol. 181, 1890) would seem to prove in the work upon monkeys. The anterior part of the posterior segment of the internal capsule corresponding to the upper limbs, the posterior part to the lower limbs. Anatomical clinical facts do not correspond to this classical notion; ours

are an evident demonstration of and lend support to those enunciated by Pierre Marie. (*Semaine Méd.*, 1902.)

Before closing, attention should be called to Roussy's latest communication in which he makes a division into a pure and a mixed thalamic syndrome. The symptoms and the findings in the pure syndrome have been discussed. Here the internal capsule may be slightly involved or not at all (Case Kaiser, Roussy Thesis.) In what particulars does the mixed syndrome differ from the type? In this latter (Roussy[22]) the paralytic troubles are more marked, assuming the character of a spasmodic organic hemiplegia to which have been added the clinical signs of an exteriorization of a lesion of the optic thalamus, with superficial and deep hemianesthesia, astereognosis, and pains. The difference anatomically consists in a greater encroachment on the fibers passing in the internal capsule.

Further, Haskovec proposes a tripartite division of these cases into (1) sensory thalamic, (2) sensory motor thalamic syndrome, and (3) sensory-sensorial and motor with hemianopsia.

The use or validity of Haskovec's division is difficult to see since one could go back to Carpenter's observations in the sixties and arrange all of the organic hemianesthesias according to Haskovec's scheme. His suggestions are purely hypothetical and thus far lack anatomical foundation.

It would lead one too far afield to discuss all of the cases of hemianesthesia without motor, or with slight motor involvements. v. Stauffenberg has recently gone over this ground very thoroughly. He demonstrates anew that the thalamo-cortical paths may be interrupted above the capsule and give the signs of hemianesthesia and analgesia. The sensory changes alone are not sufficient to permit a diagnosis of the syndrome, as Coriat has apparently done.

The numerous studies on hemichoreic movements are in need of revision. Roussy in his thesis is inclined to attribute them to the capsular lesion but the tendency is to call upon the red nucleus and cerebellar connections more and more for the interpretations of some of the choreic and paralysis agitans-like tremors.

The present available studies on this syndrome are about a dozen. These are here given in a short running bibliography.

CASES OF THE THALAMIC SYNDROME REPORTED IN LITERATURE.

1. Graeff: *Archiv f. Psychiatrie*, 14, 1883, p. 598. This case was complicated by cerebellar hemorrhage.

2. Edinger: *Deutsche Zeitschrift f. Nervenheilkunde*, 1, 1891, p. 266. In this case there was hyperesthesia, rather than anesthesia. Déjerine and Roussy both include it, but chiefly from a historical sense. Anatomically there was a hemorrhage into the dorsal portion of the external (lateral) nucleus of the thalamus and the pulvinar.

3. Déjerine et Egger: *Revue Neurologique*, 11, 1903, p. 397; incorrectly cited as 1893 by Roussy in his monograph and by Déjerine in their 1906 paper. This contains the original clinical description of the case Josseaume which is the type case.

4. Thomas et Chiray: *Revue Neurologique*, 12, 1904, p. 505. A case P. reported in extenso: Cited by Roussy. Microscopical series not yet reported on.

5. Dide et Durocher: *Revue Neurologique*, 12, 1904, p. 802. Note communicated by the Secretary of the Paris Neurological Society, Henry Meige. The anatomical findings are reported in brief.

6. Long: *Rev. méd. de la Suisse Romande*, 1904, p. 791. A short note only. Case reported in extenso in Roussy's thesis. No microscopic report.

7. Haskovec: *Revue Neurologique*, 12, 1904, p. 1148. Note presented by Déjerine on two cases. No microscopical findings.

8. Bourdon et Dide: *L'Année Psychologique*, 11, 1905, p. 40. One of three cases reported in a study on tactile sensibility in organic hemiplegia. No autopsy.

9. Déjerine et Roussy: *Revue Neurologique*, 14, 1906, p. 521. This contains the clear presentation of the syndrome with a short summary of the findings in three cases. Josseaume, Hudry and Thalman, all of which are reported in extenso in Roussy's Thesis.

10. Long et Roussy: *Revue Neurologique*, 14, 1906, p. 1202. Report of case Kaiser further studied by Roussy in his Thesis.

11. Roussy: La Couche Optique; Le Syndrome Thalamique. Thèse de Paris, 1907. The author has here given an extensive experimental study on the thalamus and further has given greater precision to the syndrome as originally conceived. It contains in addition to the thalamus studies the full detailed account of four cases with the syndrome with complete microscopical analysis of the lesions. Three observations without autopsy, two already cited here (Thomas et Chiray, Long) and one new one "Garn." It also cites the observations of those already listed here.

12. Claude et Rose: *Revue Neurologique*, 15, 1907, p. 183. A peculiar history with tumor, hemiplegia, and the thalamic syndrome. No anatomical details.

13. Lejonne et Chartier: *Revue Neurologique*, 15, 1907, p. 410. An irregular general paresis with a transitory picture of the syndrome. No anatomical details.

14. Déjerine: *Gazette des Hôpitaux*, 80, 1907, p. 999. A clinical lecture with presentation of case.

15. Winckler u. London: Cited by Roussy, *Revue Neurologique*, 1909. Koninklyke Akademie v. Wetenschapper, Amsterdam.

16. Vincent: *Revue Neurologique*, 16, 1908, p. 553. An interesting clinical example of the syndrome with possible cerebellar symptoms added. Discussion by Roussy. No anatomical report.

17. Hartenberg: *Presse Médicale*, 1908, p. 33. Clinical Lecture.

18. Massolongo: *It Policlinico*, 14, 1908, p. 333. Clinical Lecture.

19. Klippel, Segueeff, Weil: *Revue Neurologique*, 16, 1908, p. 694. Full case report. No anatomical details.

20. Haskovec: *Revue Neurologique*, 17, 1909, p. 53. Case history, with no microscopical study. The author here suggests his triad of groups already mentioned.

21. Conos: *L'Encéphole*, 1909, p. 468. Case history.

22. Roussy: *Revue Neurologique*, 17, 1909, p. 301. Case histories of two patients with autopsies. Roussy in this paper proposes the terms pure and mixed syndrome. He also criticises Haskovec's studies.

23. Coriat: *Journal of Nervous and Mental Disease*, 36, 1909, p. 462. Clinical notes on four cases, three of which are probably not cases of the thalamic syndrome.

24. v. Stauffenberg: *Arch. f. Psychiatrie*, 45, 1909, p. 683. A full discussion of hemianesthesia without motor defect, report of two cases; the first not one of the syndrome, with autopsy—cortical defect, the second, probably of the syndrome—no autopsy.

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THE INFLUENCE OF ALCOHOL IN CERTAIN DISEASES OF THE SKIN.*

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Alcohol is a poison; taken pure and in sufficient quantity it pretty promptly destroys life, after causing loss of consciousness, profound muscular relaxation, and diminished respiration, with lowering of temperature. And yet in one form of dilution or another alcohol is in well nigh universal use over a large portion of the earth, especially in the temperate zones; for in the extremes of heat and cold its employment is so disastrous that it is commonly avoided.

So much has been said and written in regard to the effects of alcohol on the system that there is no need of great enlargement on the subject at this time. But it is interesting to note that relatively lit-

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tle is said in regard to its beneficial action, whereas any amount of evidence has accumulated concerning its harmful effects on all the tissues of the body; although much evidence has also been often collected showing apparently good results from the moderate use of some alcoholic beverages, temporarily at least.

But experimental study has established the fact that alcohol certainly has a prejudicial effect on cell life, both vegetable and animal, and pathological studies have demonstrated degenerative changes in almost all the tissues of the human body as a result of the action of alcohol taken internally.

It is natural, therefore, to suppose that the skin suffers with the rest of the economy, and clinical experience shows that this is the case, often from even the moderate use of alcoholic drinks, although as yet we have not the histopathological evidence of the fact.

An interesting experimental demonstration having some bearing on our subject, is that concerning the influence of alcohol upon susceptibility to infection[1] "These various experiments are in remarkable accord, nearly all showing that animals intoxicated by alcohol are more susceptible to bacterial infection or to toxines than are normal animals, . . . and that the process of experimental immunization is unfavorably influenced by alcohol."

Another instructive line of experimentation has demonstrated in chronic alcoholism of animals, a fatty metamorphosis affecting especially the cells of the liver, the heart muscle, and the kidney; also changes in the central nervous system and degenerations of the peripheral nerves.

A great consideration in regard to the effect of alcohol in connection with diseases of the skin relates to its effect upon the capillary circulation. Now all experiment and observation show that by its sedative action on the vaso-constrictor center of the medulla, alcohol causes a slight paralysis of the nerves controlling the capillaries of the skin, and the sense of flushing after its use in any quantity is well recognized. This dilatation of the cutaneous capillaries leads to a greater flow of blood to the surface of the body, and of course to a greater congestion of diseased portions, which congestion is one of the chief features in many dermatoses most difficult to control. With this congestion there is also an increased action of the perspiratory glands, with probably a modified secretion: for all experimenters state that a certain proportion of alcohol taken in the system is given off unoxidized by the kidneys, lungs, and skin, and it has been definitely demonstrated in exhalations from the skin.

Still another result of alcohol is to be mentioned, which may have some bearing in regard to its influence in diseases of the skin, namely, its effect on muscular tissue. It has been definitely determined, both by animal and human experimentation, and by wide experience in practical life, with soldiers, workmen, explorers, travellers, and others, that while the first effect of alcohol on muscular tissue is stimulating, this is invariably followed by a relaxing or debilitating effect, which greatly lessens the production of muscular energy; this is true of both striped and unstriped muscular fibre. This fact may be of importance in connection with the muscular elements in the skin, which have much to do with its tone and its glandular system.

Finally, we have to consider the effects of alcohol upon metabolism, that is, upon the total action of the organs which have to do with the transformation of food stuffs into tissue and energy, and the final results of anabolism and catabolism, which have so much to do with many diseases of the skin.

That alcohol in appropriate quantities acts as food, and is oxidized and utilized in the production of energy, there can be little doubt in the light of the many pharmacological experiments which have been made. Being rapidly absorbed from the stomach and upper small intestine it circulates in the blood as alcohol, and quickly affects the brain and tissues, until it has become more or less completely oxidized, and has disappeared. But what the influence of the circulation of alcohol is upon the metabolic processes of the body has not been determined experimentally, and we have to rely on ordinary clinical evidence; that it does in a measure interfere with this is common medical knowledge. In this manner, therefore, it can act prejudicially in connection with many diseases of the skin.

The chemico-vital processes on which nutrition and the dynamics of the body depend are, as we know, centered around what is known as oxidation, and the presence of alcohol has been shown to interfere with this in the economy, causing a gradual waning of the metabolic activities of the body. In this manner the disposal of waste substances is hindered and delayed, with the retention of the products of catabolism and the deposit of fat, as also of fibrous tissue. Kreparsky[2] has shown that alcoholism, acute or chronic, lessens the number of leucocytes, and that the repair of wounds take place more slowly in drinkers, because of the insufficient supply of white blood corpuscles at the area undergoing healing; this observation has an important bearing in connection with our subject.

The experimental studies which have been made on alcohol have largely related to that substance pure or diluted with water, or to whisky, a relatively simple substance, and it is difficult to apply all the facts to alcohol as it is ordinarily used in daily life; though various experimenters all state that the effect of alcohol is the same, however it is combined. Practically this latter does not seem to be the fact, for all know that the free use of port and Madeira wine has, in times past, been greatly productive of gout, when the same patients can often take a certain amount of whiskey with impunity; further illustrations of the different effects of various alcoholic beverages will readily occur to every one.

In considering, however, the effects of alcohol as actually observed in dermatological practice, it does not seem that we are to regard the toxicity of the alcohol alone, for in daily life that is rarely taken pure or only diluted with water. But we are to consider rather the general subject of the influence of the alcoholic compounds in general use, recognizing, it is true, that while a large share of the effects produced are due to the alcohol contained, a certain amount is also due to the other ingredients which differentiate the various forms of drink. Account must likewise be taken of the adulterations which are shown to constantly exist in cheaper articles, and also occasionally in those of higher grade. Surely all recognize the somewhat different effects from brandy, whiskey, gin, rum, champagne, port, madeira, sherry, Rhine and Moselle wines stout, ale, beer, cider and various fruit wines, liquors and cordials, besides many others; and the different conditions produced on the skin seem also to differ somewhat, probably owing to the varied effects of other components than alcohol on the tissue, producing different effects on the various organs or

parts of the body which have to do with metabolism. This is a difficult subject to handle, and I doubt if I can make clear what I observe clinically, and there is a singular dearth of recorded facts on the subject to be found in literature.

Syphilis.—One of the first to dwell specifically on the effect of alcohol on the skin was Renault,[3] who wrote under the guidance of Hardy and Hilliaret, at the Hôpital St. Louis, Paris. He speaks very strongly in regard to the harmful influence of alcohol in syphilis, which is now a very well-recognized fact. He shows by a series of cases that, "1, alcoholism is one of the most powerful causes of the late manifestations of syphilis; 2, that these develop in spite of an antecedent mercurial course; and, 3, that syphilides in drunkards are mainly ulcerating."

Fournier has insisted on this in his clinics and, at one of the meetings of the French Dermatological Society,[4] he exhibited the case of a young woman with recent syphilis exhibiting enormous pustulo-crustaceous and papulo-ulcerating generalized syphilides, induced by the immense amount of beer, brandy and absinthe which she consumed. Elsewhere he speaks of alcohol as the natural-born enemy of syphilitics.

I will not detain you with citing any of the many cases which I have seen illustrating these points, but may observe that they are confirmed by innumerable instances, both in public and private practice. So commonly is this the case that it seems to be the rare exception to find bad, ulcerative syphilis in those who always have been teetotalers. The most important direction to give to those who have acquired syphilis is that they shall totally abstain from all alcoholic and fermented beverages indefinitely; even long after the primary infection alcohol may induce grave syphilitic or para-syphilitic affections. This is especially true in regard to late nervous diseases, as locomotor ataxia, polyneuritis, paresis, etc., as Petrini,[5] Grotte[6] and others have shown.

In regard to the action of alcohol in producing or influencing badly other diseases in the skin, there are, in the experimental developments previously mentioned, many good reasons to expect this to be the case. Renault, already mentioned, includes most of them in his Thesis, as follows: 1, "Because alcohol is eliminated by the skin; 2, because a small dose produces general nervous excitation, and a large dose depression; 3, because of its diminishing the amount of carbonic exhaled and lowering the temperature; and, 4, because of its tendency to produce fatty change in the tissues." Janin[7] goes over much the same ground, and claims that "alcoholism, by its unaided power, is capable of evoking morbid cutaneous phenomena, for which, however, there must be some special constitutional predisposition. But these effects are seldom met with; and what we most frequently observe, and should always bear in mind, in respect to this condition, is the important part it performs in the maintenance and aggravation of preexisting disease, to which it sometimes imparts a serious character."

Rosacea.—Perhaps the most striking illustration of the effect of alcoholic drinks on the skin is found in the conditions with which all are familiar on the face. Beginning with the ordinary flushing, seen after over-indulgence in wine or alcoholics, which may be transient, we have the well-known acne rosacea of continued drinkers, which after a while results in the permanent dilatation of the capillaries, seen so often especially in those exposed to the cold, as in drivers, seamen, and others. The reason why this occurs principally on the face is undoubtedly due to the paralyzing effect of the cold on cutaneous vessels greatly dilated by alcohol; with this continued excessive supply of blood there is often a more or less hypertrophy of tissue, which may cause an immense enlargement of the nose, rhinophyma.

Acne.—But this redness and enlarged capillaries are not the only lesions on the face which we often find in those who use alcoholic beverages, nor is it necessary to take the stronger liquors in order to have much eruption there. One of the worst cases of acne rosacea, with many papules and pustules which I ever saw, was in a dealer in Moselle wine, who himself partook of it very freely. In this instance it could hardly be from any impurity or adulteration, as presumably he drank that which he imported himself; and as he claimed not to be an immoderate drinker, the harmful effect was probably produced by metabolic changes fostered by the esters and other ingredients composing wine, as well as the relatively small percent (7-10) of alcohol which this wine contains.

Quite another form of acne is often seen in those who drink ale and beer, which varies in alcoholic percentage from 2 to 8 per cent. Here there is more commonly the production of a pustular form of acne, often with large, indurated and sluggish masses, and often without much intervening redness. The occurrence of suppuration may be in part accounted for by one of the experimental developments already referred to, namely, that alcohol lessens the resistance power of the organism to infectious germs. Want of space prevents my presenting details of very many cases demonstrating the effect of alcohol on acne.

It is quite possible to minimize the influence of alcohol in producing these and some other skin diseases to be referred to, on the ground that the same lesions may often be observed in very many who have never taken a drop of spirituous or fermented drink. But the same may be said in regard to any one causative influence, and it is only by wide experience and wise judgment that the influence of any special etiological factor can be determined. In the present instance the constant occurrence of a certain class of eruption in all beer drinkers, its continuance often under good treatment until the drinking habits are changed, and then its subsidence with relatively simple measures, would pretty clearly indicate an etiological connection.

Eczema.—In the all-common disease eczema we constantly see the baneful effects of alcoholic drinks, as has been recognized by many writers. Renault emphasizes this and Janin gives in detail four cases of generalized eczema as typifying conditions precipitated or aggravated by alcoholism. Donovaro[8] describes carefully a case of chronic eczema on various portions of the body in the etiology of which alcohol played a conspicuous part.

In my own private practice I am constantly seeing what I recognize to be the evil effects of alcohol on eczema, but it is somewhat difficult to give briefly an exact idea of what is meant thereby and the limits of this paper exclude the many illustrative cases which could be given. But many patients will recognize this themselves partially, and when it is made clear to them they are quite willing to forego the drinking in order to be cured. It can readily be understood how the cutaneous congestion produced by alcohol, and also the lowered nervous tone can operate unfavorably in eczema; time and again I

have seen fresh attacks brought on by indulgence in alcoholic or fermented drinks, and repeatedly I have been unable to cure the disease until these have been absolutely abandoned. In one particularly obstinate case of eczema of the fingers in a gentleman, who could not believe that the moderate claret which he drank could influence the disease, the eruption persisted most unsatisfactorily; but when he abandoned the use of claret, after long holding out, the eruption disappeared under the same treatment as before. It is probable from what I have observed, that it is not so much the alcohol, which ranges from 6 to 12 per cent and averages only 8, as it is from the acidity and irritating ingredients found in even fairly good claret. In cases of eczema where stronger alcoholic drinks are taken in excess, the eruption is apt to be pretty extensive, the surface much congested, with a serous or pustular exudate, and much burning and itching. In eczemas which are caused or excited by the more moderate use of milder alcoholic beverages, the eruption is more localized and far less inflammatory in character; in other words, it exhibits the characters of the eruption as caused by ordinary metabolic disturbances, which in this instance are induced by the particular beverage in question.

Psoriasis has been recorded by many as most unfavorably influenced by alcohol, it aggravating the eruption and causing it to itch, and being even capable of exciting fresh attacks, after long freedom from eruption. Renault gives a series of cases supporting the claim that alcohol causes a greater development of the disease and itching. Nardecchia[9] narrates three cases of psoriasis demonstrating the influence of alcohol on the appearance and entire course of the disease. According to him alcohol presents an important complication, favoring the development of severer forms of the eruption and rendering the treatment of the disease more difficult. Polotebnoff[10] in an extensive study of psoriasis, states that alcoholism is most probably a very frequent cause for the development of psoriasis, and gives two striking cases. Nielsen[11] declares that chronic alcoholism can without doubt exercise a most unfavorable influence upon existing psoriasis, since the most extensive and most frequently returning eruptions are seen in heavy drinkers, and that it can cause an universal outbreak, or dermatitis exfoliativa. Also that the disappearance of the eruption will also follow quickly under treatment when alcohol is withheld. On the other hand, White[12] of Boston, at the American Dermatological Association, stated that in his opinion alcohol had no influence on the causation or course of the disease in general, but in exceptional inflammatory crises or types it becomes of temporary influence; while Drs. Jackson, Allen and Robinson held the opposite opinion.

Personally, there is not a doubt in my mind but that alcoholic beverages are of the very greatest importance in connection with psoriasis. Time and again, both in public and mainly in private practice, I have seen outbursts of the eruption following excesses in this direction, and in dozens of instances the eruption has been congested, inflamed, and itchy while they were persisted in, and then yield wonderfully when all alcoholic or fermented drink were absolutely excluded. Of this I could give any number of illustrative cases; so that I am not willing to treat a case of psoriasis in private practice unless this course will be followed.

Erythema.—Alcohol has also been reported as favoring other changes in the skin. Kaempfer[13] records in full the case of a man who was a hard drinker, in whom two liqueur glasses of cognac brandy produced a diffused redness of the face, extending visibly backward over the ears and congesting the oral mucous membrane, the pharynx being scarlet red; there was also great hyperemia of the fundus of the eye and retinal vessels. The condition lasted half an hour attended with slight rise of temperature, pulse 124 with pains in the head and a feeling of heat. The experiment was made many times, to see if the affection was caused by cognac, and each time the same phenomena occurred.

Renault devotes some attention to what others had noticed (Nobile Santo in 1841, and Lendet in 1867), and which Prof. Hardy endorsed, that alcohol can excite an eruption so strikingly like *pellagra* that it has been named pseudo-pellagra. The erythema of the exposed surfaces begins in the spring, resembling sunburn, and is followed by peeling which may last for weeks, or even months until August or September; the skin darkens and becomes like parchment, and accidental lesions, pustules and fissures may appear.

Morrow[14], in a letter from the Sandwich Islands, described what is known as the "ava" skin; this is a slightly narcotic, intoxicating drink made from the root of the ava or "kava-kava." Its irritant effects on the skin are manifest by the production of redness and dryness, with exfoliation of the surface in the form of white, branny scales. The skin is loose and wrinkled from an apparent absorption of the subcutaneous layer of fat. In old ava drinkers the entire body becomes emaciated and the skin is covered with large scales, which on falling may leave ulcerated surfaces, resulting in permanent scars.

Angioneurotic Edema.—Oppenheimer[15] reports a case of relapsing angioneurotic edema, mainly on the face and hands, in a young man 23 years of age, exceedingly obstinate, worse in summer. The author claims that the eruption was due to the use of alcoholics; a relapse was observed after the patient had taken "a couple of glasses of whiskey and soda water." The only alcoholic beverage the patient could take with impunity was claret mixed with water. Mastermann[16] warns against the danger of the use of alcohol in those with *phagedenic carbuncle.*

Gaston[17] has described a peculiar anesthesia occurring in alcoholic patients with prurigo, and claims that one can almost certainly diagnose alcoholic intoxication from the anesthesia of the parts affected. Together with violent itching night and day, but especially at night, with insomnia, night-mare, etc. there is profound anesthesia with irregular distribution. He attributed it more to the alcoholics containing aromatics, ethers, essences, such as absinthe cordials, etc. He had observed it in both men and women.

Lemoine[18] describes a case exhibiting derangement of sensibility with analgesic superficial panaris caused by alcohol irritating the nervous centres, and Lussana[19] writes of the paralyzing effect of alcohol on the cutaneous nerves.

It is thus seen, both from pharmacological experimentation and from clinical experience, that alcohol and the various compounds containing alcohol have very decided effects upon the skin, and that it is an agent to be by no means disregarded in connection with dermatoses of various kinds. For want of space I have not attempted to add much

from my own experience, but I can abundantly confirm all that has been quoted from others and could give any number of illustrative instances. I am not prepared to say that it is always the direct effect of alcohol on the skin itself which influences skin lesions, although this is often a most important factor. In a goodly proportion of cases, however, I believe that it is the disturbing action of alcohol and other ingredients of what we know as alcoholic beverages, upon the general system, including all the organs which are concerned in nutrition, and upon the processes of metabolism. This appears to be the case because we are so constantly seeing practically the same cutaneous conditions arising from gross errors in eating and drinking of other than alcoholic beverages. Thus, acne in young girls who have never touched even wine, will often be kept up by the free taking of milk in connection with food, and will then cease, under the same treatment as before, when once this error is corrected. But distilled and fermented drinks are a far greater factor in connection with many troubles on the skin than many are disposed to admit.

Alcohol Applied Locally.—Another aspect of the effects of alcohol as observed in dermatology relates to its local use therapeutically, concerning which there have been many reports that cannot be long dwelt on. Dating back even to Scriptural times, we learn of the treatment of wounds by means of alcohol or its compounds; thus, "pouring in wine" was a common practice in ancient times. We know that even up to quite a recent period the Hebrew operator in circumcision would staunch the hemorrhage by taking a mouthful of wine and holding the bleeding organ in the mouth for a short while. (It was from this practice that many cases of circumcision chancre have occurred in the past.)

Various suggestions have been made from time to time in regard to the local use of alcohol to the skin and it has attained a pretty definite position of usefulness in connection with antisepsis in surgery; its bactericidal qualities are now well recognized. Its antidotal action to carbolic acid is to well known to comment on, and many an otherwise bad burn of the skin from carbolic has been averted by the prompt application of alcohol.

Wilson[20] called attention to the value of alcohol as a refrigerant for subduing the heat and burning of local inflammation, especially in a diluted form as an evaporating or cooling lotion. Alcohol is also of valve in various combinations for application to the skin and scalp.

Salzwedel[21] advises alcoholic applications in phlegmonous and similar inflammations as follows: After cleansing with ether thick layers of cotton, saturated with 90 per cent alcohol, are laid on the part and covered with impermeable material, perforated so as to hinder but not to completely prevent evaporation. He claims good results, the fever abating and suppuration being materially quickened.

Heuss[22] recommends compresses with alcohol in a variety of inflammatory processes, sycosis, furunculosis, indolent ulcers, whitlow, etc. He uses 6 to 8 folds of gauze wet in a 95 per cent alcohol, with an impermeable dressing over it, and claims a quieting, softening, and antiphlogistic action better than with any other dressing. Romme[23] endorses all that Salzwedel, Schmidt, Loew and Heuse have written on the subject, and believes that if applied early it allays inflammation in the subcutaneous tissue and prevents the production of pus; when used later it favors its pointing in a good place. In addition to its serving as a moist dressing, he believes that alcohol also acts favorably by virtue of its hygroscopic powers.

Kaufmann,[24] collecting together 52 writings concerning the external use of alcoholic preparations, shows that the method which Salzwedel had brought forward was one of great antiquity, and that alcohol had long played a conspicuous part in local medication, from its power as a deodorizer.

Sswekjew[25] further endorses the method of using alcohol compresses in various inflammatory processes of the skin and subcutaneous tissue, mentioning the work of Lanz and Hebra, junior, in this connection.

Albert Kaiser[26] treated 93 cases of various inflammatory affections with alcohol dressings, and reports that nothing better could be desired. He uses a 94 per cent alcohol on compresses of a peculiar kind made by a German firm, covered with an impermeable dressing; the part is first freed from all fatty matter by means of benzin and alcohol.

Unna[27] asserts that as far back as 1882 the introduction of the alcohol spray exerted a noteworthy influence in the treatment of eczema. As the effects of the latter is transient, however, he spent some years in producing a permanent alcohol dressing, having used the ordinary evaporating methods and those with impermeable dressing. The composition which he recommends is ℞ stearinate of soda 6, glycerin 2.5, alcohol ad 100. This can be used where a bandage is impracticable, has high bactericidal powers, and is free from irritant action.

Lauder Brunton[28] states that the application of absolute alcohol will check the itching in pruritus ani.

Dupas[29] advises a 90 per cent alcohol for the treatment of herpes, as Leloir, his master, had already done in 1885. He claims that in the erythematous stage the eruption disappears in a few hours, and when it has reached the stage of vesication it yields in a few days; not only was this used by Leloir in febrile herpes, but it was found also effective in herpes zoster. Later Leloir advises the addition of a small proportion of carbolic acid, which lessened even more the burning sensation and pain. The application is made by pads of cotton frequently renewed during the day. He brings forward some very convincing cases in support of his views.

Hebra, junior,[30] reported at the Vienna Dermatological Society the treatment of six cases of lupus erythematosus by means of very frequent applications of alcohol, 40 to 50 times a day, of which five cases were cured. Kohn, at the same meeting, reported the case of a 23-year-old girl which he had treated in this way with brilliant results. Kaposi and Neumann endorsed the method, recalling that the elder Hebra treated the disease with a tincture of green soap.

Cantoni[31] reported the cure of favus by continued applications of rectified spirit. He claims that the alcohol penetrating the epidermis acts as an energetic parasiticide. This would seem doubtful in view of the fact that alcoholic solutions of mercury, etc., are often used without any very special brilliant results.

Finally, as an illustration of what has been attempted with alcohol, we may mention that Abrahams[32] reports the treatment of acne rosacea with subcutaneous injections of 95 per cent alcohol, 20

to 30 drops, repeated at the most three times a week. He claims that there was a brief anemia produced by the injection, followed for several hours by a hyperemia, by which obliteration of the dilated vessels was accomplished, but only after two or three months. It is questionable if others will endorse such a treatment.

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Achondroplasia in a Twin.—R. Hutchison reports a case of achondroplasia in a child of 1½ years. The point of especial interest in the case was that though the child, a female, was a marked case, the twin brother was quite normal.—*Proceedings of the Royal Society of Medicine.*

A Case of Monodactyly.—R. Hutchison reports a male child of 13 weeks. The child had but one digit to each hand and each foot. The father, two uncles, one aunt, grandfather, great-uncle, and one first cousin all showed the same abnormality.—*Proceedings of the Royal Society of Medicine.*

SOME REMARKS ON COMPENSATORY DIARRHEA.*

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During the last twenty years I have frequently observed diarrhea occurring during certain courses of perverted metabolism, in which there was not only no local lesion to account for the diarrhea, but where it seemed to be salutary in its effect. This form has been denominated compensatory diarrhea, and, as a manifestation of morbid conditions entirely different from those usually provoking this intestinal disturbance, it would seem worthy of consideration.

The simple term diarrhea is usually applied to the too frequent discharge of more or less fluid stools, but we should remember that there is a marked variation in the individual in this respect. Many there are whose bowels move from two to three times daily, with no apparent impairment of health; while others consider themselves normal with one movement every forty-eight hours. When, however, the peristalsis, normal to the individual, is accelerated, the stools become too frequent and too watery—the latter due to either an over supply of water or increased secretion from the mucous membrane of the intestine. "Any condition that hastens the movement of the contents, especially in the large intestine, therefore, tends to cause the feces to be more liquid." The etiology and pathology of the diarrheas brought about by irritating or decomposing ingesta, or inflammatory states of the intestinal mucosa, need not be discussed here, but that form instead, where the toxic products of catabolism are simply being washed out with neither material harm to the bowel, nor systemic shock.

In looking up the literature on compensatory diarrhea, I was surprised at its paucity. I have now in mind two books purporting to cover the field of intestinal disorders, where it is not mentioned, while in four of the standard works on practice it is touched on only incidentally as a symptom of uremia.

Dr. Henrich Stern of New York has contributed an excellent study of this condition (*Journal of the American Medical Association*, Aug. 8, '08), and I shall use his classification of types as being, in my opinion, both correct and complete. "First, diarrheas which are concomitant with deficient or perverse catabolic processes. Second, diarrheas which are consequences of functional or structural diseases of certain excretory organs. Third, diarrheas occurring during the period of systemic physiological decline." As illustrative of the first type may be mentioned the diarrheas of gout, Addison's disease, diabetes, goiter, and, according to some authorities, pellagra. The second form of compensatory diarrhea may present itself as a concomitant of impaired renal function, or as the result of extensive burns, especially those over the abdomen.

That certain diarrheas, not exhausting, but rather grateful in their effect, are not infrequent in old people, will be noted by all careful observers, and I have under treatment at present a hale old gentleman, who welcomes his fortnightly diarrhea as a salutary visitation. In all these forms of compensa-

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tory diarrhea the discharges from the bowels consist in the main of "incompletely or perversely catabolized substances, or catabolic products normally excreted by other emunctories."

It may also represent certain toxic states of the blood with secondary elimination of toxins through the intestinal mucous membrane. We should not forget that it is possible for an irritative diarrhea to occur simultaneously with one of a compensatory nature, or that secondary inflammatory lesions of the intestinal mucosa may merge this beneficial drainage into an exhausting process; and it can be readily understood how the passage of these toxins from the blood, plus other excrementitious substances, may intensify the diarrhea, and transform the disturbance into one of a non-compensatory character.

In the first type, where there is either a decrease or perversion of catabolism, the loose movements generally come on abruptly, without apparent cause, give rise to but little pain or tenesmus, and, after one to three days, cease just as abruptly. Should the diarrhea last longer than three, or possibly four days, anatomic lesions will probably ensue, placing it in a different class, and calling for appropriate treatment. Often in gouty individuals, past middle life, corpulent, and averse to physical exercise, an occasional unloading of waste products, not only promotes comfort, but greatly aids the kidneys, deluged as they are by urates and alloxur-bodies. In exophthalmic goiter it has been frequently noted that after a brief diarrhea the forcible throbbing in the arteries, unpleasant flushes of heat, and profuse perspiration, especially the last, will be decidedly benefited for a while. During the course of Addison's disease attacks of compensatory diarrhea may occasionally be in evidence, but it should be remembered that in this affection diarrhea may be one of the terminal symptoms, exhibiting pain, retraction of the abdomen, and features suggestive of peritonitis. (Ebstein.) The frequent diarrhea in diabetes is open to some doubt as to being a compensatory phenomenon, for it is generally but the manifestation of intestinal indigestion, or, as called by one writer, the expression of alimentary insufficiency. To a degree, however, when there are evidences of toxic accumulations in the body, it is safe to consider the watery evacuations as corrective, and not to be hastily interfered with.

Whether or not the diarrhea of pellagra is compensatory in any stage is a question by no means clear. Certain it is that later on in the disease there are quite sufficient anatomic lesions of the intestines to fully account for this marked disturbance. I have conferred with several pathologists who have studied this protean malady from its first symptom to the autopsy, but did not find a unanimity in their opinions. Drs. R. T. Dorsey and Claude A. Smith of Atlanta do not believe the diarrhea to be compensatory at any time, but Dr. E. C. Thrash of this city admits that, while the later diarrhea is irritative, he also considers its etiology of central origin, and that probably the earlier intestinal disturbances are compensatory in character. Another view presenting itself to me, but which I am not yet prepared to demonstrate, is that the dry and scaly skin, entailing a great diminution of tegumentary excretory power, would naturally call for a vicarious activity of both the bowels and kidneys. The resident physician of one of the local sanatoria has reported to me a recent case of pellagra coming under his observation, where the patient seemed to be progressing favorably, but on checking his rather profuse diarrhea, he went into coma, dying in about twenty-four hours.

It has been noted by many that within two days after a burn, not necessarily deep, but covering an extensive area, a very watery diarrhea often occurs, followed by an improvement in the shock and clearing up of the mental hebetude or coma. This is evidently a vicarious elimination of autotoxicoses, and it is probable that, in addition to the curtailed activity of the skin, there are also some poisonous gases generated in the body, which are discharged through the bowels along with the other catabolic products. The latter is an assumption not yet fully proved. The colliquative diarrhea supervening after a long confinement from a burn, resulting from both ulcerated intestines and systemic exhaustion, is generally a terminal symptom and not at all compensatory.

I think that in uremic intoxication we note the most frequent compensatory diarrhea, though this symptom is hardly as common as the vomiting. As far back as 1859 Treitz claimed that the intestinal irritation occurring in the course of nephritis was produced by ammonium carbonate formed in the intestinal tract by the urea excreted into it. This irritation may progress until catarrhal enteritis, and, later on, uremic ulcers are present, provoking continuous intestinal disturbances not compensatory in their nature. The latter form should be easily recognized by the fetid stools containing shreds of mucus, streaks of blood, accompanied by pain and tenesmus, and followed by no amelioration of the constitutional symptoms. Hirschler has shown that ammonium carbonate is both a peripheral and central intestinal irritant, while urea and sodium chloride cause increased peristalsis by peripheral irritation alone, thus accounting in part for some of the sudden diarrheal seizures. The diarrhea in uremic conditions, therefore, where there are no decided inflammatory changes in the intestines, may generally be regarded as compensatory, and treated as such. Clinically we have all observed the speedy improvement in either threatened or present uremic explosions, after several profuse watery discharges from the bowels.

In old people, especially women past the climacteric, we notice occasional attacks of diarrhea, apparently unprovoked by dietary indiscretions or atmospheric changes, brief, painless, and followed by no exhaustion. This periodical washing out of catabolic products is probably due to the fact that the tegumentary eliminative functions in the old of both sexes are incomplete, while in some women the body continues to require that occasional readjustment formerly afforded by the menstrual flow.

Viewing compensatory diarrhea as a factor for good, its chronicity may be welcomed. To a certain extent it fills the same useful place as the safety valve on a steam engine, "popping off" when the pressure gets dangerously high. When, in the several conditions mentioned, this bodily safety valve shows its ability to "pop off" at intervals, the probability of a sudden fatal termination is much lessened. As a general rule, when the physician feels that this compensatory process is well established, he may venture a much more favorable prognosis as to the danger of fatal dyspnea, convulsions, or coma, and may hold out to his patient the hope of a material prolongation of life.

Regarding the treatment there is little to be said, as the very name compensatory stamps it as a salutary phenomenon, and one that should not be inter-

fered with unless there is a weighty reason. The local irritation produced by the passage of these excrementitious products through the intestinal mucosa is usually a small matter compared with the systemic benefit obtained; and, unless the diarrhea shows a marked tendency to set up an acute irritation or ulceration, or becomes decidedly exhausting in its nature, no therapeutic measures to check it should be invoked.

I am confident that many a sufferer, just about to reach a temporary haven of safety, has been cast back into the breakers of autotoxemia by well-meaning but unwise efforts to halt a diarrhea set up by the *vis Naturae medicatrix,* our most useful handmaiden.

This subject should appeal to every physician, no matter what line of investigation is of special interest to him, and I trust that this brief presentation of a not too well understood phenomenon may stimulate others in worthy efforts to clear up the many obscure points in the etiology, pathology, and clinical manifestations of compensatory diarrhea.

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CANCEROUS AND NON-CANCEROUS PYLORIC OBSTRUCTION.

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There being no medical help for cancer of the stomach, the question arises, what is the duty of a physician towards his patient in such cases? Surgery has done something in these cases which medicine cannot do. But surgery can be of help only when the disease is in its early, or, at least, not in its very late stages. While in all other diseases it behooves the physician to do everything before referring the patient to a surgeon, in pyloric obstruction this must not be done. The mere suspicion of an obstruction to the passage of food from the stomach into the intestines, or even its retardation, should put us on guard against this most dreadful disease, the one disease in which the slightest mistake, or even postponement of proper treatment, will cost the individual his life. All retardation or obstruction to the proper passage of food, all return of food by vomiting a few hours after meals, or obtaining of food from a fasting stomach by the tube, should be looked upon as a case of pyloric obstruction with a possible carcinoma, and the burden of proof of its absence must remain with the examiner.

That many cases of pyloric ulcer terminate in such thickening as to cause actual tumors, and that these same cause obstruction by narrowing the lumen of exit, is an acknowledged fact. It is also accepted that cancer may become engrafted on the tumor, or the tumor may degenerate eventually into a cancer in many cases. "Out of all cases of cancer of the stomach over 75 per cent. are implantation of cancerous growths upon a chronic ulcer" (James Spencer Brown, Medical Record, January 23, 1909). In which cases such a pylorus will become carcinomatous and in which not, is the question that faces us. Is there any way for us to tell beforehand that a given case is one of tumor of the pylorus which will terminate in a cancer? In my estimation there is no such possibility. There are no symptoms by which one may differentiate an eventually cancerous pylorus from one that will not become such. Two reasons for such belief are as follows:

1. Cases that terminate fatally may at the beginning give very slight symptoms, and, on the other hand, cases that are very mild may give very many serious symptoms.

2. Most pyloric tumors will become carcinomatous if given time and a chance. Out of thirteen pylorectomies performed by G. Faysse the microscopic examination showed ten malignant and three benign (*Archives Provinciales de Chirurgie*).

The subdivision of different tumors into inflammatory and neoplastic must in this case be ruled out for obvious reasons: Some of the tumors of the pylorus that are first inflammatory, such as hypertrophy, cicatrization, or an extension of an inflammation of an adjacent organ, may in time be converted into new growths or new growths be engrafted on them.

Considering that the occurrence of this disease is so frequent, and that conversion of an ulcer into a cancer is merely a question of time, we can readily see the importance of an early diagnosis. It certainly must be made at a stage when the degeneration has not yet occurred.

All symptoms in this disease differ only in degree. They are proportionate only to the amount of obstruction. The most so-called benign tumor will give the most malignant symptoms if it obstructs sufficiently the lumen of the pylorus. Brown says (*loc. cit.*): "Remember that in ulcer the total acidity is high, and free HCl is present in large amounts, whereas in cancer the total acidity is low, and free HCl is generally absent." He also insists upon a very careful analysis of the stomach contents. This classical symptom that so many like to associate with the presence or absence of cancer is also of no value, as we get cases with carcinomatous degeneration, with high, even very high acid, while some that are purely fibrous and non-degenerated with low, even very low acid. Not even the absence of a palpable tumor is of diagnostic value. Tumors may or may not be felt. In a well-built individual with a thick-walled abdomen a tumor may not be felt, though it be present.

Loss of weight, cachexia, and all other symptoms may be present and still the case may not be carcinomatous; and the opposite is also true—one may have a cancer and up to a late stage look very well. Pain as a symptom is also of doubtful value—it may and may not be present.

There is only one symptom that is of value, and the only one on which a diagnosis can be based, and when found the patient should be sent to the surgeon. I refer to the obtaining of food from a fasting stomach. No other symptom is of such value; no other symptom or group of symptoms is so invariably present. This symptom so often means pyloric obstruction, that other rare conditions where it may be present should be neglected. From the large number of gastric cases treated in the Department of Applied Therapeutics at the Vanderbilt Clinic I have picked out a few cases that illustrate these contentions very well.

Case I.—R., 63 years old, born in Russia, has always been a healthy man, very moderately alcoholic, drinks much tea, little coffee. He came to the Clinic on April 2, 1907, claiming that since February, 1907, he had felt heavy in his stomach, suffered from indigestion, vomited three or four hours after meals, the vomitus consisting of a sour, strongly smelling substance, *but never food remains.*

After vomiting he felt relieved; the appetite was good, he slept badly, and was constipated. He had lost considerable in weight and strength. At present the pain occurred mostly before meals, and after eating the pain was relieved. The patient was very weak. He was sent to a hospital, after having been treated at home, remained there two weeks, and was then discharged. The relatives were told that he had a cancer.

Examination shows him to be poorly nourished, much emaciated, pale, and weak. Heart negative; lungs emphysematous. Abdomen, no mass felt; liver and gall-bladder negative; slight tenderness on left side over colon. A meal of rice and raisins was given at night, and the contents of the stomach were removed in the morning. No food remains, mucus in excess, no lactic acid; total acidity 26; no HCl. A test breakfast was given and removed one hour later. The food was well broken up; mucus in excess; total acidity 50, hydrochloric acid 26; no lactic acid, no blood. Exploratory laparotomy was advised, and the operation was done a few days later by Dr. J. Blake. Nothing was found. The patient left the hospital weighing 119 pounds. Under treatment he began to improve, and at the end of July his weight was 141 pounds; he felt very well, ate and drank everything. He is perfectly well at present.

Case II.—T., born in U. S., aged 46, always well, moderately alcoholic. In 1907, without any previous symptoms, he began to have nausea and to spit up some blood. After that he was well until January 1, 1909, when he again felt nauseated, and spat up some blood and mucus. This has occurred several times since. Between the attacks he had almost constant sharp pain at the pit of the stomach and under the ribs, behind. The pain diminished after a meal, but returned about two hours later, and retained its sharpness until the next meal. There was no blood in the stools. He has lost 20 pounds since the spring, but is gaining again at present. Appetite fair, has eructations of gas and acid-tasting fluid. He has a good color, and is well built. Heart and lungs negative. Abdominal wall thick and fat, no masses felt, no tenderness anywhere.

January 5: The contents of the fasting stomach were removed at 10 A. M. The fluid contained a large amount of food remains and some free blood; total acidity 32, HCl 12; no lactic acid present; calves' liver eaten 16 hours previously constituted most of the food remains. Stool examined for occult blood gave positive results.

January 7: Examination of the fasting stomach, after a rice and raisin supper: 150 c.c. colorless fluid obtained, some rice and raisins, free blood toward the end; acidity 36, free HCl 26.

January 12: Examination of the fasting stomach showed Q.E. 5 c.c., clear fluid, no food remains. Diagnosis of pyloric obstruction made. The patient was sent to Roosevelt Hospital, when Dr. J. Blake operated upon him. A large pyloric tumor was found about two inches thick. The pylorus was removed and gastroenterostomy done. Patient recovered and is doing well.

Case III.—Mrs. H., born in England, 40 years old, was seen in private practice on August 19, 1908, just after she had taken two Seidlitz powders. Very pale, emaciated, and much depressed; she complained of great pain in stomach, and vomited everything she took. On examination the abdomen was found to be greatly distended, the stomach being very large, extending from the ensiform cartilage to two inches below the navel. A round, hard mass was felt at the pylorus. She was told to come to the Vanderbilt Clinic in the morning, fasting, having taken rice and raisins before retiring. Next morning removal of the contents of the fasting stomach showed 700 c.c. of a dark brown fluid, rice and raisins and food remains present, also blood; total acidity 74, free HCl 46. A test breakfast was given and removed one hour later. The food was well broken up, blood free, and bloody mucus and tissue were found. On further examination of the abdomen, a small tender lump was found, two inches to the right of the navel, through which, or just above which, a vibratory gurgle was heard. Liver border could be felt; the stomach was traced by percussion, three inches below the navel, the upper border being one-half inch above. The patient had lost, she claimed, about 50 pounds, and was very weak. A diagnosis of pyloric obstruction was made. She went to Roosevelt Hospital; Dr. G. Brewer operated and found a large pyloric tumor. This was removed, and also a large portion of the stomach. A gastroenterostomy was performed. On pathological examination a small area of carcinomatous tissue was found. At present the patient has regained all her weight and strength, feels very well, and eats and drinks everything.

On further examination of the records it was found that twelve months previously the patient had been in the clinic, complaining at that time that, for the last three months, she vomited after each meal—vomitus very acid. She had acute pain in abdomen, had sometimes to double up with pain; she had been very yellow at one time, and the stools were very light in color. She had lost 30 pounds in three months. A diagnosis of pyloric obstruction was made, and the patient was allowed to go.

Case IV.—S., 50 years old, German, good habits, never a hard drinker, came to the clinic in September, 1904, complaining that for the last three years he had vomited after eating, at first once a day, then more often, and for the last year he had noticed that he vomited food ingested a day or two before. At present he vomits only once a day, at 5 P. M., usually in large quantities. The appetite is fair, bowels constipated. He has considerable distress before vomiting, but no great pain except when he lies on the right side. Has lost 50 pounds in two and a half years. He is emaciated, heart normal, lungs emphysematous. There is a mass in the right upper quadrant of the abdomen the size of an orange, hard, not fixed, of uneven surface, and somewhat tender. Test breakfast removed one hour later: Food well broken up, pieces of raisin and seeds found (were eaten four days previously), also watermelon seeds eaten two days before, pieces of potatoes and vegetables. Total acidity 65, free HCl 25, some mucus, no lactic acid. Removal of the contents of the fasting stomach showed 76 c.c. of a fluid of brown purple color, some raisin seeds, eaten nine days previously. On further physical examination it was found that when the stomach was empty the pylorus could be felt above the navel, freely movable and tender. On percussion the stomach was traced up to the navel. The pylorus was two inches long and one and one-quarter inches wide, intermittently contracting and visible. Peristalsis was visible when the stomach was inflated. Another test breakfast was given and, removed one hour later, showed acidity 64, free HCl 22, no organic acid or blood. A diag-

nosis of pyloric obstruction was made. The patient was sent to Roosevelt Hospital and operated on by Dr. Hotchkiss. A cancerous tumor, the size of a fist, was found; several neighboring glands were involved. The tumor and about one-third of the stomach were removed. A posterior gastroenterostomy was performed. In hospital one test meal was obtained after lavage; no free HCl was found, lactic acid was present, and Boas-Oppler bacillus was found.

In case of R., all the symptoms of cancer were present, except the cardinal one, *retention of food*, and at operation no cancer was found. In the other three cases we see that the only constant symptom present in all of them was retention. In the last two tumors were felt. In the case of T. no tumor was found on examination, but a diagnosis was made in spite of the fact, on the retention of food alone. The tumor had not undergone any degeneration as yet, and after several washings the patient improved, and the fasting stomach contents were almost normal. But the man was intelligent enough to submit to an operation, and the result was that he was saved from the unfortunate condition of Mrs. H. and fatal condition of S. Mrs. H., a year previously, presented the same symptoms as T., and if an operation had been performed, no cancerous degeneration would probably have been found. S. has passed beyond the condition of T. and Mrs. H., and reached the stage where the cancer has already been fully established.

It is interesting to note that the last patient did not complain of any pain. This fatal case best illustrates the importance of early diagnosis, and that mostly on one symptom, retention of food, in itself a sufficient cause to transfer a patient from the care of a physician to that of a surgeon.

Loss of weight, while of great importance, is only significant if associated with retention. R. suffered a great loss of weight and strength, but that was probably due to the dieting which the patient was put under by his physician and in the hospital. The presence or absence of free HCl was absolutely of no diagnostic value in these four cases.

COMPARATIVE CHART

	Mr. R.	Mr. T.	Mrs. H.	Mr. S.
Loss of weight	Great	Moderate	Great	Great.
Tumor before operation.	Not felt.	Not felt.	Felt.	Felt.
Tumor after operation.	Not found.	Found.	Found.	Found.
Character of tumor		Purely inflam'tory.	Partially cancer.	Cancer.
Vomiting	Yes	Yes.	Yes.	Yes.
Vomiting of food	No.	Yes.	Yes.	Yes.
Vomiting of blood	No.	Yes	No.	No.
Pain in abdomen	Little.	Sharp	Very great	No.
Fasting stomach	No food present.	Food present.	Food present.	Food present.
Blood in stomach contents.	Not present.	Present.	Present.	Not present.
Lactic acid	Not present.	Not present.	Not present.	Not present
Test breakfast: total acid.	50	32	74	65
Free HCl	26	12	46	25
Q. E. from fasting stomach.	20 c.c	120 c.c.	700 c.c.	70 c.c.

On looking over the accompanying chart, we must emphasize again the importance of retention of food as the only symptom of diagnostic value. In the three cases this symptom was present. In the first case, which turned out to be negative, it was absent. We can also readily see the fallacy of considering the amount of free HCl of any value. In T.'s case, which was not carcinomatous, we found free HCl 12, while in the two others, which were carcinomatous, we had found free HCl 46 and 25. The total acidity in the early case was 32, in the two late cases 74 and 65.

Another very important point worth noting is that not one case had lactic acid present. The most advanced case had no blood in the stomach contents and no pain. In the mildest case there was vomiting of blood; in the others not. Also in one case no tumor could be felt, while it was found at operation.

These few cases illustrate well that there are no symptoms that may be relied upon with safety and waited for to make an early diagnosis of pyloric obstruction. Also that none of the classical symptoms, such as absence of HCl or presence of organic acid or pain or any one of the symptoms long accepted, are of such value as the one symptom that is most neglected, namely, the obtaining of food from a fasting stomach. The following seems to me the best rule in these cases, in view of an early diagnosis: Remove the contents of the fasting stomach, and, if food remains are found after one or two washings—high acid or low acid—blood or no blood—pain or no pain—a laparotomy should be performed.

1789 Fulton Avenue.

A CASE OF TETANUS, WITH POINT OF INFECTION THE CAVITY OF A TOOTH.

By W. H. LUCKETT,

NEW YORK.

Tetanus has been reported following injuries to nearly every part of the human body. The wound may be so insignificant and microscopic that its presence is either forgotten or not known. Minute scratches, slight abrasions of skin, leech-bite and bee stings, prick of needle, even hypodermic needles have been reported as the wounds of entrance of the tetanus bacillus. The following case is reported, because a search of medical literature does not reveal its analogue, because of the importance of knowing that it is possible to have tetanus enter the body through a cavity in a tooth and emphasizing the necessity of the care of such teeth, calling attention to the dangers of picking, with indiscriminate implements, the teeth, and lastly because we have here an opportunity, with the assistance of a very excellent bacteriological examination, to diagnose properly a positive case of tetanus in which there is no external visible wound on the body save the cavity of a tooth.

M. H., 10 years of age, admitted to my service at the Harlem Hospital on February 22, 1905. Referred by Dr. Loucks. Family history: both parents living and well, no diathesis traceable. Previous history: had measles as an infant, no other illness, but has a tendency toward indigestion, has had slight growing pains. Is a nervous child, somewhat emotional, subject to toothache, and has a habit of picking the teeth with anything that comes to hand—a straw, a needle, or a pin.

Present illness: Began four days ago with slight swelling of the neck, which was a little stiff. She was able, however, to talk and eat. The next morning she could open her mouth but a very little, and by evening the trismus was pronounced. She com-

plains of headache and soreness of her teeth. She has not had any tonic or clonic convulsions of any part of her body. Her whole body is slightly spastic, but not sufficient to interfere with the patella reflex, which is very brisk and markedly exaggerated. She has had no food and but little sleep during this time, and is an object of distress, as her buccal secretions constantly dribble from the angles of her mouth. No history of any punctured wound is obtainable, the only trauma received lately being a blow on the vertex with a stick, which, however, the parent claims, left no mark.

Present Condition: Conscious, rational, fairly well developed and nourished, general convulsive movements. Eyes: increased secretions, slight nystagmus, ocular excursion fair, pupils equal, semidilated and reacting. Mucous membranes of fair color. Tongue: moist, slightly coated. Mouth: several carious teeth on lower jaw, profuse salivation, and considerable foaming at mouth; pharynx not examined, as jaws could not be sufficiently opened to admit of it. Heart: normal size and position, rapid and regular; no adventitious sounds. Arteries: normal. Pulse: full, moderate force, slight tension, rapid and regular. Lungs: normal chest, poor expansion, moderate respirations, slight dyspnea, fair fremitus and resonant note. Normal voice and breathing sounds; no adventitious sounds. Abdomen: slightly retracted, board-like rigidity, no mass nor tenderness, tympanitic note. Liver, spleen, and kidneys: normal. Skin: smooth, soft, fair color, dry and warm; no rash nor eruption. Bones and Joints: apparently no organic lesions, marked rigidity of jaws and spasticity of most joints. Muscles: tonic contracture of muscles of jaw and abdomen, irritability of most of other muscles. Lymph nodes: quite large submaxillary. Reflexes: exaggerated.

February 22: Patient very restless, vomited once during the day; clear fluid. Takes a little fluid by mouth, but no solids; jaws quite rigid, mouth closed, considerable salivation, abdomen remarkably rigid and board-like. 10 P. M.: Very restless this evening. Apparently unable to swallow, so put on nutritive enemata. February 23, A. M.: Had numerous clonic seizures during the night and one slight tonic convulsion about 1 A. M.; retained nutritive enémata fairly well, salivation very profuse. Had three severe convulsions about 10 A. M.

March 1: Taken to operating room, and three teeth (two bicuspids and a canine) removed. Jaws were so rigid that anesthetic was attempted, but patient immediately had a seizure which was very severe. Amyl nitrite was used to overcome it, and slowly quieted her, clearing up the marked cyanosis, but was followed in quick succession by three more convulsions, while on operating table. This being clearly a case of head tetanus, it had been our intentions to trephine and do a subdural injection, but the patient's condition, rapidly getting worse, precluded this, and we had to be content with a spinal puncture. About 22 c.c. of spinal fluid were withdrawn and 18 c.c. of tetanus antitoxin injected. The cavities caused by extracting teeth were swabbed out with tincture of iodine. Mouth washed with boric acid and myrrh solution, nourishment given per tube in mouth. Patient has had severe clonic contractions during the day, but was conscious mostly all of the time and apparently rational. After a severe spasm about 6 P. M., patient was very weak, breathing became stertorous and pulse imperceptible at wrist. She was carried along for nearly an hour by stimulation, when she had another tonic seizure, during which she died. During tonic spasm jaws became very hard set, abdomen distinctly board-like, rigidity considerable, marked opisthotonos, profuse salivation; then legs became rigid, and lastly arms. Breathing practically ceased, face became livid, and mucous membranes purple.

Urine: February 22, pale yellow, opaque, heavy, muddy sediment acid. Specific gravity, 1037; slight quantity of albumin present. Sugar negative: Amorphous urates, Leucocytes, and epithelial cylindroids present.

A diagnosis of tetanus having been made from the clinical picture, as there was no other visible wound on the body save the carious teeth, they were removed and placed in a sterilized container and submitted for examination to Dr. Leo Buerger, who reports the following: The material for examination consisted of two foul-smelling, dirty, necrotic teeth, the larger portion of a third tooth, together with a small, ragged tooth fragment. Spreads made from many parts of this material showed a multiplicity of bacteria, none of which could be identified as tetanus bacilli in the stained specimen. There were streptococci, staphylococci, Gram negative and Gram positive bacilli of the most diverse morphology, spirilla, and diplococci.

The bacteriological examination of the material was conducted as follows: First, by direct animal inoculation, and, secondly, by culture.

Animal Inoculations: A guinea pig, weighing 300 gm. received 0.5 c.c. of a saline suspension (made by shaking up all the material in 2 c.c. of sterile normal salt solution) subcutaneously in the right groin. The small, ragged fragment of tooth, above mentioned, was also inserted in a small pocket, under the skin, made a short distance above the point of inoculation. On the seventh day the right leg became spastic. On the eighth an occasional general body tremor could be observed. The spasticity of the limb was more marked, and the animal was quite sick. The stiffness of the limb persisted for four more days. There was suppuration at the site of inoculation, but the guinea pig recovered. Three weeks after the inoculation the wound was completely healed. White mouse No. 1 received 0.25 c.c. of the same suspension, subcutaneously in the right groin. No observation having been made during the nine to twelve hours before death, any tetanic symptoms which may have occurred during that period were not recorded. However, the animal died in seventy-two hours, the body being found markedly bent upon itself, an evidence apparently of convulsions before death. The autopsy on this mouse showed a foul-smelling abscess in the right groin. Spreads made from the pus of this abscess did not demonstrate the presence of any tetanus bacilli. Two loopfuls of this pus were emulsified in sterile salt solution and injected under the skin of right groin of another white mouse (No. 2). Mouse No. 2: Inoculated February 26, at 5 P. M., with the above-mentioned pus. On February 27, A. M., right leg spastic and extended. 2 P. M., right fore limb also spastic, with some rigidity of the whole right side of the body. 5 P. M., left side of the body becoming involved, first some rigidity of left hind limb; later of the left fore limb. 8 P. M., general convulsions. 10 P. M., killed by means of chloroform. Autopsy showed no macroscopic lesion.

Culture Experiments: A pure culture of typical tetanus bacilli was isolated from the emulsion made

by washing all the material in sterile normal salt solution. The methods of Kitasato were employed. The pathogenicity of the organism was determined in the following animal experiments:

White mouse No. 1 received 0.2 c.c. of a two days' culture of the tetanus bacilli in neutral broth at 10:30 A. M., February 28, 1905. The injection was made under the skin on the right groin. After eleven and a half hours the right hind limb became spastic. Then there followed a gradual involvement of the other extremities, with general convulsions and death in twenty-one and a half hours. Guinea pig No. 1, weighing 300 gm., received 0.25 of the same culture under the skin of the right groin. Death occurred in twenty-three and three-fourths hours. It was preceded first by stiffness of the right hind leg, then general extension of the spasticity, and finally convulsive movements.

Guinea pig No. 2, weighing 600 gm., received four loops of the same culture in the same region. The period of inoculation was two days. Then the typical symptoms set in, and death ensued at the end of three days and eleven hours. Mouse No. 2, injected in the same situation with one loop of the culture, died of tetanus in thirty-nine hours. By this work we have removed a positive case of tetanus from where it otherwise would have been assigned, *i. e.* the board, questionable field of so-called tetanus idiopathicus, and proven that it is possible to have an infection of the *Bacillus tetani* enter the human body through a cavity in a tooth.

IS CONGENITAL CATARACT CAUSED BY DYSTOCIA?

By GEORGE EDWARD BARNES, B.A., M.D.,

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I WISH to report a case of congenital cataract in the hope that the history of future cases may be more carefully investigated for the purpose of clearing up the causation. The patient was born less than five years ago. The labor (at which, by the way, I was not the accoucheur) was very long, and the head appeared in occipitoposterior presentation The child was slightly asphyxiated and was resuscitated none too well by hot and cold plunges. The cranium was much compressed. The child was perfectly formed, but he weighed only 5½ pounds. During the first month he was not at all well, was emaciated, and had a few mild convulsions. Nothing unusual was noticed about his eyes until after a week or longer. Then the pupils were observed to be slightly gray. There were also internal strabismus and general nystagmus, caused probably by the presence of the cataracts. The gray color of the pupils gradually became lighter. The case has been treated by oculists by several discissions which have removed the lenses with the exception of small segments on their equators.

The child has never had any constitutional disease. As soon as the brain pressure symptoms disappeared, *i. e.* after the first month, he gained very rapidly in weight. He is as observing as a child with his eyes can be. Mentally he has been very alert and bright, as evidenced by his ability at the age of 3½ years to recite from memory long selections of verse.

Concerning this case there is the interesting question whether the cataracts were caused by injuries sustained during dystocia. It seems more than probable. May it not be that the moulding of the head by the great and prolonged pressure so increased the intraocular tension that the lenses were repeatedly forced along the line of least resistance forward and, with the irides, into the anterior chambers, the result being that the suspensory ligaments or capsules were so injured that the lenses did not continue to receive their lymphatic nutrition and became opaque?

AN IRRIGATING STONE-SEARCHER.*

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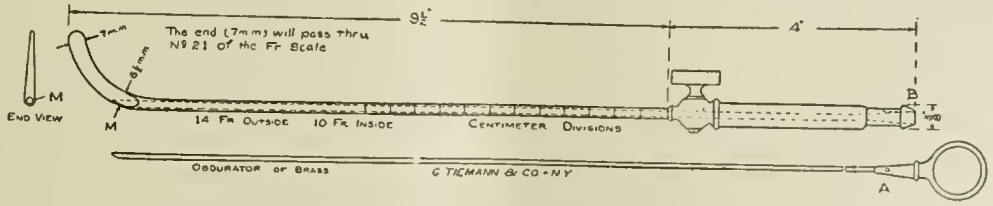
No one to-day with experience in cystoscopy would think of using a stone-searcher instead of the cystoscope for diagnosis. Nevertheless, there are many physicians who meet lesions of the bladder, particularly in the form of various calculi, who have no cystoscope or are not momentarily in surroundings which permit the use of one. Moreover, certain elements of prostatic conditions are very conveniently diagnosed and measured with the stone-searcher. consequently the instrument holds an important position still in the instrument-cabinet of surgeons and specialists. It is desired to call attention to the following modification of the irrigating stone-searcher of Posner, or more properly speaking to the following combination of the Thompson nonirrigating and the Posner irrigating stone-searchers with certain additional changes.

First, a brief review of the Posner instrument will be worth while. Its point was olivary, its curve on the radius of that of the standard sound, but shortened by about an inch, without, however, any flattening whatever from side to side; its shaft was approximately 14 French outside diameter, and about 9½ inches long, including the curve. It ended in a stop cock followed by the handle and nipple for the hose-connection; a canal passed from the nipple to the curve, where it ended well up toward the point in such a way that the tube is not a straight line from end to end and cannot be easily cleansed nor fully closed with a full-sized obturator, but rather with a rather fine wire. From the stop cock toward the curve for about the half-length of the shaft, centimeter graduations were cut, and a rider placed for marking the measure as needed.



Second, a few words on the model of the Thompson instrument should not be omitted. It is of the nonirrigating type, with the curve flattened from side to side, and of size to pass through 24 French,

*Exhibited at the Genitourinary Section of the New York Academy of Medicine, October 20, 1909.

but tapering rather suddenly to the size of the shaft, commonly about 12 French; this results in what the writer considers a defect in this instrument, namely, a sort of spatula-shaped tip, too wide near the point, and too narrow near the shaft, so that a small stone lying near the shaft might be readily overlooked. The other features of the Thompson instrument need no note here.

The illustration shows the stone-searcher of the writer concerning which the following points may be noticed: Its curve is on the radius of that of the standard sound, shortened by one inch and flattened from side to side throughout its length from extremity to shaft. Its extreme width will pass through 21 French, and is reduced only from 7 to 6½ mm., where it joins the shaft. The diagram shows this well in the end-view and side-view of the instrument. The shaft with the curve is 9½ inches long, and duplicates the Posner instrument, with these exceptions: *a* There is no rider for the scale of centimeter graduations. *b* (Most important of all) a 10 French silver catheter passes from the base of the curve to the hose-connection in the handle in one straight line, thus giving to the instrument all of the advantages of the same plan laid down for the writer's "Irrigating Sound of the Standard and Beniqué Type," described in the *Annals of Surgery*, for October, 1909. The obturator of the stone-searcher is a full-size brass wire, which passes through to the opening of the catheter at the base of the curve (see M. of the cut). At this point it is convexed, while the catheter is concaved, in order to correct any sharp edges or corners.

The tube-connection (B) receives 3-8-inch diameter rubber tubing and seats the obturator in a modified bayonet-catch. The slot of this catch and the plug (A) of the obturator sitting into the slot are so arranged that the sharp oblique point of the obturator cannot possibly be exposed at M through the tube. This detail adds safety in the use of the instrument.

The advantages for this instrument are, that it may be used either for an irrigating or nonirrigating searcher, that its flat beak permits diagnosis of small stones with greater certainty, that its straight large tube permits of rapid and full irrigation of the bladder when required, and also much more adequate cleansing and asepsis of the instrument.

From the experience of the writer with it, it is warmly recommended to those requiring an instrument which combines and improves the good features of the Posner and the Thompson instruments.

45 West Ninth Street.

Contagion and Semiology of Scarlatina.—A. Lesage makes a very forcible and convincing plea for the noncontagiousness of scarlatina during desquamation. He bases his diagnosis of scarlatina on the evolutive cycle of the tongue and throat. Here we have a cycle which goes on for about fifteen days. First redness, then white pultaceous covering, then strawberry tongue and red throat, then clearing up of both. Here we have a cultural cycle. After it is finished we have no longer contagion. Desquamation is a mere serum phenomenon resulting from a toxic eruption, and the scales are not contagious. Children inoculated by hypodermic with mucus from the throat all took the disease, while those inoculated with the scales did not. There are many cases of scarlatina without eruption, and these are just as virulent as those in which the symptom is present. Diagnosis based on an adventitious circumstance is incorrect, and this is the cause of the spread of the disease. The diagnosis should be based on the condition of the mouth and throat alone. Quarantine should end with the end of the throat and tongue cycle. Exclusion from school should be based on the condition of the throat and tongue, not of the skin.—*Gazette des Hôpitaux.*

Congenital Stricture of the Urethra.—Gallois says that congenital stricture of the urethra is rare. It is due to the fact that the urethra is developed in three separate portions derived from different structures; the posterior urethra is developed from the cloaca, the middle portion from the urogenital sinus, the anterior portion from the balanic layer. If these portions do not adhere perfectly or the lumen is not entirely hollowed out there is an opportunity for the development of stricture. The lesion found anatomically is a subepithelial sclerosis, there being no changes in the mucosa. The stricture may appear acutely, or be preceded by a period of imperfect urination, frequent, with small stream, and slow. This is followed by acute retention or incontinence. The sound shows the existence of a stricture.—*Le Nord Médical.*

Surgical Operation on the Hypophysis in a Case of Acromegaly.—P. Lecéne describes an operation for a tumor of the hypophysis performed for the relief of acromegaly by the transsphenoidal route. The patient was a typical case of acromegaly, with partial blindness and epileptic crises. A tumor of the hypophysis was diagnosticated and operation was done by opening the nose, passing through ethmoidal and sphenoidal cells into the sella turcica, and the removal of a considerable amount of tissue from the hypophysis. The patient lived some six weeks after the operation, the external wounds entirely healed, but he died suddenly. An examination of the skull and brain after death showed that the tumor of the hypophysis was an epithelioma with several prolongations into other parts of the skull and around the cavernous sinus. It was entirely unencapsulated, and could not have been removed by the route taken or any other. The author believes that it is not justifiable to operate by this route, because there is not room enough to reach the region of the sella turcica, and it is impossible to see and to tell what the operator is doing; it is surgery in the dark, and therefore unsurgical. There is also the danger of infection by way of the nasal fossæ which communicate with the wound. The author does not believe in the theory which makes acromegaly the result of increase of function of the pituitary gland. It is more likely to be from insufficient function of that gland in cases of tumors taking the place of the gland. The idea of removing a portion of an adenoma of the hypophysis to remedy an excess of function of the gland is based on small and fragile hypothetical considerations. It is experimentation upon the living. It is impossible to know the limits of the tumor.—*La Presse Médicale.*

Dystocia Due to the Cord.—Henri Bertier says that the umbilical cord can be the cause of delayed labor on account of its anatomical structure, by being too short or too long. A short cord may be so short as to constitute a true adhesion of the fetus to the placenta, in which case the two must be delivered together. A marginal insertion of the cord or of the placenta will cause dystocia. There may be adhesions of the cord to fetus or placenta. A short cord cannot be diagnosed before labor; often it is only discovered to exist after delivery. The patient complains of a fixed pain situated at the upper lateral portion of the uterus. The contractions are short and irregular. Labor is long, dilatation bad, and pain severe. When the placenta is separated hemorrhage is severe. Uterine inversion may even be produced by traction of the fetus on the cord. The cord may be ruptured during the descent of the fetus. Short cord favors the deflexion of the head and shoulder, or breach presentation. Another form of defect is constituted by the winding of the cord about the fetus. This may cause intrauterine amputations, or strangulation of the fetus. Forceps operations are often necessitated to deliver the child. The fetus will often compress the cord during its descent. Before labor loose loops of cord are most dangerous, but after labor has begun tight ones are most to be feared. Pressure on the vessels of the cord causes stasis of circulation or anemia of the bulbs and cerebral centers. A third complication is procidentia of the cord, resulting in pressure on it by the fetus. The most important etiological factors are narrowing of the pelvis and low insertion of the placenta. Pinard includes both under failure of accommodation of the labor by the pelvis. As to treatment, it seems to be of little use to try to replace the cord, since it is almost impossible to keep it up. A balloon may be used to keep it in place and to dilate at the same time. According to some, when the cord is irreducible, whatever the amount of disproportion between fetus and pelvis, a cesarean section should be done at once. When it is reducible, but the pelvis is contracted, a cesarean done early is to be preferred to a late symphyseotomy.—*Gazette des Hôpitaux.*

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THE INCREASED COST OF LIVING IN RELATION TO RACIAL DETERIORATION.

BESIDE the unfavorable influence which the present increased cost of living may be expected to exert upon the rates for sickness and death, as previously touched upon in these columns, its profound ultimate effect upon the future of the race and nation cannot be disregarded. It is quite true that, in the public mind at least, our chief purpose as physicians is to heal the sick. This, however, is quite far from being the case. More properly, our first duty is to prevent disease—then, when our efforts fail of completeness, to endeavor to remedy what was not prevented. More than this, our obligations in this respect extend, as physicians, to the generations yet unborn, and, as citizens, to the welfare of the Republic of the future. As medical men, we cannot salve an easy conscience with the cynical conclusion that, as posterity has done nothing for us, there is no reason why we should do anything for posterity. We must consider the living generations of to-day not only as individual patients but as the ancestors of to-morrow, whose present physical condition will be faithfully reflected in the physical standards of later generations of descendants. In this, we are simply applying to the human animal the common knowledge of stock raisers, who have learned through long experience the controlling influence which heredity, nutrition, and environment exert on size, strength, appearance, and character.

Nor are the precautionary measures, which the welfare of future American citizens demands, necessarily medical. On the contrary, they very largely relate to industrial and economic improvements, which are most surely and promptly secured when we temporarily lay aside the medicine case and scalpel and unite as a profession to lead the public at large toward betterment in the general welfare. To do this to best advantage, we must rise above the unduly narrow medical view which simply considers the bringing of relief to the ailing human unit. This latter is of course essential, but is frequently mere temporizing which does not reach and remove the original predisposing or controlling causes of disease, suffering, and defectiveness. In the dual capacity of physician and citizen, the overlapping domains of preventive medicine and sociology lie open to us, and there is almost no limit to the improvements which as a profession we can bring about if we once fully appreciate our dual responsibilities. The medical profession is recognized as being an unselfish element in the community which constantly works against its own advantage—hence politics and special interests are always as surely afraid openly to oppose the disinterested humanitarianism of the doctors as it is certain that the general public will ultimately rally to their successful support. And there can be no greater service which can be done for humanity and the future of the nation than in promoting such conditions for the present generation as will favor the transmission of strong bodies and sound minds to its posterity.

There can be no doubt that present economic and industrial conditions are tending to rapid deterioration of the race throughout the world. A young, vigorous, undeveloped nation ourselves, whose life blood is constantly freshened by a sturdy class of immigrants, such tendency is not yet as apparent with us as with the older nations, where greater congestion and fiercer competition are rapidly bringing about decadence. Yet if existing conditions in this country are to be allowed to prevail, such deterioration is undoubtedly inevitable for us, even if delayed, and it behooves us to look ahead and take preventive measures for the future accordingly. Nor does the situation admit of delay. Great Britain is to-day confronted by a not only numerically great but steadily increasing class of physical, mental, and moral defectives of her own producing, who have in turn created problems in sociology, criminology, and public health which threaten her very national existence. It is stated that the average British recruit for the Crimean War, when England contained a large class of well-fed sturdy yeomanry, was nearly three inches taller and nearly thirty pounds heavier than the average recruit for the Boer War, two generations later, when an undernourished, degenerate population, four out of five of which lived in cities, was found to have developed. And before the end of the latter war, in which only about 250,000 soldiers out of a population of some 35,000,000 were required, the recruiting officers had to accept as soldiers adult males only five feet tall, in spite of the fact that such undersized racial degenerates were fully recognized as lacking not only in physical strength but also in constitutional stamina and mental ballast. Statistics for the year 1906 show that the height of the average British infantry recruit for that year was 64½ inches, his weight was 123 lbs., and his chest measure was 33 inches. When we compare this stunted development with Sargent's actual averages for youthful American college students, of 68 inches height, 139 lbs. weight, and 36.3 inches chest measure, we can appreciate that the days of the sturdy English "beef eater" are gone, and that Kipling's reference to the "thin red line of 'eroes" has more applications than one. Even the German government, which requires thorough physical training in schools and gives great attention to the maintenance of a high standard of living in the industrial classes, finds a steadily decreasing percentage of German conscripts able to conform to army physical standards. Its investigations have

demonstrated the fact that the larger the town the greater the proportion of male inhabitants unfit for military service, and that this unfitness materially increases with the second generation.

On our part, we must not forget that in 1800 only 4 per cent. of American citizens lived in towns, while in 1900 the proportion of city dwellers was 30 per cent. Under the then more primitive conditions of life, at least an abundance of nourishment was within reach of all; but at the present time the cost of living has forced the large class whose wages have not proportionately advanced to give up the more expensive nutritious foods which they were formerly able to procure. Even organized labor, with its more generous wages, has largely joined the present meat boycott; and it is a sad commentary on existing conditions, which it will take more than political sophistry to explain, that a large part of the body politic must deprive itself of an essential article of nourishment in order to struggle more effectively against economic conditions rapidly becoming intolerable. If it cannot justly be claimed that a large part of the American population is as yet suffering from chronic malnutrition—as is the case with the British masses—still it can be safely asserted that our poorer classes are already practically on its verge. It can also be safely asserted that if present conditions are allowed to persist, the cost of living must continue to rise and the financial extremes of society became more and more widely separated. And as medical men we cannot afford to remain blind to all but the practice of medicine and surgery while remediable causes are allowed to create in this country a "submerged tenth," in whom want, misery, and insanitation will inevitably breed descendants degenerate from the physical, mental, and moral standpoints alike. No one appreciates like the physician how the incidence of disease and recovery therefrom are largely dependent on ability to secure the reasonable comforts of life. Our hospitals, asylums, and penal institutions are chiefly filled from the class of the impoverished, which by its very helplessness and degeneracy retaliates upon society at large for permitting conditions under which such human derelicts are largely produced.

To the medical profession as a whole, public opinion entrusts the welfare of the race, and through this welfare, the destiny of the nation, not only for the present but for the future. Let us not overlook the fact that many of its undoubted physical ills—causes of disease and death—find their origin in deep seated economic, industrial, and political conditions quite beyond the reach of drug or knife. Proper attention by us to such present conditions will have a profound effect in reducing the gravity of the problems which the physician, sociologist, and statesman of the future will be called upon to solve. The reasonable well-being of all classes of citizens is a matter of fundamental medical importance which cannot be eliminated from any consideration of the physical future of the race. Such general welfare is favored by conditions which bring the greatest good to the greatest number; not by those which pile up excessive wealth for the few and increase the difficulties of actual existence for the many. There is both truth and poetry in Goldsmith's lines:

"Ill fares the land, to hastening ills a prey,
Where wealth accumulates, and men decay."

HUMAN DERELICTS.

A CERTAIN amount of public interest, or at least of newspaper notoriety, has been aroused by a recent address delivered by Professor W. T. Porter of Harvard University upon the subject of public charities. Speaking from the point of view of the economist, Dr. Porter stated that for the greatest good to the greatest number the system of individual charity to the old and incompetent was to the detriment of the race and that those who are incurably ill or incapable of self support should be passed by in the distribution of alms and only to those for whom there is a reasonable hope of recovery should aid be given. To quote Dr. Porter's own words, as reported in the New York *Sun* for February 13, he said in part: "The most pressing problem is what we shall make of the present conditions. The first main problem we have to discover is in regard to the relieving of distress. It is evident that there is not enough money to go around. And it is equally desirable to spend money on a thing from which we get the most value. . . . It may seem cruel, but . . . we must concentrate our relief on the most hopeful side of our population and allow the rest to go the way of nature. . . . The whole question is one of economy. It is a mistaken idea to believe that everything depends on charity for the old and not on prevention for the young. Charity means that those who receive it give up hope. Charity is the gravest psychological factor in the life of the poor. It is an official stigma. Instead of organizations for charity there should be a citizens union for preventing charity. When a person gets to that point where he is physically unfit to live the most economical thing for a community is not to give him relief."

The carrying out of such Spartan principles may be, from the viewpoint of race culture, wholly desirable. The derelict hulk at sea is abandoned and the money which might be used in repairing its rotten frame is spent upon newer, stauncher vessels, and a more useful navy results. There are, however, certain serious objections to these theories propounded by Dr. Porter. In the first place, while the idea may represent the economic aspect of the question, it entirely omits the element of personal sympathy. While it is comparatively easy to lay down the rule from the office of an organized charitable institution or the lecture platform of a great university, that the old and decrepit shall be abandoned, the average human being on coming in contact with a suffering old man, in his palmier days possibly a most worthy man, but broken down by disease and hardship, can hardly be expected to moralize on the advantage of reserving the few pennies needed and devoting them to puericulture, and of allowing the present sufferer to starve. The first definition of the word "charity" given in Webster's Dictionary is "love," the second is "universal benevolence," and the third is "good will." As long

as humanity exists the idea of charity will be associated with that of love, and the personal love will ever outweigh the general impersonal economic charity which says that the survival of the fittest must be obtained by the abandonment of the unfit.

Overlooking, however, the element of personal sympathy and considering only that of the good of the race, it is questionable whether the abandonment of the diseased and helpless would achieve the results for which Dr. Porter apparently hopes. He refers in his address to the case of tuberculosis and says that for one case saved by institutional treatment five must be rejected because the hope of cure is too small to make their treatment economically worth while. He completely ignores the fact that each of these cases so neglected and allowed to roam at large is adding an extra danger to the community. The modern ideas on the prevention of tuberculosis are tending more and more to the principle of segregation of the helpless and the hopeless, and less to the care of the incipient. The ruthless abandonment of the chronically diseased would tend but to the spread of infection and the increase of misery. It were far better for the human race should fewer children grow to manhood, and these in surroundings free from disease than for a greater number of weaklings to be nurtured and bolstered past the early critical period of their life, only to grow to manhood associating freely with the contaminated and the diseased, neglected and at large. To return to the metaphor of the ship, the useless derelict, though it may not be worth repairing, if not sunk outright must be towed into some safe harbor, and not be abandoned to drift on the high seas an ever-present menace to navigation.

The Early Case.

Mr. John R. Early, and incidentally the general public, will begin to have a pretty poor opinion of medical diagnosis as an exact science if he is submitted to many more examinations. First he was declared a leper by the health officer of Washington and was imprisoned for the crime. After some time his case was brought to the notice of Dr. Bulkley of this city, who examined him and declared there were no signs of leprosy. With great difficulty the prisoner obtained his release and came to New York, where he was again pronounced free from all taint of the disease. In the mean time a piece of the man's skin was sent to Bergen and was there examined by Hansen, who found what he thought was a lepra bacillus, and on the strength of this find pronounced Early a leper. The War Department said he was not a leper and accordingly cut off his pension. He went to Washington to inquire about it and was arrested and again incarcerated on the charge of being a leper. After much trouble he was once more released and came to New York in a freight car, the railway officials fearing he might endanger the health of the syphilitics, the tuberculous, the carriers of typhoid and diphtheria bacilli, and other infection-spreaders in the Pullmans. Here he was presented to the Society of Medical Jurisprudence, and a committee was appointed to examine him again. This committee reported that he had an anesthetic spot on the leg and that an acid-fast bacillus was found in a piece of his skin, and so declared him a leper. The Society was becomingly and, in view of the fact that it is composed of lawyers and physicians, astonishingly modest and refused to pronounce on the matter, but simply accepted the report of the committee and discharged the latter. In the mean time five well-known neurologists examined the man and reported that they found no evidence in skin or nerves of anesthetic leprosy, and no one accuses him of having tubercular leprosy. And Dr. Bulkley remains steadfast in his opinion that Early is not a leper. With this opinion most onlookers who have not seen the man and who have only the testimony of the various examining committees and individuals to guide them will agree. The only evidence of a positive nature that has been given is that the man when first seen had a skin eruption, that an acid-fast bacillus has been seen in a section of his skin, and that there is a small patch of slight thermic and tactile hypesthesia on the leg just above the ankle. The eruption has entirely disappeared, the acid-fast bacillus might be one of half a dozen different microorganisms, and the hypesthetic area is no more than any one might have, and many healthy persons do have. There are no signs of tubercular leprosy, no thickening of the nerves, and no skin eruption now, although the man was declared a leper two years ago. The community punishes lepers more severely than it does most murderers, but murderers would not need to invoke a brain storm in their defence if no more convincing evidence were brought against them than has been brought against poor Early. He is a leper and not a leper. He is prevented from earning a living in peace because he is a leper, and his pension has been cut off because he is not a leper.

The Study of Pellagra.

It has been announced recently that a committee has been formed in London, the membership of which includes the Italian Ambassador, the Marquis of San Guilliano, Sir Thomas Clifford Allbutt, regius professor of physic in Cambridge University, and a number of prominent scientists and physicians, to promote the investigation and study of pellagra. The British Colonial Office has also contributed toward the carrying out of this project. It is proposed to send Dr. Sambon of the London School of Tropical Medicine, who has made a close study of the disease, together with a qualified staff, to a pellagrous area, to investigate the conditions and the various blood-sucking flies by which he thinks the disease is disseminated. Dr. Sambon holds the view that pellagra is protozoan in its origin, like sleeping sickness, and many skilful observers are said to be favorable to his opinions. It is only within the past year or so that the existence of pellagra on a wide scale has been recognized generally in this country. Now, however, it has been established clearly that pellagra is prevalent in certain parts of the United States and that the disease is increasing. Pellagra, or as the Spaniards first termed it, the disease of misery, is emphatically a disease of the very poor. For long, in Italy and in other lands in which the malady exists on a large scale, its origin and dissemination have been attributed to the ingestion of unripe, or mouldy, musty corn. On the face of it this theory has much in its favor. In Italy, in fact, in all lands in which pellagra is rife, the disease follows, or at any rate seems to follow, the ingestion of maize in bad condition. The Italian

authorities are so convinced of the validity of this view that in Italy the law makes pellagra a notifiable disease, prohibits the sale of bad maize, and makes compulsory on local authorities the construction of drying houses for maize. Furthermore, the carrying into effect of these regulations has decreased the prevalence of the disease. However, although many things seem to point to maize unfit for human food as the *fons et origo* of pellagra, it may, after all, be but a contributory cause. It is yet within the remembrance of the present generation that malaria was opined to be caused by ground exhalations, and it was a considerable time before its dissemination by the mosquito was generally conceded. Since then, however, the transmission of disease by insects has been shown to be remarkably frequent, and it would be rash at present to deny the possibility of such transmission in the case of pellagra.

The Treatment of Meningococcus Carriers.

As the result of recent investigations into the epidemiology of cerebrospinal meningitis the belief has steadily gained ground that one of the most important modes of transmission of the disease is by healthy meningococcus carriers. It has been demonstrated in many instances that the organism in a highly virulent state may be isolated from the nasal secretions of a considerable proportion of persons who have recently come in contact with sufferers from the disease. Various methods have been suggested to overcome the danger arising from the free intercourse of these infected individuals with their healthy and possibly susceptible fellows. Isolation of all those exposed has been suggested, but has not been very generally enforced; and the many efforts which have been made to kill the organism in the nose of the carriers have, up to the present, been of but small avail. In the *Deutsche medizinische Wochenschrift* for January 13, 1910, however, Hans Bethge reports an investigation which offers some hope that this intranasal disinfection may be accomplished. Last spring an epidemic of meningitis, involving nine children, occurred in an orphan asylum in Gelsenkirchen, and every inmate of the institute was examined for the presence of meningococci in the nose and nasopharynx. Of the 187 persons investigated 60 gave positive results. These were isolated and treated by various methods with the result that it was shown that a one-per cent. solution of hydrogen peroxide is a most efficient antiseptic for the meningococcus in the nose. The author believes that his success in killing the meningococcus with this drug, with which others have failed, depends upon the fact that previous to its application he irrigated the nostrils gently but thoroughly with a one-per cent. salt solution. This, by removing the large masses of mucus, under which the meningococcus might lie hidden and protected, enabled the peroxide to act upon the entire surface of the mucous membrane. In 60 per cent. of the carriers, one such treatment completely killed off all of the meningococci, and in the remaining 40 per cent. a few repetitions of the application brought about the desired results. If this work is confirmed, and it is proven that such a simple procedure renders the meningococcus carriers innocuous, it should be adopted as a routine measure in combating the spread of epidemic meningitis.

News of the Week.

Italian Antituberculosis Committee.—A committee has recently been formed in New York composed of the leading Italian citizens and under the chairmanship of Mr. Lloyd C. Griscom, former Ambassador to Italy, the function of which will be more effectually to carry the antituberculosis campaign to the inhabitants of the Italian quarters of the city. According to the statement published recently: "This committee plans to divide the Italian colony into districts, disseminate information concerning tuberculosis through circulars and pamphlets, and, through the distribution of the very attractive Venetian poster, notify the Italians in each district of the location of the nearest tuberculosis clinic. This committee expects to undertake a campaign for the better ventilation of the homes and workshops of the people; to furnish weekly press service to the Italian newspapers; to establish lectures, illustrated with stereopticon slides, before the Italian churches, clubs, and labor organizations; to hold tuberculosis exhibitions in the heart of the Italian colony; to pursue investigation into the peculiar needs of the Italian tuberculous poor; the establishment of special clinics, and the appointment of Italian physicians and nurses."

Leprosy Scare in Chicago.—During the last few weeks a rumor has prevailed in Chicago to the effect that leprosy was present in the city, and that it was introduced and spread by the medium of artificial hair imported from Oriental countries. Various attempts to trace the reports to their source have failed completely, nothing more definite than "hearsay" reports being obtainable.

Sales of Antitoxin to Be Reported.—An ordinance passed by the City Council of Chicago recently requires all persons, firms, or corporations to report to the Commissioner of Health within twenty-four hours any sale or gift of diphtheria antitoxin within the City of Chicago. The penalty for failure to comply with this ordinance is a fine of not less than five or more than fifty dollars for each offense.

The United States Pharmacopeial Convention.—The second call for the convention for the revision of the United States Pharmacopeia has been issued. The notification and credential blanks adopted by the Committee on Credentials and Arrangements have been mailed to all organizations and institutions supposed to be eligible to representation, in so far as they are known to the secretary. Notification of the appointment of delegates should be forwarded at once to the secretary, who will, upon application, furnish these blanks to any organization or institution entitled to them. By vote of the Board of Trustees three amendments to the constitution will be offered. The membership will be increased by admitting delegates appointed by "the Secretary of Agriculture, the Secretary of Commerce and Labor, the Association of Official Agricultural Chemists, the Association of State and National Food and Dairy Department, the National Wholesale Druggists' Association, and the National Dental Association." The number of delegates which each organization is entitled to send is to be reduced from three to one. The title of the "Committee of Revision" is to be changed to that of the General Committee of Revision. The following proposition to amend the by-laws will also be submitted:—To increase the number of members on the Committee of Revision, hereafter to be known as the "General Committee

of Revision," from twenty-five to fifty, said General Committee of Revision to create from its own membership an Executive Committee of Revision of fifteen members, to have immediate charge of the work of revision, and also giving to said General Committee of Revision certain advisory and supervisory powers over the work of the Executive Committee of Revision.

Smallpox in Lima, Ohio.—The State Board of Health Examiner of Ohio, who has recently visited Lima to inspect the smallpox situation in that city, has reported the existence of 200 cases, 15 of them serious.

The State Board of Health of Oklahoma has recently opened an office in Oklahoma City, having moved to that city from Shawnee.

Amalgamation of Medical Societies in Milwaukee Planned.—An amalgamation of the Milwaukee Medical Society and the Milwaukee County Medical Association may be effected within a short time. At a meeting of committees representing the two organizations Monday night, it was decided that the library owned by the Milwaukee Medical Society shall become the joint property of both organizations.

Mt. Sinai Dinner.—The Annual Dinner of the Associated Alumni of Mt. Sinai Hospital will be held at the Hotel Knickerbocker, on February 26, 1910. On this occasion the Association will commemorate the fiftieth anniversary of Dr. Abraham Jacobi's connection with the hospital.

Dr. E. P. Busse has been appointed superintendent of the new Southeastern Hospital for the Insane being built at Madison, Ind.

Charitable Bequest.—By the will of the late Belden R. McAlpine of New York the New York Society for the Relief of the Ruptured and Crippled is made one of the residuary legatees. It is believed that the society's share of the estate will amount to about $50,000.

Colleges Asked to Teach Optometry.—Optometrists have asked Columbia and New York Universities to establish departments in which young men may study the science of testing eyes for errors of vision and prescribing and fitting eye glasses. The men in the movement say that although an optometry law has been in effect in the State for two years, New York City has no school in which candidates can qualify to take the examinations given under the law's provisions.

Dentistry for Schools.—Senator T. J. McManus has introduced a bill into the State Senate at Albany to amend the charter of New York City by requiring the Board of Health to establish and maintain dental stations for children up to the age of fourteen years, attending any school in the city, who are unable to pay for treatment. He says the bill is introduced as a result of the complaint of doctors in New York who declare that on account of neglected teeth there are many cases of illness among the school children.

The German Society for Surgery.—The thirty-ninth congress of this association will be held in Berlin beginning Wednesday morning, March 30, 1910, and lasting until Saturday, April 2, 1910 in the Langenbeckhaus. Ziegelstrasse 10-11, under the chairmanship of Professor S. Bier. Membership cards and information may be obtained from Herr Melzer, Langenbeckhaus, Berlin.

The Harvey Society.—The sixth lecture of the Harvey Society will be delivered by Dr. Eugene L. Opie of the Rockefeller Institute for Medical Research, on Saturday, February 19, 1910, at 8.30 P. M., at the Academy of Medicine, 17 West 43d street, New York. Subject: "Inflammation." All physicians and other interested persons are cordially invited.

The New Jersey State Pediatric Society was organized in Newark on February 3, with thirty-four charter members. The following officers were elected: *President,* Dr. Henry L. Coit of Newark; *Vice-President,* Dr. Alexander McAllister of Camden; *Treasurer,* Dr. B. Van D. Hedges of Plainfield; *Secretary,* Dr. Martin J. Synnott of Montclair; *Councillors,* Dr. J. Findley Bell of Englewood, Dr. T. N. Gray of East Orange, Dr. B. P. Craig of Jersey City, Dr. Emery Marvel of Atlantic City, and Dr. F. H. Glazebrook of Morristown. The new society is the outcome of an idea formulated several years ago by Dr. Coit, and now successfully inaugurated through the efforts of several of his enthusiastic co-workers. The objects of the society as outlined in the constitution are: (1) To unite the physicians of the State, who are qualified, for the scientific study of the diseaseses of infancy and childhood. (2) To promote by its concerted efforts scientific medical research in the department of pediatrics. (3) To foster a greater interest in pediatrics among general practitioners. (4) To study the problems of infant mortality and to popularize a knowledge of infant hygiene and of the means for the protection of child life. The annual meeting will be held in Atlantic City on the day preceding the convention of the Medical Society of New Jersey, when only members will attend, to hear and discuss instructive and scientific papers and to transact the routine business of the society. But in order that the society may fulfill its obligation to the profession and indirectly to the public in the interest of the child a series of meetings will be organized in four different parts of the State throughout the year, when papers, designed to instruct the general practitioner in the principles and practice of scientific medicine among children, will be read and discussed. These papers will be presented by well-known authorities on pediatric teaching from the large cities of the United States.

The Rochester Academy of Medicine has elected the following officers for 1910: *President,* Dr. Richard M. Moore; *Vice-Presidents,* Dr. Edward A. French, Dr. Willis E. Bowen, Dr. W. D. Ward, Dr. Albert C. Snell; *Secretary,* Dr. William M. Brown, 666 East avenue; *Treasurer,* Dr. Wesley T. Mulligan.

The New York State Homeopathic Medical Society, meeting in Albany on February 9, 1910, elected the following officers: *President,* Dr. William H. Hodge of Niagara Falls; *Vice-Presidents,* Dr. H. G. Keith of Yonkers, Dr. A. R. Grant of Utica, Dr. Jennie V. H. Baker of Brooklyn; *Secretary,* Dr. Bert S. Clark of New York; *Treasurer,* Dr. Reeve B. Howland of Elmira; *Necrologist,* Dr. John L. Moffat of Brooklyn; *Counsel,* Edwin Van Wormer, Esq., of Albany; *Censors,* Drs. O. S. Ritch of Brooklyn, W. J. McKown of Albany, A. H. Rogers of Corning, and H. J. Ball of Cortland.

The Anderson County (Tex.) Medical Society meeting at Palestine, January 28, 1910, elected the following officers: *President,* Dr. William H. Gohlman; *Secretary,* Dr. E. L. Converse.

Obituary Notes.—Dr. FOLLEN CABOT of New York City died at the Mount Sinai Hospital on

February 13, 1910, at the age of 40 years. Dr. Cabot was a graduate of the Harvard Medical School in 1894. He was visiting genitourinary surgeon to the City and Post Graduate hospitals, consulting surgeon to the White Plains Hospital, and assistant surgeon to the Seventh Regiment, N. G. S. N. Y. Dr. Cabot was a member of the American Urological Association, the New York Academy of Medicine, the Medical Society of the County of New York, the Medical Society of the State of New York, and various special societies.

Dr. William T. English of Pittsburg, Pa., died in the Passavant Hospital on February 8, 1910, aged 61 years. He was a graduate of the Jefferson Medical College in 1871. He was a member of the Allegany County Medical Society, the Medical Society of the State of Pennsylvania, and the American Medical Association. He was a member of the Faculty of the Medical Department of the University of Pittsburg.

Dr. George E. Brickett of Augusta, Maine, died January 28, 1910, aged 85 years. He was a graduate of Dartmouth Medical School in 1846. Dr. Brickett was a surgeon during the Civil War and late attending surgeon to the Kennebec Arsenal. He also served one term in the State Legislature in 1868. He was president of the Kennebec County Medical Society in 1870 and of the Maine Medical Association in 1883.

Dr. William E. Mattingly of Lebanon, Ky., died suddenly at his home on February 1, 1910, aged 66 years. He was a graduate of the Medical Department of the University of Louisville in 1869. He was a member of the Marion County Medical Society, the Kentucky State Medical Association, and the American Medical Association.

Dr. E. J. Morgan of Bainbridge, Ga., died at his home recently. He was a graduate of the Jefferson Medical College in 1865.

Dr. George Griswold Hayward of Boston, Mass., and North East Harbor, Maine, died in Boston recently. He was a graduate of the Harvard Medical School in 1881, after which he was on the staff of the Massachusetts General Hospital. He was a member of the Suffolk County Medical Society and the Massachusetts Medical Society.

Dr. Dennis F. Keefe of Providence, R. I., died at his home on February 1, 1910, aged 43 years. He was a graduate of the New York University Medical College.

Correspondence.

THE UNINSTRUCTED VICTIMS OF TUBERCULOSIS.

To the Editor of the Medical Record:

Sir:—One would think it unnecessary at the present day to call the attention of medical men to some of the most elementary principles in the treatment of tuberculosis, yet the every-day experiences of physicians in health resorts tend to show that it is in these very elementary principles that a large number of practitioners are either reprehensibly careless or inexcusably ignorant.

In the first place, I want to make the assertion, by way of prefacing what comes after, that climate alone never yet did and never will cure tuberculosis. We cannot cure consumption. We can, however, assist Nature in her effort to do this, and the physician at this time seeks to put his patient in the best possible condition to resist and finally overcome the disease which is sapping his vitality. To do this he has two main indications in view: First, to conserve his patient's vitality, and second, to build up his powers of resistance. To accomplish the first he insists upon rest, while the second indication he attempts to meet by forced feeding and abundant fresh air. These rules, I believe, are almost universally accepted among the most casual students of consumption; and yet, in spite of this, we see daily upon the streets of a resort town, tuberculous patients rushing around like a lot of Marathon racers, utterly ignorant that they are doing anything wrong. Recently I had two illustrative cases.

The first patient, running a temperature of from 100° to 103° F., had been conscientiously dragged around town day after day for six weeks by his devoted wife, under the impression that she was doing the very best thing in the world for her husband; and it was only when utter exhaustion rendered these walks entirely unendurable that he consulted me. Examination at that time showed extensive involvement of both lungs, and a temperature of 102° F. Questioning revealed that he was the patient of a New York physician of good standing, who had told him to come down here and keep out of doors, and the climate would do the rest. The second case was similar, though more hopeful. This patient also hailed from New York, and likewise was the patient of a New York doctor. He had received some vague orders about keeping in the fresh air and drinking milk, and as the readiest way of accomplishing this was taking daily walks of from four to five miles. Examination revealed a small cavity in the right apex. Both of these patients had been told that the care of a local physician was superfluous. These are not isolated cases, on the contrary they represent a class. The patients rush around the country in hordes, with the most vague and misleading ideas of their condition and the proper mode of living. They have been told that fresh air is good, consequently they walk their legs off in trying to find it. This walk lasts from a half hour to two hours according to the strength and energy of the patient, after which, conscious of an unpleasant duty well done, he will sit by a stove in a hot close room all day, and at night, still pursuing the fresh air theory, he will daringly lower the window farthest from his bed a fraction of an inch.

For the local physician he has supreme contempt, for his home doctor has warned him against the probability of this rural practitioner loading him down with cod-liver oil and cough syrups; consequently, when, as a last resort he calls one in, he regards with suspicion his directions, and carries them out in a half-hearted way, if at all. If, however, his own doctor had impressed these same directions upon him and advised him to consult a local physician from time to time, it would have materially strengthened the confidence of the patient and greatly facilitated the local doctor's treatment.

Please remember that in prescribing fresh air, eggs, milk, or what not, you are doing this in lieu of the use of drugs, and just as you would not for a moment think of telling a patient to take "some strychnine," "some morphine," or "some digitalis," for pity's sake cut loose from generalities and be specific, when you are sending any of these poor sufferers away from home among strangers, and tell them just how many eggs, how much milk, how much air, and how little exercise they need. If you have not time to do this verbally, keep printed slips with full directions, and hand these out to your consumptive patients when you send them away. Otherwise you are doing a great injustice to yourself, your patient, and the resort doctor into whose hands they ultimately fall, at a time when, perhaps, his treatment will be of little avail.

F. Julian Carroll, M.D.

Summerville, S. C.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

MEDICAL MEMBERS OF PARLIAMENT—OFFICERS OF HEALTH ON THE POOR LAWS COMMISSION—THYROID AND ANTITHYROID PREPARATIONS—PANCREATIC REACTION—BACTERIA AND DIGESTION—X-RAY VICTIM—SURGICAL CONVALESCENT HOME—LIBEL BY MEDICAL ASSOCIATION—TROPICAL MEDICINE—OBITUARY.

London, January 28, 1910.

The general election is not yet over and has preoccupied everyone all the week. Among the doctors who have obtained a seat in the new Parliament are Sir W. Collins, Sir W. Foster, Sir G. H. Pollard, Sir R. J. Price, Sir G. S. Robertson, and Drs. Addison, Dixon, Hillier, Chapple, Rainy, Dillon, Lynch, and O'Neill.

You will see we shall secure the average strength of the profession in the House. Five of the above are new to Parliamentary life. The others had seats in the last House and have been reelected.

Since the issue of a majority and a minority report by the Royal Commission on the Poor Laws we have had a fairly continuous series of debates on the subject from which it may be hoped great benefits will eventually accrue. There are people who are enthusiastically for the conclusions of one or other report, others who try to reconcile their differences, and others again who endeavor to master the whole subject. Among those practically as well as theoretically interested the Medical Officers of Health are naturally affected, and their society has already given two or three meetings to the consideration of the problems involved. At one of them Dr. Greenwood laid before the society the view which he thought was generally entertained by the Poor Law doctors themselves. At another the minority report was more carefully examined, especially concerning the proposal to put an end to the overlapping which unfortunately exists between the Poor Law and the Public Health services. The unification of these two services would provide an independent organization which some thought should be under a new public health department and others would leave to the supervision of a reformed Poor Law authority. The minority report would commit the unified service to the health committees of the county and borough councils, with salaried medical officers devoting their whole time to the work, and would include clinicians as well as sanitarians, and such other officers as might be required to provide efficient domiciliary inspection, advice, and treatment, all under a central public health department in London. Doubts were expressed as to whether the Medical Officers of Health could really do more than they had done, and especially if they would be able even to supervise clinical work. If school clinics were to be promoted, could the men doing the work in them be subordinate to the Health Officer? Other doubts suggested concerned rather the capacity of County Councils to take over more work and the formation of a committee analagous to that on education was proposed as more suitable. On the other hand it was maintained that the Poor Law service had not been treated in a reasonable way but crippled in every possible manner by the central authority and this was the only reason that the Public Health service had advanced more rapidly and gained more consideration. It was remarked, too, that many cases of illness were not thought much of by the patients, though as regards the State they were of great import. Such persons neglected medical aid, which they objected to pay for, and that was a reason why treatment must be compulsory if it were to be of any use from the public point of view. If this be admitted, the conclusion would be that to prevent the spread of such diseases inspection and early treatment are desirable so far as the public is concerned.

The effects of thyroid and antithyroid preparations on rats were the subject of a communication to the Royal Society of Medicine (Pathological Section) by Mr. W. Edmunds, who related ten experiments. Four controls remained healthy. One thyroid preparation produced severe illness or death within twenty days in two of the rats; another preparation in eighteen or nineteen days. An antithyroid preparation had no effect in thirty-nine days. A mixture of thyroid and antithyroid was as fatal as thyroid. Post mortem: The suprarenals were enlarged and dark in color, as compared with the controls. The microscope showed that they were engorged with blood and contained hemorrhages. There was no change in the thyroids or other organs. The conclusion suggested was that thyroid feeding in full doses (10 grains three times a day had been given with the food in the experiments) causes congestion and hemorrhage into the suprarenals, which is not prevented by equal doses of antithyroid.

In the same section on the 18th inst. some experiments were described by Drs. P. J. Cammidge and H. C. G. Semon as to the pancreatic reaction. They reported that chronic pancreatitis caused by an ascending infection from the duodenum gave rise to the characteristic reaction in the urine, but on extirpation of the pancreas after three weeks the reaction disappeared. Yet simple extirpation did not produce the urinary reaction. This seemed to indicate that the disturbed metabolism, caused by interference with the functions of the gland, was not the cause of the reaction. They suggested that some substance set free in the tissues of the gland gave rise to the pancreatic crystals which had the characteristics of a pentosazone.

Sir E. Ray Lankester, in his presidential address at the Royal Microscopical Society, referred to the relation of bacteria to digestion, as to which he said science was only at the starting point of an obscure problem which he recommended for investigation as likely to yield valuable results. The lactic ferment checked the life and activity of putrefactive bacteria which produced poisons that were absorbed. So the use of lactic acid seemed important, but the problem presented was what business these parasites had in the alimentary canal at all. There were fifty or sixty species of them and it was remarkable that they were tolerated. So some had suggested they were beneficial and experiments were made to determine whether vertbrates could do without them. Chickens totally deprived of them had drooped and died. When a fresh supply was given to those drooping they picked up again. On the other hand, some grubs of blowflies did very well on sterilized meat, but the majority preferred it in a state of putrefaction. It seemed too difficult to insure sterilization for young mammals, but the general result of investigation in the case of bats indicated the possibility for highly developed adults to carry on their digestion without bacterial assistance.

Sir William Treloar has opened a subscription on behalf of a "victim to science," *i.e.* to *x*-rays, in the person of Mr. Cox, a coworker with Dr. Hall-Edwards, who lost both hands but has recovered to a great extent and can practice his profession partially. Mr. Cox, however, is a more lamentable case. He has lost his right arm, his left hand middle finger, the whole hand being withered. Still worse, he has contracted rodent ulcer and a cancerous condition of his face, chin, and jaw. A truly pathetic result, this, of his devotion to *x*-ray investigation in the early period. It is said that the improvements he effected have gone far to render *x*-ray workers safer from such terrible consequences. It is also said that he worked day and night during the South African war to secure the military surgeons the most perfect apparatus. Six years of suffering, which repeated operations have done little to relieve, have reduced him to a condition in which no hope remains to encourage him.

The Home of Recovery for Surgical Convalescents projected by Miss Fraser-Tytler and Mrs. G. F. Watts, for which over £30,000 had been raised, is rendered possible by the munificent gift of £100,000 from Mr Ernest F. Schiff in memory of his brother, and presented through Mr. Mayo Robson. The Schiff Home is for surgical patients discharged from the general hospitals who are not well enough to discharge their ordinary duties, but not requiring such active surgical treatment as to occupy beds needed for more urgent cases.

A jury awarded on Monday £750 damages against the British Medical Association for libel on Major G. T. Rawnsley of the R. A. M. C., contained in comments made in the *Journal* on a lawsuit of the Major's. A note was subsequently inserted to the effect that they did not desire to cast any reflections on the Major, but he did not consider that a sufficient apology and brought an action, with the result stated.

Sir John Craggs gives a prize of £50 annually to the student, past or present, of the London Tropical School of Medicine, who has made the most valuable contribution to the subject during the year. This year the prize is awarded to Dr. J. A. Turner, of Johannesburg, for "an account of some Helminthes occurring among the South African natives."

The chairmanship of the Liverpool Tropical School has been accepted by Mr. W. H. Lever in succession to the late Sir Alfred Jones.

The death occurred of Mr. W. W. Wagstaffe, late of St. Thomas's Hospital, at the age of 67. He took B.A. Lond. in 1861 and M.B. 1867. He was elected on the surgical staff of the hospital and became also lecturer on anatomy. He retired from practice some years ago. He was joint editor of Le Gros Clark's "Outlines," Helberg's "Atlas," and editor of Mayne's "Medical Vocabulary." His own "Human Osteology" appeared in 1875. He contributed freely to the *Journal of Anatomy and Physiology* and also to St. Thomas's Hospital Reports for several years.

Dr. Stanley B. Atkinson, J. P., died on the 18th at the early age of 36. His career had been most brilliant He graduated in arts and law at Cambridge, in medicine at London. He was also a barrister-at-law, was secretary of the Medico-Legal Society, and held other of-

fices. He wrote "Golden Rules of Medical Evidence," the "Office of Midwife," and the "Law of General Practice," and contributed to both medical and legal societies and journals. He took a very active part in the election, which was probably too much strain for a weak heart.

Department Surgeon-General Robert Rouse, I.M.S., retired, died on the 20th inst., aged 77.

Dr. Page-May, M.D., D.Sc. Lond., F.R.C.P., etc., died suddenly on the 19th, aged 46. He had given up practice to devote himself to the chair of neurology and researches therein at University College (an unpaid post). Four years ago he described the fibers now named May's tract. He had spent several winters in Egypt, returning to London each summer.

Dr. Septimus J. Lee, who died on the 10th inst., was resident medical officer to the Epilepsy Hospital, Maida Vale. He only qualified last year at the two London colleges and has thus soon died of acute tuberculosis.

Progress of Medical Science.

Boston Medical and Surgical Journal, February 3, 1910.

A Case of Wonderful Vitality.—L. M. Palmer reports the case of a powerful man who lived thirty minutes after being knocked by a locomotive, two wheels of which passed over his body. The intestines were scattered over the track and surrounding dirt. There was only a little blood to be seen. He was given a grain of morphine, it being expected that each moment would be his last. The man complained only of his legs, said there was something on them that was hurting him and begged to have it removed. He was placed beside the track and in a few minutes died. Careful examination of the body after death showed the liver, kidneys and intestines one mangled mass of tissues. The spinal column was entirely crushed: also the aorta and its branches. The right hip was crushed and the right testis torn from its scrotum. The chest was not injured nor opened, nor was the head bruised. Up to within five minutes of his death he had a fair pulse and a normal respiration, and not as much shock as the reporter has frequently seen after a far less severe injury.

Unsuspected Diabetes, a Cause of Rapidly Fatal Coma.—W. W. Miner reports the case of a stout woman, a domestic who, while washing, suddenly complained of not feeling well, went upstairs, and became unconscious. In three and a half hours she died in coma. There was no paralysis or stertorous breathing, the pulse was not rapid, the respiration was comparatively free, there was no twitching, spasmodic movement, nor convulsive attacks. Edema was absent. She had been supposed to be in perfect health before the fatal attack. There had been no urinary symptoms and no edema. Bowels were regular and there had been no nausea, though she had had considerable gas in her stomach. She was not subject to fainting attacks, had had no pain around her heart, headaches nor disturbed vision, though her sight was not very clear. Soon after her death the author obtained by catheter a few ounces of urine. This was of ordinary color and fairly clear. Subjected to the usual Fehling test it gave a heavy precipitate of the yellow sub-oxide of copper, but was apparently without a precipitate of albumin. The reporter, therefore, came to the conclusion that her death was probably due to diabetic coma and gave a certificate to that effect. The paper closes with a series of extracts from modern textbooks on diabetes in general and coma from it in particular.

Clinical Significance of Curds in Infant Feces.—This subject is considered by F. B. Talbot, who says that large, tough curds are usualy solid. When placed in cold water and shaken up they quickly sink to the bottom of the vessel and can thus be easily separated from the surrounding mass. They are composed of casein, which on coagulating entangles the milk fat in its meshes. If the milk contains 4 per cent. of fat, the curds will contain it in large amount, while if the milk is skimmed the amount of fat will be very small. These curds pass through the intestine practically unchanged and are digested only on their surface. Most of the fat is unchanged neutral fat, while a very small amount is split up into fatty acids and soap. These curds always contain a high percentage of nitrogen. Small, soft curds appear as white flakes or pin-head elevations. Both forms may appear in the same stool. If shaken out in cold water they appear suspended in it. Most of them are in the form of fatty acids and soap and contain very little protein. If there is doubt whether the curds are fat or casein, they may be placed in 10 per cent. formalin and allowed to stand from four to six hours. The casein will by this time be very hard and the fat curd soft. The fact that there are two kinds of curds makes their differentiation of importance. One kind indicates that the fat is not entirely utilized, and the other that the casein is not completely digested. This difference accounts for many of the difficulties of infant feeding and solves many of the perplexities in prescribing food for dyspeptic babies. If a baby shows signs of indigestion, does not gain in weight, and is passing stools which contain tough curds, casein is at fault and should be replaced by some other food, and if another baby shows signs of indigestion, stops gaining weight, and passes many soft curds in the stool, fat is at fault and its amount in the food should be diminished. Whenever either of these foods is diminished, one or both of the others should be increased so that the caloric needs of the child will be supplied. Symptoms of indigestion disappear when this is done and the infant begins to gain in weight. These general principles do not, however, apply to all babies because sometimes an excess of one food complement will so change the digestion that another complement will also appear in the stools. Tough curds may also appear in the stools of infants who are gaining and happy and show no other signs of indigestion. In such instances it is not necessary to diminish the amount of casein in the food. The indication is not to increase the amount of casein beyond the physiological limit. Tough curds are never seen in the stools of breast-fed infants.

New York Medical Journal, February 5, 1910.

Further Contribution to the Study of Vasomotor and Trophic Disturbances in Hysteria.—A. Gordon refers to the recent views of Babinski, who recently advanced the opinion that the anesthesias and analgesias observed in hysteria are exclusively the result of suggestion induced by the physician during examination. The author believes that Babinski is wrong, and to support his own position relates the history of a young woman who underwent a severe nervous shock, succeeded by others, and who developed the usual sensory symptoms. Their onset, evolution, and character were all typical. Unusual vasomotor symptoms were present. The erythema which developed caused the patient's earnest request for relief therefrom, as it interfered with the work. The sudden onset of redness and itching of the nose after mental shocks and the other factors in the case go to show that the vasomotor and other disturbances of this case were genuine and not evoked in any way by the examining physician. When, according to Babinski, the patient is told that her skin is touched, and not asked any questions, the results will be different from those of the same procedure in which questions are asked. The latter method is advised by Babinski as the correct one. The author, however, has always tried this method in this test and yet believes in the genuineness of hysterical anesthesias and analgesias. The foreign author also denies the existence of trophic and vasomotor disorders of hysterical nature, and all published observations he regards as misrepresented by the judgment of the examiner or as simulated by the patient. Injuries, erosions, or other disturbances of skin or mucous membranes are the result of self-mutilation, so to speak, as hysterical individuals are prone to deceive or commit other abnormal acts.

The Ounce of Prevention.—S. W. Newmayer refers to the study of late years in regard to the health of children, and also to the recent efforts put forth in a municipal sense to rouse adults to the necessity of taking heed to sanitary methods. He calls attention to the imperfections of the present school books, which teach of physiology and sanitary matters in general. Too much space is given to the effect of narcotics. In some States one-quarter of the book must be given up by law to these topics. Too much space is also given to the purely anatomical division of the subject. Almost as much is included in some textbooks for children as is included in the curriculum of the first year medical student. Such books fail in the ordinary school room. Hygiene can be made effective and interesting with little reference to other branches. Anatomy cannot be made palatable. The entrance requirements for admission to a first-class medical school require neither knowledge nor previous study of anatomy or physiology. These branches are not on the lists of branches required for entrance examinations, but physiology and hygiene are among the elective branches, and together on examination total one point out of a total of thirty points required for admission. The first year of a four or five years' medical course requires the studying of the bones and muscles and the peripheral nerves and vessels; in physiology, general biology, and possibly digestion and circulation. Hygiene

is practically completed the first year. The comparison may seem ridiculous, nevertheless compare these subjects with the requirements of the elementary schools—children between the ages of six and fourteen years. The author does not mean to infer that we are overtaxing their delicate brains, for it never enters, and the little that does is memorized and leaves as fast as it is acquired. The available time for these studies is little, so it should be consumed entirely in purely practical problems of hygiene. Out of a total available 1,500 minutes school time each week, there is alloted 75 minutes to physiology, which includes anatomy and hygiene. In the first four grades there is taken part of the 200 minutes alloted to language.

Enuresis.—This is a general paper by F. L. Wachenheim. After a full enumeration of predisposing and exciting causes, he takes up the question of treatment. As a rule the onset of puberty witnesses a relief of many cases. No drugs have seemed to be of any permanent benefit except belladonna, hyoscyamus, and allied mydriatics. The author condemns perineal vesication, cantharides, cautery to the neck of the bladder, etc. If the latter ever does any good it must be by suggestion. Opinion differs among authorities as to the value of faradization and massage. The danger of starting masturbation in this way must not be forgotten. Epidural injections of normal salt solutions is a dangerous remedy for such a harmless disease. Certain psychotherapeutic measures have resulted in success. In one the child is compelled to urinate at regular hours day and night. The usual methods of cutting off all fluids during the late afternoon and evening are suggested. This, however, is merely palliative and auxiliary. Teachers should be informed of this peculiarity on the part of their charges, who should be dismissed at regular intervals. Raising the foot of the bed is probably useless, for the tissues at the neck of the bladder are not the ones at fault. The affection is best regarded as a nervous tic, and treated by the general measures usually applicable to this class of affections. Suspension of the incontinence of even twenty-four hours is an encouraging sign; it may mark a complete cessation or be followed by recurrence; the latter may come on after a cessation of many days. It is therefore wise to continue the training for a considerable time, at least two months, after the incontinence has ceased; the nocturnal rousings may be omitted after about a month, but the strict observance of the diurnal intervals should be continued at least a month longer. After all is said, the main essentials in the treatment of enuresis are patience and persistence on the part of all persons interested; very few cases will be found to hold out against this combination.

Journal of the American Medical Association, Feb. 5, 1910.

Infantile Bacillary Dysentery.—W. P. Lucas, J. G. Fitzgerald, and E. H. Schorer have studied the serodiagnosis of infantile infectious dysentery. The first two testing the agglutination and fixation reactions in both the Flexner and Shiga varieties of the disease, and the last named giving attention to the forms of bacilli obtained in relation to the clinical aspects of the individual cases. The value of the agglutination reaction, which has been generally employed by investigators, would seem by common consent to be not very great on account of its delayed appearance and relative infrequency. The authors think, however, that the methods have not been so uniform as desirable and the susceptibility of the organism employed as a reagent and its relation to the bacillary type causing the infection should be considered. The reaction of fixation has been employed with success in diagnosis of adult dysentery by Dopter. His observations that both mannit-fermenting and mannit-non-fermenting strains gave this reaction have led some to consider it less specific than the other, but Haendel has shown that this idea is erroneous and that in properly chosen minimal doses only the individual strain causing the infection or immunity would cause fixation. The conglutination reaction has been hitherto of interest in the more theoretical studies of immunity. In 1906 Bordet and Gay described a thermostabile (56 C.) "colloidal" substance in bovine serum which has the property of producing a characteristic clumping and increased dissolution of red blood cells that have been treated with both a sensitizer (heated hemolytic serum) and an alexin. A probably analogous substance was described about the same time by Manwaring. Streng has suggested the possible employment of this reaction for the diagnosis of infections of bacterial origin. The authors describe their method of experimenting both with serum diagnosis and with bacteriologic study in detail and tabulate their result. An analysis of these tables is given. There were 45 cases studied, in 38 of which the bacillus of dysentery was found either of the Flexner or the Shiga type. Comparing the results with the two types they find: "As regards the Flexner strain of bacilli: 1. Agglutination occurs rarely in negative cases (6.6 per cent.), and frequently in cases of dysentery (53.5 per cent.). Fixation occurs not infrequently in negative cases (28.5 per cent.), but more frequently in positive cases. Conglutination does not occur in the negative cases, but occurs in 63.1 per cent. of the positive cases. 2. As regards the Shiga strain of bacilli: Positive reactions do not occur in negative cases. In the positive cases agglutinations were present in 24.4 per cent., fixations in 45.2 per cent., and conglutinations in 21.6 per cent." It is evident that the conglutination reaction is superior to the other two tests in the diagnosis of dysentery infection and as the relatively better indicator of the bacillary type. It is not to be confused with agglutination. This is evident by the appearance of the tube (clear with flecks on the sides) and other facts shown in the tables. Reactions with the Flexner strain are much more frequent than with the Shiga strain, partly, the authors think, because of a greater agglutinability. No positive conglutination reaction was obtained in control cases. Conglutination was obtained in 50 per cent. of the cases with the Flexner organism.

Corn and Pellagra.—D. R. Silver says that, respecting pellagra, two statements can be made rather confidently: 1. Where corn is not eaten, pellagra does not exist. 2. The eating of good corn or cornmeal will not produce pellagra. The latter proposition, he says, is self-evident; otherwise the whole West would suffer from the disease, whereas it is more prevalent in the Southern and Atlantic border States. The only wonder is that it did not appear or be recognized sooner. It is evident that the poorer people of the South and Atlantic border States furnish the greater number of victims. Well-to-do people may get damaged cornmeal when it is kept in stock, but to a very much less extent. It is sent to the South and South Atlantic border of our country with the purpose of finding a market which it cannot obtain in the North or in regions where it is generally grown. He reproduces a letter from Mr. Thomas C. Marshall, ex-president of the Ohio Grain Dealers' Association, which contains some interesting statements. It says that much grain reaches the market heated and is sent to driers and much of it gets to the mills, though in bad condition. These driers are situated at the terminal stations—Philadelphia, Baltimore, Buffalo, Cleveland, and Columbus, Ohio—and the South and East is an excellent market for their products. Much of it is also exported. The millers make their profit by mixing it with good corn and will probably continue to do so until restrained by law. Those to whom cost is of more importance than quality are the consumers, and they pay the penalty. Silver says whether the inferences in this letter are correct or not, the facts can easily be made known by the Public Health and Marine Hospital Service, and if the charges are sustained steps should be taken immediately to stop the traffic in spoiled corn. He says also that it is worthy of thought whether the policy of purchasing supplies for public institutions by the method of competitive bidding is not fraught with great danger. Purchasing in the open market as need requires would be much safer. It is possible that to the policy of competitive bidding may be traced the prevalence of pellagra in some asylums and schools. At a Baptist orphanage at Nashville, Tenn., there were seventeen cases, and the physician in charge says that there was every evidence that the disease was contracted in the institution.

Primary Sarcoma of the Spleen.—Camillus Bush reports a case in a man of 48. Splenectomy was performed, but the patient died with metastases six months after the operation. The growth appeared to be possibly due to an injury received some three years before the appearance of the symptoms. The growth was rapid and painful, and led to a rupture of the spleen. The removal of the spleen was followed by anemia of rather a severe type, but no lymphocytosis. There was also enlargement of the liver, reaching its maximum five weeks after operation and gradually subsiding under treatment with *x*-ray and Coley's fluid. There were finally recurrence of the growth and metastases causing death. A special feature was the occurrence of extreme cyanosis after rupture of the spleen. The significance of this is not explained.

Laryngeal Diphtheria.—C. H. Shutt thinks that non-instrumental methods are worthy of more frequent trial, at least in hospital practice, in cases of laryngeal diphtheria with only slowly increasing dyspnea, only moderate exhaustion, and slight cyanosis. The local measures consist chiefly in inhalations, securing of favorable surroundings and perhaps the induction of vomiting to aid in removing loosened membranes. General medical treatment consisting of antitoxin and stimulation as needed, cathartics,

diuretics, etc., should be employed as in pharyngeal diphtheria. Antitoxin should be employed in all cases and as early as possible, and he prefers moderate sized doses repeated every four to six hours as more effective and less depressing than massive ones. When the patient is very weak, toxic, or much cyanosed, surgical or mechanical measures are indicated and the choice is between intubation and tracheotomy. The author's conclusions are that physicians should be prepared to treat laryngeal diphtheria, which usually presents, as an emergency. The physician may find himself without intubation instruments in an emergency and be compelled to attempt tracheotomy. Non-instrumental methods of relief are worthy of more frequent trial, especially in institutional work and in those cases in which dyspnea is increasing slowly, exhaustion is moderate, cyanosis is not severe, and the surroundings are favorable. Intubation may be performed in cases in which the symptoms indicate recent and closely adherent membranes. It should be employed only when intelligent nursing may be had and when the physician is within easy reach. Every physician should be familiar with the technic of tracheotomy.

The Lancet, January 29, 1910.

Acute Dermatitis Due to Bichromate of Potassium.—Two cases are reported by R. P. White. Case 1 was that of a dyer of 57 years who after four or five weeks at his employment began to have a roughness of the arms and swelling of the hands, the backs of which were itchy, but not servecly so, and he had no pain. The oftener he worked in the dye house the more severe were his symptoms. At the end of the seventh week an inflammatory rash spread all over his face, and he applied for treatment. On the backs of his hands, forearms, and arms as high as the rolled-up sleeves, the front of his chest where his shirt was opened under his chin, round the throat and over the whole of the face, and on the ears was a bright red, diffuse, erythematous rash, peeling in places in yellow flakes. The initial lesion appeared to be a scaly papule with a red spreading areola. At the inner side of both elbows the inflammation was intense, and moisture was freely exuding from beneath the thin, scaly crusts. Case 2 was a fellow workman of 30 years, whose rash did not appear for three months. He never used gloves and lifted the material out of the dye vat with bare hands. In general, his condition was like that of the other man, but his palms were very moist, while those of the other man were horny, thick, and dry, and around their periphery were deep cracks and fissures. The cessation of the use of chrome used in their work and simple soothing treatment led to perfect recovery in a few weeks. The author gives a description of the mens' work. One and a half pounds of bichromate of potash are dissolved in 200 gallons of water, and the goods are boiled in this solution one hour. It was from work with this solution that the dermatitis was contracted. In both these cases the subjective symptoms complained of were very slight; chrome sores are well known to be painless. These men had only symptoms of slight irritation. As a rule, this salt in solution is said not to attack unbroken skin, but if associated with heat and moisture the preparation is much more active. Many exposed to it in this form are especially liable to irritation of the nasal septum, which fact is said to be due to a deficiency in blood supply. Certain rules are laid down which should be enforced in the conduct of workmen employed in institutions in which chromium salts are used. The employment of some form of grease on the skin is said to be helpful in preventing this form of dermatitis. Any instrument used to lift material out of such solutions should have a flange to prevent its running down on the hands. Each workman who comes in contact with the dust of chromium or with its solutions ought to wash all exposed parts freely, and among others, the orifices of the nose with a reducing agent such as weak bisulphide of soda.

An Infant as a Carrier of Enteric Fever Infection.—A. Oberdorfer reports such a case occurring in a breast-fed child of eleven months, who contracted the disease from her mother who died. About seventeen days later the child was taken ill of the fever. In three weeks a man who had slept with it came down; as still later did a woman who had washed for it. The only symptoms in the child were wasting diarrhea and a positive Widal reaction made some six weeks after the inception of the disease. Although it might be suggested that the cases in the district in contact with the baby were due to the original cause of the epidemic, yet the sequence of the cases and the result of investigation eliminated this possibility, and it was decided that the baby acted as a carrier and that infection from it was the cause of each case in the series referred to.

Retention Pneumonia.—Notes on a case are reported by F. I. Hathaway, whose patient was a stout girl of 22 years. The history is interesting for the following reason: 1. The patient had suffered from and was confined to bed with a most irritating cough, no physical signs for which could be found. The abdominal pain of the distressing cough induced her to refrain from the act of coughing as much as she could, and in this way, the author thinks, the retention of the pneumonia was brought on by the accumulation of secretion. 2. Except for the first and second days, the temperature did not rise above 99°, while all through the illness the patient's general condition was excellent. The respiration-pulse ratio was increased and the signs of lobar pneumonia were particularly well marked and did not begin to clear up till the tenth day of the disease. 3. The report on the sputum was "almost a pure culture of the pneumobacillus of Friedlander. There was no crisis. The râle redux appeared on the tenth day, twenty-four hours later the dullness being still present, but over only a small area. On the thirteenth day it had almost cleared up, while the bronchial breathing had gone and the redux crepitations were clearing up. Recovery was complete. A peculiarity of the sputum was that while there was almost a pure culture of F's bacillus, there were no pneumococci. Various authors refer to this peculiarity, and also that one occasionally meets with afebrile pneumonia and that ether pneumonia is often lobular in type.

British Medical Journal, January 29, 1910.

Treatment of Ringworm.—E. L. Jenkins says that the use of the *x*-ray is in the country often unavailable or impracticable. In dealing with pediculosis in his hospital wards he always uses the essential oil of sassafras, which he regards as a specific. When both periculosis and ringworm existed in the same scalp, the latter disease also appeared benefited. This led him to try the remedy for ringworm alone. So far the results have been most effective. The hair is cut closely around in order to identify the patches, and the oil is applied twice a day by means of a camel's hair brush. This treatment is continued a few weeks or so, as the case may indicate. No irritation is produced, and the application is pleasant to use. Not only is the spread of the affection prevented, but the fungus is destroyed with certainty in two or three weeks, this certainty being recognized by the development of fine new hairs.

Some Results Obtained from the Local Application of Solid Carbon Dioxide.—E. R. Morton has used this remedy in lupus, warts, nævi, and moles. His paper is a summary of his results thus obtained. One case of lupus vulgaris, not a very promising one, did not do well. The patch was near a joint, where it was difficult to maintain firm pressure, and the great amount of movement incident to the nearness of the joint was also an unfavorable feature. In a case of lupus erythematosus, results were fairly satisfactory, though no more so than has been found to be the case with other remedies. Of four cases of moles, three were cured and one improved. This was in a small boy, but of the size and hairy growth one would expect on a full sized man. The hair was removed, but is too soon to say if the epilation will be permanent. Of twelve cases of warts, nine were cured, two still under treatment, and one disappeared. The crayon is trimmed to a size corresponding to that of the wart, application made with firm pressure until a narrow ring of frozen, healthy tissue is made around the base of the growth by conduction from the center. One hundred and five cases of nævi presented 129 of the lesions for treatment. Of 85 capillary nævi, 74 were cured by one application lasting 40 seconds, six had two applications, two had three, and two had four. Of 32 cavernous nævi, 20 were cured by one application, four had two, two had three. In all cases in which capillary nævi and cavernous nævi were both present, the capillary part was treated by CO_2, and the rest by electrolysis. The author has now under treatment some cases of the "port wine" mark, and he considers the results as promising, though perhaps no better than those from radium. He finds the CO_2 applications practically painless and of only a few seconds' duration. He notes with regard to his port wine cases that the first application seems to have little or no influence in reducing the depth of color even after waiting three weeks. A second application is marked in its effects, and may be sufficient.

The Therapeutic Value of Carbon Dioxide Snow in the Treatment of Vascular Nævi, Moles, Etc.—A second paper on the same topic is submitted by J. M. H. Macleod. This author secures the snow by means of liquefied gas in a cylinder allowed to play into a baize bag, the inside of which quickly becomes covered. The

snow is then scraped off into the mold it is desired to use. Generally the applicators are shaped like an aural speculum, into which a vulcanite plunger is fitted, so that the application may be made with the amount of pressure desired. The variety of lesions treated is about the same as stated in the paper of Dr. Morton, except that Dr. Macleod has used the remedy for rodent ulcers. He says that it will destroy these, provided they are superficial and do not involve deep structures. Such treatment does not seem, however, to him to give better results than the actual cautery, and if the lesion penetrates deeply it is less efficacious than radium. In regard to nævi and tissues in general, the author says that after the tissue is frozen at the base it thaws in about a minute, and that a few hours afterward an inflammatory reaction sets in. If the lesion treated is larger than the largest applicator it can be attacked piecemeal, or a piece of thin lead is placed between the lesion and the applicator, as the metal conducts the cold, and by it irregularly shaped lesions can be treated exactly. When the lead is interposed a longer exposure is necessary than where the applicator is applied directly to the skin. If blisters form, it is wise to use dressings of some mild antiseptic ointment to prevent contamination with pyogenic microorganisms. As a rule, the pain complained of from the applications of the snow is mild and trivial. Both authors believe that there is a promising future for this form of cautery.

Appendix Dyspepsia.—B. G. A. Moynihan reaches the following conclusions: (1) The symptoms of both gastric and duodenal ulcer, especially the former, may be exhibited with great fidelity in cases in which no structural lesion can be found in any parts. (2) In many cases of gastric ulcer, in which the symptoms, pain, vomiting, and hematemesis, are present, and in many cases of intractable dyspepsia of a capricious kind, the only pathological change discoverable during operation is a chronic inflammation of the appendix. (3) Removal of the inflamed and obstructed appendix is generally followed by instant and complete relief of all former dyspepsia. The cessation of symptoms, however, may come only by degrees and with the lapse of many weeks. (4) No operation for supposed gastric or duodenal ulcer is complete until an examination has been made of the appendix, small intestine, and mesenteric glands, that is, of the midgut. (5) If, in such an operation no lesion can be found in the stomach or duodenum, it is not permissible to perform any operation as gastroenterostomy. This operation has results not surpassed by any other when performed in properly selected cases. It is worse than useless in chronic appendicitis. (6) The mimicry of the symptoms of gastric ulcer in these cases is due to an exaggerated action of the pylorus. This tumult of contractile activity can be recognized when the stomach is inspected. (7) Investigation is necessary to ascertain the frequency with which the mucous erosion of the stomach (the "acute" or "medical" ulcer) is dependent on a primary lesion in the appendix or intestine.

Münchener medizinische Wochenschrift, January 11 *and* 18, 1910.

The Presence of Fatty Acids in the Infant's Intestines.—Hecht has investigated the subject of the presence of various fatty acids in the stools of infants, in connection with the statement that many of the severe gastrointestinal disturbances of infancy are due to the formation of the higher fatty acids. The stools of healthy and ill infants were obtained in quantity, distilled, and tested for the acids by various methods. In a series of breast-fed infants he found that a fairly large amount of the volatile fatty acids might be present in the stools of very young nursing infants in perfectly good health, but that an abnormally large amount might not be well borne. A marked decrease in the fat in the food, however, did not in every case improve the child's condition or reduce the fatty acids found in the stools. In such cases the volatile fatty acids may have been formed from the carbohydrates in the food. Lactic acid was present in less amounts than the volatile acids. On artificial feeding a great increase in fat in the food caused a decrease in fatty acids in the stools, as also did a high carbohydrate, low fat mixture. The decrease of fatty acids with the increase of the fats of the nourishment is explained by the antagonism between fermentation and putrefaction in the intestines; the increased putrefaction due to the fats decreasing the formation of the fatty acids by fermentation. The conclusion drawn from the experiments is that the presence of a certain amount of fatty acid is necessary for the normal course of digestion. It is possible that in acidosis the feeding of organic acids might cause improvement in the condition, in that the latter being burned to carbonate might increase the alkalis of the body.

Phagocytosis and Arneth's Blood Picture.—Busse considers the statement of Arneth that the effectiveness of a leucocyte in phagocytic activity is in proportion to the number of its nuclei. His conclusions are as follows: (1) In the blood of healthy men all classes of neutrophilic leucocytes—according to the classification of Arneth—have similar phagocytic activities, at least in test tube experiments. (2) Neutrophilic white corpuscles from inflammatory and postoperative leucocytoses occur in the same ratios. (3) Leucocytes from healthy men and from inflammatory and postoperative leucocytoses have the same phagocytic activities. (4) Arneth's law that leucocytes with few nuclei have less value in protecting the body than those with more nuclei, is of no value in test tube phagocytosis.

Prolapse of the Genitalia in Late Primiparæ.—Fetzer says that the late occurrence of the first labor is the most important cause of genital prolapse. A woman who has her first child before the age of twenty years very rarely has any lasting organic trouble from the birth trauma. Such an early age for labor seems to protect the patient against the disease. The early date of the first birth gives the ability to have more children without injury. The later the first labor occurs so much greater is the probability of acquiring a prolapse following it. This probability increases very slowly and regularly until the twenty-seventh year. From then on each year in age that the first gestation is postponed increases the chance of genital prolapse very rapidly, so that in later primiparæ the probability of the affection is many times greater than it is in early primiparæ. The number of pregnancies has no etiological significance.

The Transformation of Tubercle Bacilli of the Human Type into the Bovine Type.—Eber has been carrying on a series of investigations into the two types of tubercle bacilli in the Veterinary Institute of the University of Leipsig. The results of these investigations showed that it is possible by certain methods by injection into cattle so to change tubercle bacilli obtained from tuberculous material from men, which had all the characteristics of the typus humanus, that on further injection into cattle they became highly virulent for the latter, and in both culture and rabbit experiments they resemble the bovine type of the tubercle bacillus. The most successful form of inoculation for these experiments in transmutation of type was the injection in the peritoneal cavity. In his experiments the author succeeded in transforming three of the seven strains of human bacilli obtained at autopsy from the lungs of men into the bovine type. The author considers the results of his researches to be a further advance in our knowledge of the relation of the human and bovine forms of tuberculosis.

Tubercle Bacilli in the Stools in the Diagnosis of Intestinal Tuberculosis.—Klose says that the exact diagnosis of intestinal tuberculosis is no easy matter. He has made an investigation to prove the exact value of finding the tubercle bacilli in the stools as a diagnostic sign of intestinal disease. He made simple smears of stools stained by the Ziehl stain, and when this failed the new antiform method was used. His patients were sixty definite cases of pulmonary tuberculosis. Six of these showed some clinical signs of intestinal tuberculosis. In these six the bacilli were possibly slightly more numerous than in the rest of the cases. Nevertheless a simple smear showed the tubercle bacilli in 47 of the 60 cases, and examination by the antiform method in eight more, leaving but five negative cases. As in but six of these was there any reason for suspecting tuberculosis of the intestines, and as all sixty had tubercle bacilli in the sputum, the author concludes that in the great majority of those cases in which the organisms were found in the stools, they were there simply as a result of swallowing of sputum, and that such a finding is in no way diagnostic of tuberculous disease of the bowels.

Deutsche medizinische Wochenschrift, January 13 *and* 20, 1910.

Chronic Circumscribed Serous Meningitis of the Brain.—Oppenheim and Borchardt discuss this subject. Oppenheim reports a case of a girl of seven years who showed symptoms of a cerebral tumor. Over a period of eighteen months the child was given antisyphilitic treatment, which caused marked remissions in the disease. Finally, no further improvement occurring, operation was advised. Instead of a cerebral tumor a circumscribed collection of clear serous fluid was found in the meninges. This having been drained improvement occurred at once and, except for the loss of vision, complete recovery followed. Oppenheim discusses the case and concludes that a hitherto undescribed form of circumscribed serous menin-

gitis of the posterior fossa of the cranium exists, which may develop on the basis of a traumatism or of some other source. Its symptomatology very closely resembles that of cerebral tumor. Definite differential points do not exist. Possibly the presence of symptoms of meningeal irritation, the inclination towards an intermittent course in the progress of the disease and of long remissions in undoubted cases might serve to suggest the presence of the condition. In certain cases the cerebral murmur, which suggests basilar aneurysm, may be present. If the affection does not improve under treatment with mercury and iodide, operation is to be considered. The danger of blindness especially indicates operation. Lumbar puncture may serve to make the condition much worse, whereas radical operation produces a complete cure. Borchardt describes the technique of the operation in Oppenheim's case and reports another similar case.

A Study of the Cammidge Reaction.—Otto Hess discusses Cammidge's reaction for pancreatic disease and comes to the conclusion from his own investigations that it is not specific for pancreatic disease, but that used with care and taken in connection with other symptoms it is of considerable value in diagnosis.

The Question of Serous Expectoration.—Hampeln discusses the serous expectoration which occurs at times after thorocentesis. He says that serous expectoration following pleural puncture may be caused in one of two ways. In a portion of the cases the phenomenon is the result of pulmonary edema, which occurs as the result of aspiration. Its course resembles closely the toxic-neurotic form of pulmonary edema and differs from the more common form. In other cases the serous expectoration is the result of an immediate transit of the exudate from the pleural cavity into the lung parenchyma, an actual expectoration of the exudate. This may occur as a result of a minute perforation or of physiological absorption.

The Treatment of Diseases of the Stomach with Aluminum Silicate.—Rosenheim and Ehrmann have investigated the action of aluminum silicate upon the gastric secretions and upon disease symptoms produced by abnormalities of secretion. They say that in all conditions of stimulated secretion, either hyperacidity or hypersecretion, whether they be primarily of neurological origin or are associated with some organic lesion or injury, aluminum silicate acted as a most favorable drug in reducing the acidity, quieting the pain, and aiding digestion; especially good results were obtained in very persistent hypersecretion, both of the alimentary and persistent form, with more or less persistent motor insufficiency. Objectively the drug caused an inhibition of the secretion energy, a decrease of the hyperacidity, and a reduction of the flow of gastric juice in the empty stomach. There were also cases in which the aluminum silicate caused amelioration of symptoms, when other medicaments, as the alkalis, had been used over a long period with little or no benefit. On several occasions they observed good results with aluminum silicate in general gastric hyperesthesia, depending upon anemia and chlorosis, in persistent paresthesia, in sensory irritability, in cases in which treatment with silver nitrate had been carried out without results. In ulcers of the stomach the acid stimulation due to irritation of the peptic glands was favorably influenced; the rapid cures, however, so often seen when ulcers are treated with large doses of bismuth on an empty stomach, could not be obtained to an equal degree by a similar treatment with aluminum silicate. As a rule, the aluminum silicate was ordered in doses of one-half to one teaspoonful in three ounces of water, three times a day, one half to one hour before meals. Large doses of the drug were always taken willingly, as it is tasteless and odorless. No undesirable symptoms appeared from its use; this was especially true of the intestines. The authors are not willing to say that the salt has no action on the intestines, as it is perfectly possible that the aluminum chloride, which theoretically is formed, may interfere with the development of the bacterial flora. The authors are now carrying out investigations as to the action of the drug on the intestines.

The Treatment of Syphilis in the Light of Recent Investigation.—Lesser discusses the recent advances in diagnosis and treatment of lues, which he summarizes as follows: The discoveries of the transmissibilty of syphilis to animals and of the etiological factor in the disease have so far been of no significance in the actual therapy of human syphilis. On the other hand, the Wassermann reaction serves as an indication for treatment in that it shows us how long the cure should be carried out, and when it should be repeated. The positive serum reaction shows the presence of active spirochete. A negative reaction in the early stage of the disease warrants no conclusions; in the later stage, one can conclude, with a definiteness increasing in proportion to the age of the disease, from a negative reaction, and especially from repeated negative reaction, that the syphilis is cured. One finds in the later stages negative reactions (cures) the more often, the greater number of mercury "cures" have been carried out in the early stage, but with this limitation, that the maximum curative effect is reached with four "cures." For the duration of the cure the amount of mercury must not be considered, but its action, as shown by a negative reaction. Every syphilis treatment must be carried out until a lasting negative reaction is reached.

Treatment of Puerperal Infections.—A. Pinard, from his experience at the Baudeloque and the Lariboisière, gives his conclusions as to the best methods of cure and prophylaxis in puerperal fever. Prophylaxis is much more satisfactory than cure. The first essential is absolute asepsis for every pregnant woman about to begin labor. The toilet begins with a full bath, continues with a toilet of the external genitals with aniodol soap and biniodide of mercury solution 1-4000, and ends with a sterilized pad over the vulva. No vaginal injections are given except when there are fetid lochia, showing infected conditions. As soon as the fetus is expelled a vaginal injection of biniodide is used, and another after the delivery of the placenta; a new vulvar toilet is gone through, and a sterilized pad placed, which is renewed as often as necessary. Every night and morning the external genitals are bathed. All linen used about the patient is sterilized. When patients come in in labor, after examinations have been made, or after the rupture of the membranes has occurred, such patients receive an injection of 40 cubic centimeters of antistreptococcus serum as a preventive measure. This has been found not only perfectly harmless, but very valuable as a prophylactic measure, and for cure of infection. In these women an intrauterine injection is used. In infected cases in which there is thick, bloody, fetid lochia, membranes or placental débris are retained, and here curetting is in order. With normal lochia it is useless; late or too often repeated it is harmful. Intrauterine injections properly used are useful; when not indicated they are harmful. Continuous irrigations are harmful.—*Annales de Gynécologie et d'Obstetrique.*

Infantile Malaria.—Jean P. Cardamatis says that malarial infection is extremely frequent in Greece at all ages, but less so in children under one year of age, probably on account of the habit which mothers have of covering the crib with mosquito netting. In babies under one month of age who nurse their mothers it is extremely rare. The fact of congenital malaria is denied by the author, who has never found the malarial parasite in the blood of such an infant. They are found on the maternal side of the placenta, and a few on the fetal side, but never in the umbilical vein, nor are there anatomical alterations of the placenta in malarial cases. Infants of mothers showing the malarial cachexia are born in florid health. The author believes that parasites cannot be transmitted to the fetus because of some antitoxic substances found in the placenta. Malaria in children may be acute or chronic, and of any type, tertian being most frequent. In infants it is irregular, gastrointestinal and meningeal symptoms being most frequent, and some of the stages being absent. In chronic malaria enlargement of the spleen is immense, and generally present. Anemia is marked, the skin having a waxy hue.—*Annales de Médecine et de Chirurgie Infantiles.*

Extract of Corpus Luteum in Disturbances of Artificial and Physiological Menopause.—Morley reports his results in eighteen cases. The author used an extract made from the corpora lutea of beef ovaries rather than an extract of the entire ovary, as the consensus of opinion seems to be that the internal secretion of the ovary is produced by the yellow body. The extract is given in five-grain doses, three times a day, one-half to one hour before meals. His results in eighteen cases may be summed up as follows: Five were cured, twelve were improved, and one obtained no relief. Included in the twelve cases that were improved are grouped those that are still taking the extract. A permanent cure may result in a few of the cases under treatment. Of the eighteen cases, fourteen suffered from disturbances of operative or artificial and four from those of natural or physiological menopause. While the author says that the results obtained in so small a group of cases do not warrant the drawing of any definite conclusions, still, he thinks that they are favorable enough to justify a continuance of the treatment in other cases, where there is a disturbance incident to artificial or physiological menopause.—*Journal of the Michigan State Medical Society.*

Book Reviews.

A Text-Book of Obstetrics. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Howard, the Orthopedic, and the Philadelphia Hospitals, etc. Sixth edition, revised and enlarged, with 847 illustrations, 43 of them in colors. Philadelphia and London: W. B. Saunders Company, 1909.

This book was in its earlier editions one of the best known works on the subject in the English language. The present edition has been thoroughly revised and extensively altered, the most important additions having been made in the realm of gynecology, the author including all operations in the most remote way the result of childbirth as belonging to the subject of obstetrics. There have been some changes in the illustrations, several new ones having been added and some old ones discarded. They are as a rule good, but in no way exceptional, giving one the impression that just enough care has been expended upon them to demonstrate the point intended and no more. The text is, however, concise and clear, and gives all that the student needs to know, without going at all extensively into the theory or the pathology of obstetric diseases. As a book to teach the student how to conduct the various stages of labor, their complications and sequelæ, it has attained great popularity, which the present edition will undoubtedly maintain and increase.

Formulaire de Poche pour les Maladies des Enfants. Par le Dr. Jules Comby, Médecin de l'Hopital des Enfants Malades. Troisième édition, entièrement refondue et conforme au Nouveau Codex. Paris: Vigot Frères, 1909.

The third edition of Comby's Pocket Formulary has been made necessary by the advance in pediatric science and by the more recent modification in the French Codex. The arrangement of the work divides it into two parts. In the first, diseases are arranged alphabetically and succinctly and the proper treatment, according to the author's experience, is given, both medicinal and general. Frequently, too, the methods advocated by others are added. In the second part the arrangement is according to drugs. Not only is the dose of each given, with its pharmacological actions, but various prescriptions are added, showing convenient means of administration. The book is neatly gotten up, with a semiflexible leather cover and thin paper.

Modern Materia Medica and Therapeutics. By A. A Stevens, A.M., M.D., Professor of Therapeutics and Clinical Medicine, Woman's Medical College of Pennsylvania; Lecturer on Physical Diagnosis in the University of Pennsylvania; Physician to the Episcopal Hospital and to St. Agnes' Hospital; Assistant Physician to the Philadelphia General Hospital; Fellow of the College of Physicians of Philadelphia, etc. Fifth edition, thoroughly revised in conformity with the eighth revision (1905) of the United States Pharmacopoeia. Philadelphia and London: W. B. Saunders Company, 1909.

The fifth edition of this work has been revised, and contains modifications and additions: the sections dealing with the action and uses of drugs are said to have been largely rewritten. About 500 pages of the volume are devoted to materia medica, and about 150 to therapeutics. The prescriptions are well chosen, and are written without abbreviations. The book should prove useful to students and practitioners.

Food Inspection and Analysis. For the Use of Public Analysts, Health Officers, Sanitary Chemists, and Food Economists. By Albert E. Leach, S.B., Chief of the Denver Food and Drug Inspection Laboratory, Bureau of Chemistry, U. S. Department of Agriculture; formerly Chief Analyst of the Massachusetts State Board of Health. Second edition, revised and enlarged. New York: John Wiley & Sons, 1909.

This elaborate and handsome work is designed chiefly for public analysts and others who are concerned in the carrying out of the provisions of the laws dealing with the suppression of food adulteration. Special attention is therefore given to the nature and extent of adulterations of the various foods, and also to the methods of detecting such adulterants. The general composition of foods and the proximate components of food materials are also dealt with; so, too, are the processes of manufacture of certain foods in cases where impurities might possibly be due to their preparation. The whole subject with which the book deals is one of great importance, which, since the passage of the national pure food law, concerns physicians, hygienists, and scientists more than ever before. The book contains about a thousand large pages, and has chapters on: Food analysis and official control; the laboratory and its equipment; food, its proximate components, its functions, and nutritive value; general analytical methods; the microscope in food analysis; the refractometer; milk and milk products; flesh foods; eggs; cereals and their products; legumes; vegetables and fruits; tea, coffee, and cocoa; spices; edible oils and fats; sugars and saccharine products; alcoholic beverages; vinegar; artificial food colors; food preservatives; artificial sweeteners; flavoring extracts and their substitutes; canned and bottled vegetables, relishes, and fruit products. In addition to numerous tables and illustrations there are forty plates of photomicrographs of pure and adulterated foods and of adulterants. The book seems to be thorough, timely, and authoritative.

A Treatise on Diseases of the Nose, Throat, and Ear. By William Lincoln Ballenger, M.D., Professor of Laryngology, Rhinology, and Otology in the College of Physicians and Surgeons, Chicago. New (second) edition, thoroughly revised. Philadelphia and New York: Lea & Febiger, 1909.

The province of the specialist in diseases of the nose, throat, and ear is widening daily, and is soon destined to imply at least an expert diagnostic and perhaps a therapeutic knowledge also of most diseases of the head and neck. The day is long past when he who wipes out an ear or sprays some more or less inert medicine into the nose and throat can call himself a specialist. Otology necessitates familiarity with the surgery of the brain and of the large vessels in the neck; rhinology is demanding a closer study of diseases of the mouth, such as cancer of the tongue. Cleft palate, too, is becoming the property of the rhinologist. Hence, the physician who now wishes to be considered a thoroughgoing specialist in these things must be a surgeon. In this edition of Dr. Ballenger's book operative surgery holds an important place, and to this end he has introduced many new drawings descriptive of sinus and submucous work, and has revised and enlarged the text very considerably. The clinical application of aural labyrinthine tests now so much under discussion is fully described and illustrated. As the work continues to grow in bulk it will become necessary to divide the subject so that it may fall into two or three volumes. The ear now occupies more than one-third of the 900 pages, diseases of the pharynx and larynx about one-fourth, and the remainder is given up to the nose and accessory sinuses. This work in its present proportions constitutes a combined text-book and atlas upon the nose, throat, and ear. It is not unlikely that a section on stomatology will be demanded later. One may say in truth that it is one of the most comprehensive and helpful books which we have in the field which it covers.

Index Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series, Vol. XIV. Q. Rzehak. Washington: Government Printing Office, 1909.

In this latest volume of the invaluable Index Catalogue there are 10,019 author titles, representing 5,281 volumes and 8,158 pamphlets. There are also 31,370 titles of separate journal articles and 4,065 titles of books and pamphlets. In the library there are now 168,879 volumes and 297,560 pamphlets. The librarian is Lieutenant-Colonel Walter D. McCaw of the Medical Corps.

The Blood in Health and Disease. By R. J. M. Buchanan, M.D., F.R.C.P., Professor of Forensic Medicine in the University of Liverpool; Honorary Physician to Out-Patients, Liverpool Royal Infirmary; Formerly Honorary Physician Stanley Hospital, Liverpool; Honorary Assistant Physician to the Hospital for Consumption and Diseases of the Chest, Liverpool. London: Henry Frowde and Hodder & Stoughton, 1909.

This is the newest work on the blood, and it has several characteristics which will insure for it a hearty welcome from students of hematology. In the first place, the illustrations are superb; the colored plates make of the volume a veritable atlas; moreover, these plates represent actual drawings by the author, and are not caricatures. In the next place, the book is written in an attractive style, and both sides of controverted questions are given, with an ample and up-to-date bibliography. Further, it is not only a laboratory manual, but is written from the standpoint of the clinician as well. Many interesting questions are discussed at considerable length; and the arrangement of the subject matter and the methods of technique are alike excellent. The book is of modest dimensions (300 pages of large print), which in conjunction with its pleasing style and good illustrations will secure for it a better chance of being read through than falls to the lot of some books of the kind.

Society Reports

SOUTHERN HEALTH CONFERENCE.

Proceedings of the First Conference to Discuss Hookworm Disease, Held in Atlanta, Ga., January 18 and 19, 1910, under the auspices of the Atlanta Chamber of Commerce and the Georgia State Board of Health.

Dr. H. F. Harris, secretary of the Georgia State Board of Health, was chosen temporary chairman.

History and Zoological Aspect of Hookworm Disease.—Dr. Charles Wardell Stiles of Washington, D. C., stated that the earliest hookworms ever known were described in 1782 by a German clergyman—Geoze, giving to them the German name Haakenwurm. A few years later another German scientist came across numbers of the same group of parasites and used the term "uncinaria." In 1837 Dubini was performing an autopsy in Milan and found in a cadaver a peculiar parasite with which he was not familiar. It proved to be a new species. He called it Ankylostoma duodenale. The first cases of infection with the American species of hookworm which were found were the following: One case observed by Dr. Clayter in a patient from Westmoreland County, Virginia; one case in Galveston, Tex., observed by Dr. Allen J. Smith; several cases in Florida, which were handled by Dr. Guiteras. Personally the speaker had examined about one hundred and thirty cotton mills in the South, and eight milling camps, and in many instances men, women, and children in these mills infected with this disease had it to such an extent that the diagnosis could be made by an expert without the aid of the microscope. Hookworm disease as found in the United States had been traced to the west coast of Africa, and as far as the pigmies of Africa. Unquestionably the negroes must have brought many hookworms to this country. It was an academic question whether the Indians in this country had the disease before the white people came here. Seventy-nine per cent. of the negro farm houses which he had examined and tabulated in North Carolina, South Carolina, Georgia, Alabama, and Mississippi had no privy connected with them. Practically 80 per cent. of the negroes in the rural districts of the South were living under sanitary conditions which were not one iota better than those described for the savage tribes of Africa, and 46 per cent. of the white farm houses he had examined were in no better condition. The distribution of the disease was a natural result of the large negro population, of the unsanitary habits of the people, of the character of the soil and climate. There was probably no disease known in the medical profession which was more easily diagnosed, more easily treated, and more easily prevented than hookworm disease.

Hon. E. E. Rittenhouse of New York City said that this parasite was now sapping the blood and blasting the lives of hundreds of thousands of people. It was causing mental and physical degeneracy and industrial inefficiency; to many of its victims it brought not only physical suffering, but misery and distress from the poverty which it bred. And to this must be added the grief and sorrow that follow the steady march to the grave of those who paid the final penalty for their ignorance of the true cause of their affliction. No department should show more activity and energy than a health department; it should be organized on scientific lines, presided over by scientific men, and provided with a publicity bureau and a large and efficient corps of medical examiners and inspectors and their work should be conducted on a scale consistent with the amount of life waste they were to combat. If practical and permanent assistance was forthcoming from public and private sources, how to live a healthful life, how to guard against and detect disease, would, in the course of time, become matters of common knowledge among the people. A higher standard of life would result and the uplift would be a moral as well as a physical one, for to war against disease and wrong living was to war against poverty, immorality, and crime.

The Pathology of Uncinariasis.—Dr. Newton Evans of Nashville, Tenn., said a very large proportion of all the rural population in the Southern States must have hookworm infection of greater or less severity at some period of their lives. Of 147 men, including both new recruits and those who had been in the army for several years, 64 showed ova of the uncinaria in the feces. All of these were light, not one showing the parasite in the stools and the presence of eosinophilia was absent in a large percentage of the cases. Dr. Evans said with reference to the hemoglobin in Chamberlain's 64 cases, all light and without symptoms, the hemoglobin was from 80 to 100 per cent., with an average of 91.5 per cent. In severe cases the hemoglobin varied from 10 per cent. to 55 per cent. In the severe cases there was a decided reduction of red cells. All observers were agreed that the degree of eosinophilia was not an index of the severity or amount of infection. Poikilocytosis and polychromatophilia were present in the severe cases. The habitation of the worms was usually confined to the upper part of the jejunum and a certain number were found in the duodenum. In a few cases they had been found in the ileum, but never in the colon. The most pronounced change in the liver was fatty degeneration. The changes in the spleen were definite and characteristic. Practically all fatal cases showed a chronic parenchymatous or diffuse nonindurative nephritis. The only constant changes seen in the lungs were the extreme pallor, as in all the other organs and in almost all cases a pulmonary edema. There was cardiac hypertrophy in 10 of 26 cases reported by Sandwith. About the only constant lesions described in the brain were intense anemia and an effusion into the ventricles of a clear, pale, yellow fluid.

The Symptoms of Uncinariasis.—Dr. George Dock of New Orleans said the chief factors that tended to cause uncinariasis or disease phenomena due to hookworm, other than absence of immunity, were early age and poor diet. The disease was most destructive in the young, the greatest amount of sickness and death occurring between 10 and 30 years of age. Mild cases passed imperceptibly out from the latent cases, but when recognized showed a sallow skin, variations in appetite, digestion, and action of the bowels. In the moderate cases pallor and dyspeptic symptoms were more distinct, and often dominated the picture. In the severe cases the anemia, weakness, and dyspepsia were more severe. The abnormalities of the blood were striking and suggestive. The hookworm was the cause of the symptoms directly or indirectly. It must be sought for by searching for its ova, which, even in mild infections, could be found by a brief search.

Treatment of Hookworm Disease.—Dr. H. F. Harris of Atlanta said that on the day before the treatment was to be begun the patient was advised to eat little dinner and no supper at all. Late in the afternoon he was given a full dose of calomel, the amount varying from two to ten grains, depending upon the age and strength of the patient. Castor oil could perhaps be administered with safety, but inasmuch as all oily substances dissolved and made more readily absorbable the thymol which was to be given on the following day,

and as the absorption of any considerable amount of this substance would produce poisonous effects, it was generally thought advisable to leave this drug out of the treatment altogether. If calomel acted freely during the night no other purgative need be administered on the following morning, but if it should not do so a full dose of epsom salts in hot water should be given as soon as the patient awoke. After the bowels had thoroughly acted, finely powdered thymol in capsule was then given, the quantity depending on the age and strength of the patient.

The Educational Campaign Against Hookworm in Texas.—Dr. W. M. Brumby of Austin, Tex., said that recent investigation revealed the infection of 31 per cent. of the male students examined in one of the State Normal Institutes. The bacteriologist had found repeated specimens in twenty-two counties in southern and eastern parts of Texas and those intervening counties being of similar soil, temperature, and climatic conditions, warranting the assertion that every county in Texas east of the 97th degree of longitude and south of the 34th degree of latitude was more or less infected with the hookworm. This section represented fully one-half the population of the State, and portrayed the urgent necessity of persistent and widespread measures for the eradication of this disease in Texas. Their efforts had been limited to educational work, for they recognized the importance of widespread instruction to every locality before they could hope to adopt compulsory measures for the prevention and cure of this disease.

Rev. W. W. Landrum of Louisville said that health was wealth. Those who had health were rich. Those who did not have it were poor, and it was not within the province of many to buy back health when it was once lost. He spoke not for one section of common Christianity, but for all ministers of all subdivisions, the one great creed universal, to tell those present they were deeply interested in this conference, and the clergy would do all in their power to help the medical profession in eradicating this disease from the South.

Dr. Wallace Buttrick of New York stated that he was not a medical practitioner, although in common with the general medical profession he was interested in the welfare of his fellow man, and he took this opportunity to voice not only his feelings and conviction, but gratitude regarding the work of this conference.

Dr. Fred J. Meyer of Jackson, Miss., said that he had frequently thought that of all the monuments that the genius of the ancients erected the greatest was not the pyramids of Egypt, not the colliseum of Rome, not the traditional Colossus of Rhodes, nor the hanging gardens of Babylon, but the cloaca maxima of ancient Rome, which carried off the sewerage of the city in the days of the imperial Cæsars. The main proposition in connection with hookworm disease was to go out and educate the masses in the cause of the prevention of it and to lift by such education the great reproach which lay against the South of constant soil pollution. If this was done he believed in four or five years public opinion would be so educated that legislative bodies would not be appealed to in vain.

Dr. J. J. Kinyoun of Washington, D. C., said that in the uplift which was bound to come through the education of the people against hookworm disease it was going to benefit the whole Southern country, not only with regard to this disease, but with respect to all other communicable diseases. When we conducted anything like a proper and vigorous campaign against hookworm disease then we could eradicate typhoid fever as well from the rural districts. When we got better drainage we would have fewer mosquitoes, and less malaria, and when we eradicated malaria and typhoid fever and hookworm we would find that almost immediately the death rate would be lowered, and we would have two white children to take the place of one at the present time.

Dr. William Weston of Columbia, S. C., said that he had examined quite a number of patients who gave a history of long-standing hookworm infection, and even in those who had reached the ages of eighteen and twenty the epiphyses were not developed. He took occasion to look into the records of these patients in school, as well as those who worked in the mills, and he found they made poor time and their records were not as good in general as other workers.

Dr. F. W. Schnause of Cecil, Ga., said that his observations regarding uncinariasis comprised 849 cases that had been treated during a period of three years. Of this number only nine were colored patients. He gave the reasons for this: The eradication of the disease could be accomplished by education, medication, and legislation. After thoroughly cleaning out the bowel he gave either thymol in capsules or betanaphthol. He had used the thymol like granulated sugar. If it was powdered too fine it would pack in the capsule and pass through the bowel very rapidly. He liked betanaphthol because it was not so pungent, and did not need to be given in quite as large a dose, although he gave large doses, 100 grains or more in three doses, two hours apart, and used enemata if the bowels did not move rapidly enough.

Dr. A. G. Fort of Lumpkin, Ga., said he had had the opportunity of studying hookworm disease, diagnosed and treated about 600 cases, and in a measure had estimated the percentage of inhabitants who were victims. As to the ways and means, he said that we should, first, interest the profession throughout the infected areas, and demonstrate to them the means of diagnosis and the value of treatment. If all sections were alike with reference to this matter the percentage of doctors treating the hookworm disease was quite small, about one doctor to every 10,000 people. Second, we should interest the school authorities and have every pupil examined and treated. Attention should be called to the means of infection and the children protected by the sanitation of the school room. Third, we should interest the people from an economic standpoint, and particularly the men who employ in their mills, factories, and farms these people. Fourth, means of treatment should be provided for the poor, and an effort should be made to see that the people are educated as to its danger, and the benefits to be derived from treatment and means of prevention pointed out. When this was done we could hope for great results from this crusade.

Dr. C. C. Bass of New Orleans discussed some of the difficulties in the diagnosis of mild hookworm infection. In well-marked hookworm infection the clinical evidence, blood findings, and history of the patient were usually sufficient to direct an observer familiar with the disease to a correct diagnosis. A very simple examination of the feces in such cases would settle the diagnosis. Recently a section, numbering 56, of a class of students in the Tulane Medical College were examined and 21, or 38 per cent., found infected with hookworm disease. In several instances the infected ones appeared as healthy as many of those not infected. It would have been impossible to pick out from appearance the infected men. Careful weighing and measuring showed that the infected averaged 142 pounds, the uninfected 150½ pounds. Not only did

appearance fail to reveal the presence of anemia in the infected students, but estimation of the hemoglobin of each by five or more men showed an average of 90 per cent. for the infected. All denied having had ground itch within seven years, and a few of the infected claimed never to have seen it. Whether uncinaria lived and continued to menace the patients long after they cease to lay eggs might have an important clinical bearing on the subject, for if they did an explanation would be offered of the cases who failed to regain normal health and blood after treatment or removal from the source of infection. Recently he carefully dissected a collection of 247 females of *Uncinaria americana* and found that 18, or 7 per cent., of the adult worms contained no eggs. Egg-laying animals higher in the scale laid few or no eggs in the last third of their lives, and it was probable that the same thing applied. to some extent at least, to these worms. Other observers should study available specimens with this point in view and report their observations.

Dr. H. G. Perry of Greensboro, Ala., said that in more than 100 cases of uncinariasis of which he had record there was only one mulatto and not a single pure-blooded negro. He had to report also that all of these cases occurred among those living on sandy soil. Eighty-five per cent. of his cases were pronounced cured and the remaining were greatly benefited, and doubtless would have been completely relieved had the treatment been persisted in. Improvement could be easily demonstrated by the passage of the worms, by the certain and gradual rise in the hemoglobin, and by an increase in weight.

Preservation of Man.—Dr. R. M. Cunningham of Birmingham, Ala., said that this was not a question for the rich or poor, but a question for all. First, there was a part to be played by the medical profession; we were the investigators, the pioneers, the discoverers. Our province was science; our method was art; our motto was the eclectic, and our purpose was truth. We recognized but one great democracy, that of science, and but one autocrat, that of truth. No school of scientists, nor organization of men, was doing more for the human race, inspired by the love of science and the love of their fellow men, than that of the medical profession. The time would come when the vacant lands would all be taken up and when the most aggressive races would conquer the less aggressive. The white races, the Caucassian races, in a hundred thousand years would become the supreme masters of the world. Then they would begin war on each other, and that nation which among the commonwealths of nations had stood for man in body and in mind would go forth as the ancient Spartan, inspired not merely with patriotism, but with the spirit and genius to fight and to maintain. Take the history of the whole civilized world. Take the ancient Babylonians, the Egyptians, or the ancient Grecians, or take the civilizations of Spain, Italy, and France, and it had been the history of the world that that nation which stood for man, his physical, moral, and mental potency, was the nation in the end that would triumph over the rest of the world and maintain its autonomy forever.

Biology of the Hookworm.—Dr. Charles Wardell Stiles of Washington, D. C., stated with reference to soil pollution that during his investigations he had examined something like 20,000 toilet closets, and that this was a fair representation of the average sanitary condition to be found on the farm, soil pollution occurring all around, spread by the chickens and the hogs. Sixty-eight or more per cent. of the farm houses he had tabulated in North Carolina, South Carolina, Georgia, and Alabama had no toilet of any kind whatsoever. Was it any wonder that we had a high typhoid death rate, and widespread hookworm disease? Of the negro farms 79.8 per cent., so far as he had been able to tabulate them, had no toilet, and of the white farm houses about 46 per cent. had no toilet. These figures might seem astounding, and yet what did Dr. Brumby say this morning about Texas? On examination of 100 houses, toilets were found in only five. What was the solution of this problem? The institution of the sanitary toilet with the tub system and a fluid disinfectant. This would cut the typhoid death rate of the South in two. It would almost eradicate hookworm disease. It would almost eradicate Cochin-China diarrhea, amebic dysentery, and various other intestinal infections.

Dr. B. B. Bagby of West Point, Va., said he thought they had as many cases of hookworm disease in Virginia as they had in Georgia. In examining the stools of patients in his district he did not hesitate to say that fully 80 per cent. of the people who worked in the cotton mills in Virginia were infected with hookworm. In almost every case of old-fashioned foot itch he had found hookworms in the intestines.

Dr. Jere L. Crook of Jackson, Tenn., asked Dr. Stiles whether it was justifiable in the present light of our knowledge to administer thymol on a tentative diagnosis, or whether it was necessary to have the microscopic findings before so doing.

Dr. Stiles said that any physician in the South could forward fecal material to the State Board of Health, or to him at Washington, and it would be examined free of charge, and the physician informed of the results of the examination by return mail. If, for any reason, a microscopic examination was not feasible, personally he would not hesitate to give experimentally thymol treatment, unless it was contraindicated by the patient's condition. He would not give it in a case of pregnancy, nor in a case of severe cardiac symptoms.

Dr. Claude A. Smith of Atlanta said that when it was his fortune in 1901 to discover the first case of hookworm disease which they had in Georgia, he did not realize the extent of the malady. He immediately began an investigation and through the assistance of Dr. Green examined 20 convicts, who worked in clay, and they found two additional cases. The first case occurring in a mulatto came to autopsy. In the two additional cases the infection was mild. He began to investigate the mode of infection, and became convinced that it was through the skin. This was confirmed clinically by many cases. From one man he recovered 1,300 parasites. He had demonstrated repeatedly that the disease was contracted by the parasite passing through the skin. Since then his investigations had convinced him more thoroughly than ever that it was the principal mode of infection.

Dr. A. G. Fort of Lumpkin, Ga., stated with reference to the treatment of hookworm disease that thymol was the standby; but the use of betanaphthol took the place of thymol very well, and it could be given in powder form, and patients did not object to it as they sometimes did to thymol.

Dr. Edward E. Lindeman of Tampa, Fla., said that quite recently there were sent to the State Board of Health of Florida several specimens of what appeared to be calculi accompanying the pathological condition of uncinariasis, but upon microscopic examination of the crystals and chemical analysis they proved to be solid masses of thymol. It was quite evident from this that thymol would pass through the intestinal tract at times in a solid mass, and therefore thymol in a solid mass had no therapeutic value. The manner in which thymol acted prompted him to look into the matter

a little to see in what form thymol might be administered to the best advantage. Thymol acted upon the parasite by the crystals, in a fine condition, coming in contact with it. Thymol in solution, however, had little or no therapeutic value, although thymol in a finely suspended state had. It was desirable that the thymol be given in a finely powdered state, so that it would become widely disseminated and the crystals come in contact with the worms.

A permanent organization was formed and is to be known as "Southern Health Conference." The following officers were elected: *President,* Dr. H. F. Harris of Atlanta, Ga.; *Secretary,* Mr. W. G. Cooper of Atlanta, Ga.; *Vice-Presidents*: Alabama, Dr. H. G. Perry of Greensboro; Florida, Dr. Hiram Byrd of Jacksonville; Georgia, Mr. Wilmer L. Moore of Atlanta; Kentucky, Dr. J. B. Marvin of Louisville; Tennessee, Dr. J. A. Albright of Nashville; Virginia, Dr. E. G. Williams of Richmond; North Carolina, Dr. R. H. Lewis of Raleigh; Mississippi, Dr. S. H. McLean of Jackson; Arkansas, Dr. E. H. Martin of Hot Springs; South Carolina, Dr. William Weston of Columbia; Texas, Dr. W. M. Brumby of Austin; Louisiana, Dr. George Dock of New Orleans; District of Columbia, Dr. William C. Woodward of Washington; Oklahoma, Dr. J. L. Shuler of Durant; United States Army, Major B. D. Taylor of Atlanta; United States Navy, Past Assistant Surgeon J. H. White of Washington; Hawaii, Dr. W. D. Baldwin of Honolulu.

Vital Statistics.—The following resolution was adopted: *Whereas,* It is exceedingly difficult to get accurate information concerning health conditions in the South, except in a few localities; therefore, be it *Resolved,* That the executive committee, the president, and vice-president, and the board of councillors for each State are requested to bring to the attention of all State and municipal legislatures the urgent need for providing some efficient measure for the uniform collection of vital statistics, such as the bill which has been approved by the American Medical Association and the United States Government.

National Bureau of Health.—The following resolutions were adopted: *Resolved,* That this conference memorialize Congress and the President of the United States on the subject of a National Bureau of Public Health, and that a special committee be appointed to present this matter at Washington. Be it further *Resolved,* That members of the conference in their respective communities, and the vice-president and the board of councillors in each State are requested to use their influence with the members of Congress for the establishment of such a department.

Dr. W. F. Westmoreland of Atlanta offered the following resolution, which was adopted: *Resolved,* That the Southern Health Conference by a rising vote extend to Mr. Rockefeller its sincere thanks and high appreciation of his munificent and humanitarian gift to our people to aid them in the arrest and cure of hookworm disease.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held January 6, 1910.

The President, Dr. John A. Wyeth, in the Chair.

This meeting was held under the auspices of the Section on Ophthalmology.

The Best Methods for the Diagnosis and Treatment of Ocular Tuberculosis.—Dr. George S. Derby of Boston read this paper. He confined his remarks to tuberculosis of the anterior part of the eyeball. The introduction of the subcutaneous tuberculin test widened their diagnostic field and proved that the clinical appearances of the disease were not so readily recognized as had hitherto been believed. The increasing interest in general tuberculosis led to the introduction of the new local tuberculin tests and the diagnosis again appeared easy. Experience soon showed, however, that a very considerable proportion of all people healthy or otherwise reacted to these new tests, and to the older subcutaneous test. As a result they were again in the negative phase. The first question which came up was: What evidence must they have in order to make a definite diagnosis of tuberculosis of the eye? He knew of but two by which a definite diagnosis might be made. First, by the microscope, and this method was available practically only in cases of conjunctival tuberculosis. Out of the last 70 or 80 cases that he had seen, it was possible to make the diagnosis only twice in this manner. Secondly, by the production of a local reaction in the eye following a subcutaneous injection of tuberculin. This method had its limitations. It should be borne in mind that a positive test with its unpleasant symptoms had at times a profoundly depressing effect on the patient. A local reaction in the eye might retard considerably the patient's progress. A very considerable proportion of cases did not show the desired local reaction; the general reaction obtained was little more valuable as evidence than was a positive cutaneous reaction. He withheld the subcutaneous test until all other methods had been exhausted. Of the less conclusive tests for the diagnosis of tuberculosis of the eye, the Pirquet was valuable for the negative information it furnished. Their rule had been to exclude tuberculosis on the evidence of two negative cutaneous reactions performed with 100 per cent. old tuberculin. In a small percentage of adults, however, they had to admit that this test was uncertain. The clinical picture was, of course, of great importance in the diagnosis. If they left out of consideration the ordinary phlyctenular type of the disease they might find in the conjunctiva the vegetations and ulcers which had so long been recognized. These were nearly always situated on the palpebral conjunctiva. In addition there might be the well known large phlyctenulæ usually seen in adults, and situated at a little distance from the cornea. This might disappear entirely or be gradually replaced by a scleritic nodule. In addition there might be the little grayish yellow raised structures occurring frequently in scleritis. Personally he believed that a large proportion of all scleritis was tuberculous. Certain appearances in tuberculosis of the cornea were characteristic, such as the rounded yellow or gray nodules occurring singly or in groups, situated deeply and vascularized at some period of their development. In his experience the classical interstitial keratitis was seldom of tuberculous origin. The tuberculous type of the disease presented varied and atypical features. A very typical feature was the nodule developing in the iris angle and up over the posterior surface of the cornea, starting at the lowest part of the cornea and leaving a very characteristic triangular scar with its base downwards. Tuberculous iritis usually started like an ordinary iritis and only later might nodules develop. These might be situated at any point in the membrane. What was very noticeable about all these cases was the frequency with which the clinical picture changed from day to day and week to week. The disease jumped from the sclera to the cornea, cornea to iris, iris to sclera, or *vice versa.* In most severe cases all three membranes were likely to be affected at some period of the disease. Corneal processes showed more tendency to remain localized, however, than did those in the sclera or iris. In certain forms of ocular tuberculosis the clinical appearance was of great assistance in making the diagnosis, while in other forms it might be of no help whatsoever. Of 26 cases reported last year, 19.2 per cent. gave a bad family history, while in another series of 34 cases, 20.5 per cent. gave a bad family history.

Tuberculosis of the eye was essentially a recurring disease and he believed that if they questioned these patients carefully they could usually get a history of previous inflammation. In their series this year they got such a history in 58 per cent. of the cases. If accident and blenorrhea neonatorum could be ruled out, he believed that the presence of corneal scars in childhood usually pointed toward a previous tuberculous infection. In this connection he said it would be interesting to learn in what proportion of cases with tuberculosis of the lungs, joints, glands, etc., corneal scars occurred or a history of ocular inflammation in childhood could be obtained. During the past autumn he examined 250 patients at the Massachusetts State Sanatorium with this in mind and found only two positive cases. Although various writers stated that comparatively few cases of ocular tuberculosis presented physical signs outside the eye, his experience had been the reverse. In the series of cases presenting deep tuberculous lesions of the eye, 69 per cent. gave suspicious signs of tuberculosis elsewhere. The diagnosis of ocular tuberculosis could seldom be made on any one point alone, but must be built up from all the facts in their possession. One year ago a tuberculosis class was established at the Massachusetts Charitable Eye and Ear Infirmary and Dr. Derby told of their system of handling these cases there. Their personnel consisted of an ophthalmologist, an internist, a social worker, and a nurse. During active ocular inflammation or increased temperature they insisted on complete rest. The patients were instructed as to diet and fresh air and were shown personally how they might rest out of doors. To his mind this was the most uncertain disease which they treated. In their experience there was no ratio between the severity of the disease and the general condition of the patient. They were inclined to look askance at a tuberculous eye occurring in a person of excellent physique. They had handled some 50 cases during the past year and a number of cases in preceding years and had never yet had to resort to the removal of an eye. Some of these patients relapsed in the most unaccountable manner. He believed there was a crying need for a small ward in each eye hospital for these cases who did not get proper care at home. They used tuberculin on nearly all of their cases. They aimed to give as large a dose as the patient would stand without any sign of a reaction, local or general. They began with 1-10,000 of a milligram and worked up with reasonable speed, seldom going above 1 mgm. Tuberculin was not given at the menstrual period. They believed in continuing the tuberculin after the ocular process was well.

Tuberculosis of the Conjunctiva.—Dr. Carl Koller presented this patient, an apparently healthy young man, 21 years old, without any signs of pulmonary tuberculosis. For about two months before being referred to him the patient had been treated by his family physician for an affection of the lower lid, which looked like an "infarct of a Meibomian gland." There were three inflamed chalazea of small size in the tarsus of the upper lid, the cutis of which showed considerable venous congestion. The affection on the lower lid presented itself as a small wedge near the free edge of the tarsus, intensely red, neither ulcerated nor raised over the conjunctival surface of the tarsus, but protruding over the free edge of the tarsus like a pouting lip. With a strong loupe the smallest nodules could be seen beneath the surface between the ducts of the Meibomian glands on both sides of the wedge-shaped formation. A small portion of the latter was excised and under the microscope typical young tubercles were shown imbedded in tissue, presenting the appearance of reactive inflammation (most likely the effect of former cauterization). Similar nodules could be discerned with the loupe on a spot of the tarsal conjunctiva of the upper lid situated over one of the three suppurating small chalazea. This patient had been treated without tuberculin injections, but with frequent scarifications and application of nitrate of silver solutions of varying strengths with most excellent results.

Etiology of Scleritis; Its Treatment and Results with Tuberculin.—Dr. Ervin Török said that scleritis was a well known disease and yet one of the rarer diseases of the eyeball. In his experience in the eye-clinic of the University at Budapest in the year 1905, only 35 cases out of 11,380 (0.30 per cent.) were of this nature, and at the New York Ophthalmic and Aural Institute in 1907 there was recorded a percentage of 0.28. The clinical picture presented itself as follows: There was a more or less circumscribed bluish-red, or often violet, nodule in the anterior part of the eyeball between the limbus and the equator, usually projecting above the level of the sclera, forming a small elevation the size of a pepper seed. The conjunctiva was edematous and swollen with enlarged blood vessels. There was ciliary injection around the nodules and episcleral veins. The conjunctiva was movable above the sclera and the redness disappeared for a short time under pressure. The nodules would be absent in some cases, but the characteristic bluish-violet injection in a large area was always present. There were yellowish elevations around the scleritic nodule, usually situated in the vicinity of the blood vessels and they were similar to tubercles. The subjective symptoms complained of by the patients varied. Some would complain of a mild degree of photophobia and epiphora; others of a severe pain in the eye and the bony surroundings of the eyeball. The pains usually disappeared first, then the nodule, and then the injection; a circumscribed grayish scar was left. The majority of the cases were chronic, and relapses were prone to occur, usually lasting over several years. The most common complication was the involvement of the cornea, an infiltration in its adjacent parts which did not absorb, but caused a permanent, deep, bluish-white opaque spot. Other complications were cyclitis, opacities of the vitreous with increased tension which impaired vision. In the beginning it was usually limited to one eye, but in its course it usually involved the other. Scleritis might occur at any age, but they found it more often in adults, and chiefly in women. The etiology was unknown. Vossius claimed that it was due to chronic rheumatism, gout, or menstrual disorders, but rarely to scrofula or lues. Fuchs found that his patients were affected with scrofula, tuberculosis, or hereditary lues, and admitted menstrual disorders as a factor. Nichel's claim was based on some general diseases, various forms of joint rheumatism, with serous inflammations of the joints, but with no elevation of temperature. Many cases of scleritis were due to gout, but the larger percentage of the cases were either syphilitic or tuberculous. Alt said that rheumatism, gout, syphilis, and tuberculosis were the causative factors. Swanzy claimed that it was due to congenital syphilis, rheumatism, gout, goiter, and menstrual disorders. Posey and Wright agreed upon gout and rheumatism as the cause in most of the cases, but when no such history was found they believed that the various disturbances of digestion were causative. Panas said that rheumatism, gout, menstrual disorders, scrofula, and congenital syphilis were among the causes. However, all authors agreed upon one point, connecting scleritis with some disease of the body. The most prominent of these were rheumatism, both of the joints and muscular system, gout, syphilis, both congenital and acquired, disturbances of menstruation and digestion, gonorrhea, malaria, scrofula, while some mentioned tuberculosis as a possible cause. All the authors found the scleritic nodules to be composed of round and epithelioid cells. From all the published reports the pathological examination gave the picture of an inflammation without any characteristic signs from which they might deduce

the cause. The only exceptions were Zimmermann's case and four cases of Verhoeff's which showed typical tuberculous structure. Dr. Török said that a few years ago he looked for tuberculous disease of the eye and applied the tuberculin treatment, with the remarkable result that he learned that tuberculous disease of the eye was more often met with than the reports and statistics so far had recorded. He found it most frequently in deep scleritis, and these were the cases where the cornea, iris, and ciliary body were involved. In preparing his paper he said he had studied clinically the action of tuberculin upon cases of scleritis and within the last five years all these cases, so far as was possible for diagnostic purposes, were subjected to Koch's tuberculin, and for therapeutic purposes the cases were subjected to T. R. The end result of the research in his opinion was, that tuberculosis was the main and most probably the only etiological factor. Several authorities had spoken in favor of this hypothesis, while others had spoken against it. The claims of those who spoke against the tuberculous origin were based upon the following: (1) Inoculations of excised nodules into rabbits failed to develop tuberculosis. This could be disproven because positive results proved the presence of tuberculosis which negative results did not disprove. (2) The lack of the characteristic microscopial picture of tuberculosis and the absence of the tubercle bacilli. This statement was disproved by the knowledge that the pathological picture of tuberculosis varied; they could not disprove this diagnosis; they could not make it dependent upon the microscopical picture. Such cases were cited by Mitvalsky and Rhein. Some authors mentioned tuberculosis as an etiological factor only as a rare and probable one. Thirteen cases of Verhoeff's reacted upon Koch's old tuberculin; the subsequent treatment of these cases showed great improvement in some instances, and complete recovery in others. Dr. Török gave the record of fifteen cases, three males and twelve females. Four were between the ages of ten and twenty; six between twenty and thirty; five between thirty and fifty. The family history showed tuberculosis in four cases; tuberculosis was suspected in two cases; there was a negative history in nine cases. Five patients suffered from tuberculosis; there were no evidences of the disease in the other ten. They all suffered from scleritis in chronic form lasting from three months to four years. Thirteen cases showed corneal complications; two cases showed involvement of the sclera only, one being an episcleritis. Six out of the thirteen cases showed an iritis. T. V. was administered in fourteen cases; twelve of these gave a positive reaction. Local reaction was noticeable in the increase of the injection, with photophia and pain and, in some cases, the development of new small nodules. In certain cases the conjunctiva also participated; the eyelids became edematous, the conjunctiva became red, swollen, succulent and there was a free mucopurulent secretion. Conjunctival involvement disappeared without treatment in a few days. One case subject to acute articular rheumatism would not submit to the tuberculin test; he showed improvement under salicylate of soda, but relapse was observed four months later. T. R. was administered in 11 cases with the following results: Ten cases were cured in from eight months to four years without relapse; one case showed considerable improvement after eleven injections of T. R., but the final result could not be obtained as the patient failed to report. In spite of the negative result of the T. V. injection. T. R. was administered in two cases with perfect recovery. Three patients with positive T. V. reaction would not submit themselves to treatment. The author stated that tuberculosis was the most frequent and probably the only etiological factor in scleritis. Episcleritis might be due to rheumatism. Typical gelatinous scleritis was never due to lues. Syphilis in the tertiary stage might produce a gumma of the sclera, or a papule in the secondary stage. Both might resemble true scleritis, but would never have the typical symptoms and course of such. Great emphasis must be laid on the true family history and thorough examination of the patient in every case of scleritis. Every case of scleritis should be injected with T. V. and in case of positive reaction the administration of tuberculin should be applied. Even in cases where T. V. failed to give a positive reaction tuberculin injections should be administered.

Dr. Emil Gruening, in opening the discussion, said that upon the whole cases affecting the anterior half of the globe were but rarely due to tuberculosis. It has been said by one of the speakers of the evening that, in his opinion, and in that of others, scleritis was invariably due to tuberculosis. From this assertion he wished to dissent. Scleritis might, in rare cases, be due to tuberculosis, but ordinarily it was due to other causes. They had scleritis long before they had become acquainted with tuberculin injections, and even the recurrent cases of scleritis yielded to aspiring and warm applications. If it were maintained that scleritis was due to tuberculosis, we must hold that for its cure tuberculin was unnecessary. Parenchymatous keratitis might in some rare instances also be due to the presence of tubercles, but in the vast majority of cases that one saw in our clinical material the disease was indubitably due to inherited syphilis, and yielded to the local treatment of dionin, atropin, and warm applications, and the general treatment of iodide of potassium and mercury. In conclusion Dr. Gruening wished to thank the guest of the evening, Dr. Derby, for his instructive communication.

Dr. Charles Stedman Bull, in discussing Dr. Derby's paper, considered the points upon which they might base their diagnosis. It was a well recognized fact that the ocular lesion might be primary and that it might be the only existing focus of the infection in the organism. It was known that when the lesion spread from the interior to the exterior of the eyeball, the foci of disease might always be found in the filtration angle. The presence of indurated glands was not pathognomonic, but of great diagnostic value. They knew from Mr. Treacher Collins that the reaction of the tissues to the various tuberculin tests consisted of an aggregation of cells made up of a central giant cell, the so-called Langhans cell, epithelioid cells, and lymphocytes. The three conditions, cellular aggregation, the giant cell system, and caseous degeneration when found together in a tissue made the diagnosis of tuberculosis practically certain. A failure to find the tubercle bacillus after careful search did not disprove the tuberculous nature of a lesion. Reactions from tuberculin tests were of three varieties: The local reaction at the point of puncture, which was slight and delicate; the ocular reaction, which should be unmistakable, and the general or constitutional reaction. Dr. Bull said that he had abandoned the conjunctival test as he considered it liable to cause a most obstinate and severe conjunctivitis in a perfectly healthy eye. The examination of eye cases for suspected tuberculosis should be conducted as follows: (1) A thorough physical examination of the nose, throat, lungs, joints, etc. (2) A careful statement of the existing disease condition of the affected eye. (3) The examination with tuberculin as follows: (*a*) The cutaneous test should be made by rubbing one drop of old tuberculin into two scarified points on the arm about 5 cm. apart. For a control one drop of a one-half per cent. carbolic-glycerin solution should be gently rubbed into a scarified point between and a little to one side of the line of the other two points. The scarified points need not be more than one-half inch in diameter; care should be taken not to draw blood, but to see that serum exuded. The case should be personally examined within the first twenty-four hours and the

time when the reaction first appeared should be noted. The size of the areola should be measured in millimeters and the intensity of the reaction noted. The vaccination points should be examined 24 and 72 hours after the test. (*b*) In case the conjunctival test was made, the degree of conjunctival reaction should be noticed within twelve hours and a careful record kept of its character and duration. If both these tests were negative they should be repeated in the same manner after four days. If these tests again proved negative and clinical evidence pointed to tuberculosis, the subcutaneous test should be applied. (*c*) In making the subcutaneous test the temperature should be taken every two hours for two days prior to the injection. If it was found to be normal the test might be made according to Koch's method, with an injection of one mg. of old tuberculin. If the result was negative at the end of three days, 3 mg. might be used. If the result was still negative a dose of 5 mg. might be used at the end of three days. If this was negative it might be assumed that active tuberculosis did not exist. If the result was positive, a record of the temperature should be made every two hours and the character of the reaction described. Both the eye and the point of puncture should be carefully watched for reaction. In reference to the employment of tuberculin as a therapeutic measure, Dr. Bull said that he had used O. T. of Koch, T. R., and two other preparations, one a 50 per cent. solution of tuberculin and the other the original tuberculin T. O., prepared after the method of Koch, and he preferred the latter. The tuberculin excited a reactive inflammation in the surrounding tissues, and this result was best obtained by the use of small, gradually increasing doses. Relapses were frequent, but occurred less frequently if treatment was carried out for months. Beginning with a dose of 2 mg. the strength of the injection might be gradually increased to 5 mg. Injections were given on alternate days for three weeks, then twice a week for three weeks; then once a week for as long as might be necessary. Many cases were obstinate in resisting treatment, but most of them were benefited and some were apparently cured.

Dr. John E. Weeks congratulated Dr. Derby upon having the method adopted at the Massachusetts State Sanatorium which had been so productive of good results. With regard to the diagnosis of tuberculosis of the eye he wished to endorse what had been said so far as the use of tuberculin was concerned; that was, they must have a local reaction in the eye before stating positively that tuberculosis of the eye existed. He had employed the skin reaction and the conjunctival reaction; he did not consider either of great value for the reason that if one got a reaction by either method, it did not prove that the condition of the eye was tuberculous. It simply went to show that there was a tuberculous focus somewhere in the body. At autopsies a very large percentage of the cases examined had some focus of tuberculosis from which they had recovered. Among the methods employed in making a diagnosis was that of inspection. Tuberculosis of the conjunctiva presented two principal forms. First, acute miliary tuberculosis. Anyone who had observed the results of inoculation of the conjunctiva with tubercle bacilli would be able to recognize the condition readily. The tubercles developed rapidly on the ocular conjunctiva as well as on the palpebral conjunctiva. They resembled trachoma granules. Second, there was a chronic form of tuberculosis of the eye which resembled lupus. This was a condition of localized superficial ulceration of the conjunctiva with ragged borders. In tuberculosis of the eyeball, cornea and sclera present characteristic appearances in the isolated grayish foci; when these are present, it means that the condition in the sclera was invariably due to tuberculosis. There were many cases of scleritis which presented clinical appearances which did not correspond to the inflammation caused by the tubercle bacilli. Scleritis could be caused to disappear under treatment not connected with the treatment of tuberculosis as, for instance, sodium salicylate. Dr. Weeks had recently seen a case of scleritis of more than two years' duration which did not present the grayish foci peculiar to tuberculous scleritis. All symptoms entirely disappeared under the use of sodium salicylate. Another method of diagnosis, already alluded to, was the microscopical examination. Another, the inoculation method. One was not always able to demonstrate the tubercle bacillus in tuberculous tissue under the microscope. In such cases the introduction of a piece of tissue into the anterior chamber of a rabbit would produce a tuberculous iritis in three or four weeks. Another method of diagnosis was by exclusion. One might observe a growth in the iris, sclera, or some other part of the eye and suspect it to be tuberculous, but might not be able to determine it either by inoculation or inspection. If in these cases a negative effect is obtained by the use of the iodides, mercury, and the salicylates, in the absence of symptoms which pointed definitely to a malignant growth, one might be warranted in stating with some degree of certainty that the condition was tuberculous. With regard to the use of tuberculin for diagnostic purpose, Dr. Weeks quoted from a paper read by Dr. Trudeau at Washington some years ago in which was outlined the method of making a diagnosis of tuberculosis by subcutaneous injection, as follows: "The range of the patient's temperature is ascertained by taking it at 8 A. M., 3 P. M., and 8 P. M., for three days before making the test. The first injection should not exceed 0.5 mg., and if any fever is habitually present should even be less, and is best given early in the morning or late at night, as the typical reaction usually begins, in my experience, within six to twelve hours. Such a small dose, while it will often be sufficient to produce the looked-for rise of temperature, has under my observation never produced unpleasant or violent symptoms. An interval of two or three days should be allowed between each of the two or three subsequent injections it may be necessary to give, as reaction in very rare cases may be delayed for twenty-four or even thirty-six hours. On the third day a second dose of 1 mg. is given, and, if no effect is produced, a third dose, of 2 mg., three days later. In the great majority of cases of latent tuberculosis an appreciable reaction will be produced by the time a dose of 2 mg. has been reached. If no effect has been caused by the tests applied as above, I have usually gone no farther and concluded that no tuberculous process was present. If some slight symptoms, however, have been produced by a dose of 2 mg., it may be necessary to give a fourth injection of 3 mg. in order to reach a positive conclusion. Nevertheless, it should be borne in mind that in a few cases the exhibition of even larger doses may cause reaction, when the smaller do not, and indicate the existence of some slight latent tuberculous lesion, and the negative result should not, when applied within the moderate dose described, be considered absolutely infallible. No evidence in connection with the tuberculin test as applied to man and animals has been forthcoming thus far from those who have made use of it, which would tend to sustain the general impression that this method is necessarily dangerous and tends invariably to aggravate the disease, and my own experience has developed nothing which would seem to confirm this impression." With regard to the treatment, Dr. Weeks called attention to the efficiency of the various preparations of tuberculin. He has used tuberculin prepared by the Health Board of New York City to some extent. He had found it excellent for diagnostic purposes and although it was heated to 70° or 80° C. in the process of preparation, it had therapeutic value as well. The new tuberculin of Koch was not heated to such a degree. Its therapeutic value was probably

greater than the old tuberculin (T. O.). The method employed by Von Hippel for therapeusis was advised. The dose given should be just short of a sufficient quantity to produce reaction. Von Hippel began with 0.05 mg. and gradually increases the dose. Another form of tuberculin that was valuable and probably more active than the T. R. was the so-called bouillon filtré, B. F. of Denys. This was given in about the same dose as the other, and the same results were obtained as with the T. R. In Dr. Weeks's experience tuberculosis of the eye was not so extremely common. Within three years he had treated eleven cases. Of these eleven there was one case of tuberculosis of the iris, four of the choroid, three of the cornea, and three of the sclera and cornea. In all of these cases he obtained a local reaction. The therapeutic results of the treatment with tuberculin in all the cases had been satisfactory.

Dr. Wilbur B. Marple said that although he had used tuberculin rather extensively as a diagnostic aid in various ocular lesions as to the etiology of which he was in doubt, the results had been in most cases negative. In two cases, however, during the past year the results so far as treatment was concerned were very satisfactory. From the consideration of this not very abundant material he had reached some conclusions which were in harmony with those of others with larger experience and which were given below. One of his cases was of considerable interest and he gave briefly her story. The patient was a young colored girl, aged twenty-two, of good general health, with no evidence of tuberculosis elsewhere. She was seen first early in January, 1908, and the diagnosis of keratoiritis of the left eye was made, and she was put on specific treatment. The condition grew steadily worse, and, after two or three weeks, disseminated nodules began to appear in the iris. On February 3, 1908, the condition presented the appearance shown in the drawing by his assistant, Dr. George Young. January 30 she received 1 c.c. of old tuberculin = 1 mg. hypodermically for diagnostic purposes. There was no reaction, either local or general. February 4, she received the same dose. February 5, 0.5 c.c., 9, 2 c.c., 13, 4 c.c., and 17, 3 c.c. On one occasion she had an evening temperature of 99°, the nearest approach to a reaction she had at any time. But though there was no local or constitutional reaction, the appearance of the eye during these three weeks while she received tuberculin injections underwent a remarkable change, which was shown most excellently by a series of pencil sketches, also by Dr. Young. On January 27 there were numerous disseminate tubercles in the iris with exudate on Descemet's membrane. Intense pericorneal injection. Pupil dilated imperfectly with atropine. It gradually dilated until it was dilated *ad maximum*, except below, on February 23. The pericorneal injection gradually disappeared, the exudate lessened, but the most striking change was the disappearance of the tubercles, none being visible on March 2, the date of the discharge. On admission her vision was fingers at 10 feet, on discharge, March 2, it was 20/70. In this case injections of old tuberculin were employed for diagnostic purposes. Not getting any reaction they were repeated over a period of a little less than three weeks with the surprising and unexpected improvement in the patient's condition described above. The patient disappeared and was not seen again until April 16, six weeks subsequently. There were then again numerous mutton fat exudates over the lower half of Descemet's membrane and several tubercles in the iris and vision was fingers at 15 feet. She was then put on T. R., 1/500 mg. hypodermically every three days, increasing the dose 1/500 mg. each time. May 18, there were no tubercles in the iris, the exudates were less, and the eye was much whiter. The details of the fundus could be seen. L. V. = 20/70 with 1.5 D. of hyperopia corrected. She left the city in June and her treatment was continued by a colleague until the end of September. Dr. Marple concluded as follows: 1. For diagnostic purposes begin with very small doses and increase slowly, thus avoiding excessive reactions. He had begun with 1 mg. of old tuberculin subcutaneously and increased gradually up to 3 or 4 mg. or more. No reaction following, he had repeated the injection every three or four days. It had been amply demonstrated that tuberculin hypersusceptibility might be produced in cases in which the diagnosis had been made only by the tuberculin test, so that the one marked reaction which the test had developed made the individual, slight as the disease was, for a long time so hypersusceptible to the toxin that it became exceedingly difficult to produce any tolerance when the treatment was begun. 2. The treatment must be continued for several months. Both of his cases (iritis) relapsed after treatment was discontinued after six weeks and two and a half months, respectively. Both patients began improving after treatment was resumed. The one case was under treatment for over six months. The second case was still under treatment. 3. In the treatment very small doses of T. R.. should be given at first. His patients received 1/500 mg., which was gradually increased 1/500 mg. more each time until they received 1/37 mg. Injections were given twice a week. He had followed the suggestions of Dr. Trudeau as to the size and frequency of doses. ("Tuberculin Treatment of Pulmonary Tuberculosis," *American Journal of the Medical Sciences,* June 1907.) 4. A negative reaction, general or local, did not prove that the case was not tuberculosis. His first patient never gave any reaction, and yet was entirely cured of tuberculous iritis with tuberculin injections.

Dr. Arnold Knapp said that he was very much interested in the papers of the evening because the topic was an unusually important one for ophthalmologists. There had been unquestionably a great many cases of ocular tuberculosis which had not been recognized, and he was glad we were making progress in detecting this affection. It seemed to him that a subcutaneous tuberculin test should be applied in every chronic eye case with indefinite clinical symptoms. They had no trouble in getting their patients to enter the hospital for a few days to permit this diagnostic test. The local reaction was, of course, reassuring, but in certain cases of choroiditis it might be absent, though the case was unquestionably tuberculous. He had never seen the local reaction during the diagnostic test cause any retardation in progress toward recovery. On the contrary, there had often been a surprising improvement which sometimes did not persist. He had been able to watch the results of tuberculin treatment in quite a large number of cases. Many of these profited by the painstaking and persevering treatment of Dr. Török at the New York Ophthalmic and Aural Institute. In general the best results were seen in tuberculosis of the conjunctiva, the cornea, and the sclera; while in most affections of the deeper parts of the eye the results were disappointing. It had seemed to him that a great deal could be accomplished in these city patients if we were better able to look after their general health, to keep them in better hygienic condition. Dr. Derby's discription of the tuberculosis class which was conducted in conjunction with the Massachusetts Eye and Ear Hospital had been extremely suggestive. He thought that unquestionably this should be a part of every eye dispensary.

Cancer of the Gastrointestinal Tract.—William J. Mayo concludes an article on the surgical cure of cancer by saying that "it can be shown conclusively that there is no reason why operations for cancer of the gastrointestinal canal should not show results as good, both immediate and remote, as after operations for cancer in any other part of the body."—*St. Paul Medical Journal.*

Pathological Society of Philadelphia.

At a stated meeting, held January 13, Dr. W. T. Longcope presented specimens of dilatation of the abdominal aorta, possibly of syphilitic origin, with fibrinous deposition, and thrombosis of the renal artery on one side. Both kidneys exhibited evidences of chronic inflammation, the more marked on the side of the thrombosis. The patient was a young colored woman who presented a number of other morbid conditions. Dr. Howard T. Karsner presented a specimen of "Congenital Syphilitic Osteochondritis." The gross appearance of the lesion was that of a light band of demarcation at the diaphysoepiphyseal junction, and it could be found in instances in which because of decomposition of the fetus it might be impossible to demonstrate the presence of the treponema. Dr. Homer F. Swift of New York City read by invitation a paper entitled "Serum-diagnosis in Syphilis." He elucidated the principles on which the serum-reaction of syphilis is based, outlined the methods of application, and gave a résumé of the results thus far attained. He pointed out the especial utility of the procedure in the diagnosis of the disease in doubtful cases, or its exclusion when not present, and the desirability of instituting treatment as soon as the diagnosis is made without waiting for the appearances of secondary lesions and persisting in the treatment so long as the reaction is present and intermitting or remitting it as the reaction subsides. The reaction is to be considered one of the symptoms of syphilis, and like other symptoms it cannot be expected to be present invariably in every case. However, of all the symptoms of syphilis it is the most common and the most trustworthy. In discussion Dr. Hideyo Noguchi of New York City pointed out the trustworthiness of the modification of the original Wassermann reaction that he has developed. During his short visit he had examined 59 cases of most varied kinds taken without selection at the Pennsylvania Hospital and not in a single non-syphilitic case had he obtained a positive response. In a case of undoubted syphilis and in several of tabes and paretic dementia positive responses were obtained. In all of these instances the source of the blood was entirely unknown to the examiner. The test has been employed also in New York City by a considerable number of investigators in more than 2000 cases, and it has proved eminently satisfactory. To secure correct results the investigator must have sufficient skill, be thoroughly familiar with the technique and operate only with irreproachable reagents. Dr. Ellen P. Corson-White related that she had performed the Wassermann reaction and the Noguchi modification in more than 500 cases, and the results were in every way convincing. Dr. E. E. Krumbhaar presented a communication entitled "Adams-Stokes Disease: Report of a Case of Complete Heart-block without Lesions of the Bundle of His." The patient had been a man, 65 years old, who for a number of years had presented a bradycardia of the most extreme degree, the heart at times beating not more than three times in a minute, together with attacks of syncope. Tracings of the pulsation of the heart, of the jugular vein, and of the carotid artery showed a total dissociation of the beats of auricles and ventricles. The patient died in one of these attacks, and post-mortem examination disclosed a moderate grade of chronic endocarditis, with thickening of mitral and aortic leaflets, and a considerable degree of generalized myocarditis. Macroscopically there appeared to be no lesion of the bundle of His, and microscopical examination disclosed only a slight degree of fibrosis that could not be considered to be in excess of the normal. There was a slight degree of fibrosis of the bundle of Keith in the right auricle, but Dr. Krumbhaar said that it was impossible to maintain that this almost insignificant anatomical alteration was responsible for the symptoms observed during life.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of February 12, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	639	185
Diphtheria	395	47
Measles	861	14
Scarlet Fever	642	37
Smallpox	—	—
Varicella	178	—
Typhoid Fever	52	8
Whooping Cough	13	6
Cerebrospinal Meningitis	4	5
Malarial Fever	—	—
Totals	2,784	302

Blue Color and Flies.—Marre and Fe state that corn sheds painted blue on the inside are remarkably free from flies. They advise painting all sheds with chlorinated lime containing ultramarine in order to improve the purity of milk.—*Centralblatt für Agrikulturische Chemie.*

Modifications of the Peripheral Sensibility to Pain During Pregnancy; a New Apparatus for the Study of Sensibility.—Giovanni Pandolfi describes a new apparatus constructed by him for the accurate testing of sensibility to touch and pain and its application to testing the pain sense in pregnant women. The apparatus consists of a steel point so attached to an ordinary microscope tube that the sensibility may be estimated in turns of the focusing screw. To do away with the factor of suggestion he covers the eyes of the patient. He tested this method in thirty pregnant and sixteen unpregnant women, with the result that he found sensibility to pain to be much decreased in pregnancy. This accounts for the endurance of the puerperal and pregnant woman of operative procedures of some severity without much complaint. He believes that sensibility to pain is much diminished during the pregnant state.—*Annali di Ostetricia e Ginecologia.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 11, 1910:

		Cases.	Deaths.
CHOLERA.			
Java, Batavia	Dec. 19–25	10	4
India, Calcutta	Dec. 12–Jan. 1	..	57
Madras	Jan. 1–7	..	1
Rangoon	Dec. 19–25	..	6
Russia, Moscow	Jan. 2–8	13	4
Straits Settlements, Singapore	Dec. 19–25	..	1
YELLOW FEVER.			
Brazil, Para	Jan. 9–15	1	1
PLAGUE.			
Ecuador, Babahoyo	Dec. 27–Jan. 1	12	..
Indo-China, Saigon	Nov. 22–27	3	3
Russia, Astrakhan district	Jan. 13–19	1	2
Uralsk district	Jan. 12	..	1
Turkey in Asia, Jiddah	Jan. 12–15	2	2
SMALLPOX			
Algiers, Algeria	Dec. 1–31	..	1
Austria, Galicia	Jan. 1–8	1	..
Vienna	Jan. 9–15	1	..
China, Amoy	Dec. 19–25	..	1
Canton	Dec. 12–25	10	..
Egypt, general	Dec. 10–23	117	33
Alexandria	Dec. 10–25	..	3
Cairo	Dec. 25–Jan. 7	2	2
France, Paris	Jan. 2–15	5	1
Germany, general	Jan. 9–22	14	..
Konigsberg	Jan. 9–15	1	1
Great Britain, Hull	Jan. 16–22	2	..
London	Jan. 9–22	7	..
Greece, Athens	Dec. 19–25	..	1
Hawaii, Honolulu	Jan. 31–Feb. 4	3	1 (Cases Jan. 31 from U. S. S. Washington from Yokohama. Case Feb. 2 on S. S. Makura.
India, Calcutta	Dec. 12–18	..	3
Madras	Dec. 18–24	..	1
Italy, general	Jan. 10–16	13	..
Genoa	Jan. 1–15	4	..
Milan	Jan. 1–16	1	..
Java, Batavia	Dec. 19–25	1	..
Mexico, Aguascalientes	Jan. 16–22	..	5
Portugal, Lisbon	Jan. 9–22	22	..
Russia, Moscow	Dec. 26–Jan. 8	15	8
St. Petersburg	Dec. 26–Jan. 1	34	20
Warsaw	Nov. 6–13	..	23
Spain, Almeria	Dec. 1–31	..	5
Barcelona	Jan. 10–16	..	4
Seville	Dec. 1–31	..	3
Valencia	Jan. 9–15	1	..

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Original Articles.

THE MODERN VIEWS OF HEREDITY, WITH THE STUDY OF A FREQUENTLY INHERITED PSYCHOSIS.*

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NEW YORK.

THE text for my present paper, and some justification for calling attention to the subject of Heredity just now, is found in the following rather remarkable announcements:

In a report on the inheritance of vision, and on the relative influence of heredity and environment upon eyesight, recently published by Amy Barrington and Karl Pearson (No. 5 of the "Eugenics Memoirs," University of London) I find the following conclusions: 1, There is no evidence whatever that overcrowded and poverty-stricken homes or physical ill conditions or immoral parentages are markedly detrimental to the children's eyesight; 2, there is no sufficient or definite evidence that school environment has a deleterious effect on the eyesight of children; 3, there is ample evidence that refraction and keenness of vision are inherited characters.

In an article published by Professor Pearson, in the *Biometrika,* Vol. III, 1904, the writer announces, after several years' study of inheritance in groups of individuals, that the mental and moral traits of parents and ancestors, are transmitted in just about the same proportion as are physical traits.

There is a large and important body of investigators who call themselves *biometricians,* and who are studying the problems of heredity by means of measurements and statistical analyses of large groups of individuals. The whole burden of their teaching is to the effect that the important traits of a race are inherited, that the most important thing for the progress of the race, is to improve the stock, and that it is a waste of time, effort and money to try to educate bad stock. Their theories give a blow at once to a large amount of the educational activities now turned in the direction of trying to help the retarded, the backward, and the abnormal.

England, says Profesor Pearson, is suffering from a dearth of intelligent men. It is falling behind America and Germany in its commercial progress and activity. The relief from such a condition is not to be found, he says, in introducing technical schools and improved methods of education, but in persuading the intelligent classes and the good stock of the country to have more children. The increase in the population comes now from an inferior stock. We are told by certain anthropologists that the mixture of different races is beneficial, and that the combination of a mixed stock in an American environment, is going to produce a new and great race. The biometricians would not, I think, admit this view at all. At least not without studies showing that the mixed stocks are good stocks.

The laws of heredity, as discovered by Mendel, and elaborated by his followers, show that you cannot by mixing hybrids, produce a pure stock, that there will always be a majority of hybrids, a minority of pure stock and another minority of bad and abnormal stock. In other words, if, for example, we mingle the Anglo-Saxon with, let us say, the Spaniard, we never get a pure-blended stock, combining the best qualities of either, but we get a hybrid stock, with a minority of individuals showing Anglo-Saxon traits in predominance, and another showing Latin traits predominant. Furthermore, if we bring into our nationality races or stock with distinctly abnormal and anti-social traits, these can never be bred-out of our nationality by inter-racial mixture.

Coming to the subject of the physical and mental diseases, the same laws are supposed to apply. We cannot, by the best possible methods of training and education, make a poor stock with mental abnormalities a good one, and if we mix an abnormal stock with a good one, such mixtures will never entirely breed-out the bad.

It is such pronouncements as these, coming from authoritative sources, and backed up by an enormous mass of statistical work and laboratory studies, that make it seem important for medical men to take a little more interest and inform themselves a little more accurately of what is being done to-day by the students of the problems of heredity. The subject is so large a one, and has become of late years so extraordinarily technical, that I cannot possibly succeed in presenting even an abstract to-night of all that is important in the matter. I propose, however, to touch upon two lines of active inquiry which are being carried out, namely, the biometric studies and the Mendelian studies, and to then bring some practical application of this in my own experience in a single limited group of abnormal mental states. The subject is one which was brought to my attention three or four years ago, and I prepared a semi-popular discourse upon it, which was delivered at the Academy of Medicine, under the auspices of the Psychiatrical Society. This address was heard by few, and has never been published. Since it was written, much has been added to the subject, and what I say to-night is not only a condensation of what I said then, but a modification of much of it.

Heredity, as I understand it, means that mode of biological activity by reason of which one generation transmits its characteristics to another. It is one of the phases of that special activity of protoplasm, which used to be called "vital force." It is a kind of

*Read at the meeting of the Practitioners' Society, January 7, 1910.

memory in the cells. By it parents transmit to the offspring similar organs and functions, so that one species reproduces its kind, and also the traits of the family and individual. Heredity represents and carries along in its activity something of all the previous ancestors. Man has what Galton calls a "nature" or individual character and personality. This is made up of three things: First, and most important, is his heredity or his inherited characters. Second, certain changes or additions, due to accidents of his conception and growth before birth. Third, the acquired traits which result from his education and environment. We cannot express in figures how large a part of man's "nature" belongs to heredity. It is the large and fundamental part, especially as regards general characters and species. It has been generally believed, and is still maintained, that the *mind* of man has a "nature" in which individual action is freer, and that our mental inheritance can, in good measure, be controlled and directed by what is added or acquired. So that, as man evolves and becomes more developed as regards his brain and intellect, he becomes less a slave of his inheritance, and the freedom of our will is, in a sense, measured by the development of this intelligence. The influence of heredity, then, would lessen in the higher types of civilized man. This view, however, which is so hopeful to the moralist and educator, is absolutely denied by Pearson, who asserts that the mental and normal qualities are just as much a matter of stock and ancestry as are the physical qualities.

The subject of heridity is studied by the cytologist from a purely morphological and physiological point of view. This phase of biological science is one which is quite apart from that with which I am concerned now.

For there is another class of investigators who study simply the general facts of heredity, using statistical methods upon large groups of individuals, making measurements, determining which are laid down in the technical language of the mathematician. These investigators are working along two lines: One group call themselves *biometrists* or *biometricians*. They are the followers of Galton, and their work is published in a large, technical journal, and in various special pamphlets.

Still another group of investigators is following the principles discovered by Mendel, and are known as *Mendelians*. I do not mean to say that they are mutually exclusive in their lines of work, for they are not, though there has been a certain antagonism between the methods of the biometrist and of the Mendelian. There seems, however, to be now a coming together of the two.

Now, out of the enormous mass of statistics and observations which have been accumulated regarding heredity, so far, there have been only two principles evolved which can be considered laws. The first of these is "Galton's law of ancestral inheritance," modified by Pearson, and the second is "Mendel's law." Galton's law of ancestral inheritance is simply this: that of all the heritage which an individual possesses, one-half, on the average, comes from his parents, one-quarter from his grand-parents, an eighth from the great grand-parents, and so on. Supposing, for example, that there are two parents, both of whom have a distinctive mental or physical trait. The child, it is found, has somewhat less than half of these traits. How would this be explained? Under the law of Galton, it occurs in this way: the 50 per cent. of traits which he might have inherited from his parents, is offset in a measure, by the absence of these traits in a large part of the ancestry which preceded. On the other hand, if the child had more than the talent of the two parents, it is not that their union intensifies this talent, but that there were also evidences of the same talent in the grandparents and other antecedents. This law explains, in a degree, the inferiority of the children of parents who have been distinguished in certain lines, a fact so often observed.

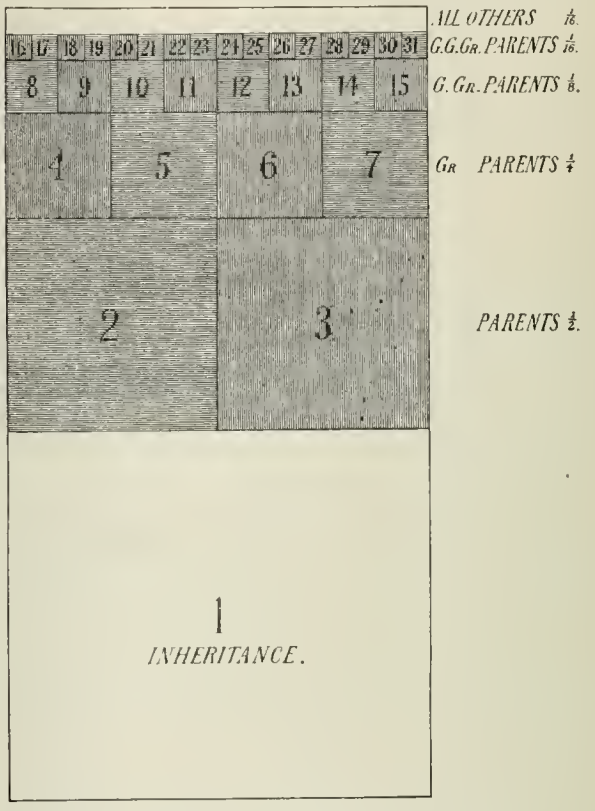

Fig. 1.—Galton's Law of Ancestral Inheritance.

As may be seen, this law of ancestral inheritance helps us in predicting, in a very general way, the nature of prospective generations. It tells us, for example, that a family in which large numbers of certain characteristics exist, will be apt to continue to breed these characteristics. It explains the puzzling fact that the children of geniuses all seem to be rather inferior; and yet, that genius is hereditary. It is hereditary not because the parents have it, but because it is in the ancestral lines, and spreads largely throughout the family tree.

Mendel's law is not a thing that can be stated in any simple formula. It is based, in the first place, on the fact that characters in an individual are transmitted in a unit form, and are not blended with an opposite characteristic, and, secondly, that these unit characters tend to combine in definite proportions, so that, for example, if a tall man and a short woman marry, the characters of tallness and shortness would show in the offspring in a certain definite proportion. Mendel was enabled, for instance, in breeding tall peas with dwarf peas, to predict that at the end of the fourth generation, there would be so many talls and so many shorts, in the proportion of about 1 to 3.

The law, therefore, concerns itself with the phenomena of hybrids, of the breeding together of individuals that have distinctly opposite or pairs of

characters, so to speak. When a pure type of one kind like a tall pea breeds with a pure type of another, for example, like a dwarf pea, it forms a hybrid. Now, when *these hybrids* are bred together, their offspring will not all resemble their parents, but will differ in a certain mathematical ratio. About one-fourth will be like one original pure or tall parent, another fourth will be like the other

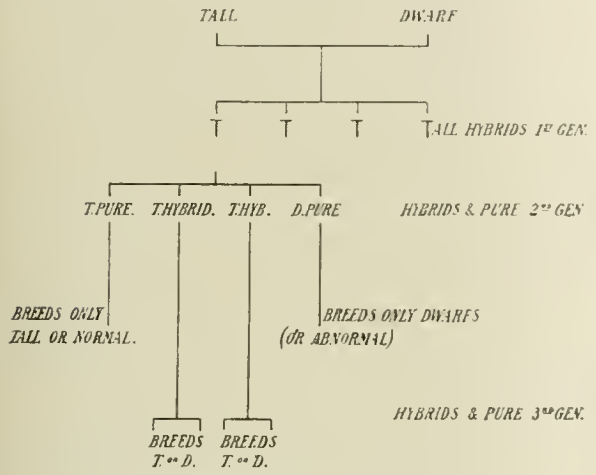

Fig. 2.—Illustration of Mendel's Law.

original pure or short parent, and one-half, or 50 per cent. will be crossed forms. So that the offspring of the breeding will be represented by the formula:

$$B^2 + 2\,BR + R^2$$

Of these, the pure individuals, B and R, will breed true indefinitely among themselves, as to the character in question, while the crosses bred among themselves will again split up into pure and crossed forms, in the same proportion of 1, 2, 1. In other words, the offspring in hybrids will not be hybrids, but half pure and half hybrids.

A second factor of Mendel's law is a distinction between what he calls *dominant* and *recessive* characters. This means practically, that the 50 per cent. of hybrids may appear to be like one of the pure forms because of the two characters of which they are made up, one is dominant to the other, and conceals it. This is shown in the diagram where it is seen that when tall peas are bred with dwarf peas, all the products will be tall because the tall character is dominant, while the dwarf character is recessive.

All this, no doubt, seems very difficult to follow, but, in a way, the dominance and recessive character of special traits are shown all the time in human heredity. We mix the black race with the white, and the black is always dominant. In the marriage of a man who has a mild neurotic taint, with a perfectly healthy woman, the offspring may be healthy because, although it contains still the neurotic taint, such, for example, as the migraine, yet it is recessive to the normal character of the family. On the other hand, a man who has had a distinct development of a serious psychosis, like a recurrent melancholia, marrying a normal woman, would have children in which the dominant trait of melancholia would appear in some of the offspring. The law of Mendel cannot apply strictly to the human race, in most instances, because it is a law which has to deal with individual characters, and human beings are made up of so many characters that the problem becomes too complex, and one character is submerged by the dominance of others. Still, in certain peculiar abnormalities, such as color-blindness, peculiar dystrophies, and other hereditary or family diseases, the Mendelian law has been shown to apply with a fair degree of accuracy. Furthermore, the general principle that hybrids do not breed true, but breed mixtures, pure and recessives, can be applied probably with safety to the intermixtures of families and, perhaps, of races.

Some further remarks may be made regarding the methods of the study of heredity, and the principles which are being utilized. The followers of Galton, the biometricians, base their work upon statistical methods, and deal with large groups of individuals. They have evolved a number of special laws or methods by which certain relationships can be formulated. There is, for example, what is known as "Yule's law" or "formula." This is a formula by which one can determine the relationship between certain conditions, as, for instance, the relationship of deafness to albinoism.

There is also the factor of regression, which is one of the principles connected with the law of ancestral inheritance. In other words, it is the tendency for persons deviating from the average, to return to the same. This is the tendency already referred to which underlies the well-known fact that exceptional men have children who are, as a rule, not so exceptional. The sons of tall parents are a little shorter than their parents, and the sons of short parents are a little taller. It is the ancestral pull, so to speak, the force of the whole inheritance which tends to bring the individual back to the mean. Following out this principal, it has been shown that the extremes of a race, that is, those representing some specially valuable or bad quality, are less productive than the means.

Thus, there are influences at work all the time to diminish the bad effects of heredity on the race, at least, although at the expense of the family. But these influences do not work perfectly if the lives of the parents and the functions of the parents are not regulated in accordance with the rules of ordinary healthful living.

There is a third factor which tends to preserve the sanity and healthfulness of the race, and it consists in the fact that acquired defects and abnormalities are not transmitted to the children. For many years the Lamarckian view was held to a certain extent, at least, viz., that acquired traits could be transmitted. Weissmann propounded a theory that the germ cells which propagate the individual, are independent of the body cells which make up the structure of the system, and any injuries or diseases or defects which were inflicted upon the body cells, do not have any effect upon the heritage of the germ cells which live apart, and propagate only their own defects and virtues. This theory of Weissmann has been very much discussed, but it is now, I think, generally accepted. It is my experience that, in its general lines it represents, so far as human beings go, the truth. We know, for example that if one were to cut off a leg of an individual for an indefinite number of successive generations, there would be no one-legged children born, and so far as mutilation affecting the human race are concerned, it is certainly an established fact that they are not transmitted.

In the same way, it is known that acquired diseases, like syphilis and consumption, are not directly transmitted, or only in very rare instances. We would be able to say the same thing about vicious

habits which have been acquired. A man of naturally good character and life, but who through the influence of bad associations, acquires the alcoholic habit, does not transmit this habit, and in the same way, there are certain "acquired" insanities, such as those following fevers or poisons, etc., the presence of which in an ancestry, so far as it is an insanity, need cause little apprehension on the part of the children. It is true, that if a parent has a disease which is injurious to his general health, which leads to bodily weakness, or by reason of which his tissues have become poisoned and enfeebled, the offspring may be made feebler, and, in this sense, the acquired enfeeblement of a parent may lead to a somewhat enfeebled descendant. But the special character of this trouble, whether it be drunkenness or vice or disease, is not thus passed on. In studying the statistics of insanity, therefore, with reference to its presence in the ancestors, we should take into account the fact that a certain number of these insanities are accidental, and have no direct influence in producing diseases in the offspring.

It has been found in recent studies of heredity, and particularly in the study of the development of monstrosities and freaks of various kinds, and even of idiocy, that serious effects upon the children can be produced by noxious influences that affect the mother during the time that the child is developing; that mechanical influences, like shocks, or chemical influences like poisons and infections, which get into the system at the time of pregnancy, may injure the vitality of the growing germ cells, and produce anomalies and monstrosities. By shaking and disturbing the contents of the fecundated egg in the chicken, all kinds of monstrous pullets can be brought forth.

In my own experience, in the study of the backward children or the idiot class, in which the idiocy was apparently begun at birth, it has been rare to find anything in the ancestors which would explain it, and among the idiot class that come to a private physician's office, I should say that the determining influence, in most cases, could be traced to something which occurred when the child was in the embryonic state. This is not altogether the case in the great mass of idiots found in institutions.

Thus, you see Nature provides these three measures to lessen the injury that would come from the development of disease and bad habits in adult life; these three influences being (1) the tendency to sterility and extinction of degenerate families, (2) the tendency to bring the family back from the abnormal to the normal or average, through the agency of the ancestral "pull," and (3) the refusal, on the part of Nature, to transit what has been acquired.

Leaving the general question, I will take up now one practical side of the matter, *viz.*, that of bad heredity in form of a particular unit character of, *viz.*, that of insanity. How extensive and various does this bad characteristic affect society, and to how large an extent must a family be impregnated with it in order to make it unsafe for the children to marry. As to the extent about one person in every 300 is insane. In a community of 3000 people, there are therefore about 10 insane, and 6 of these have mainly a hereditary type of disorder. As to the seriousness to succeeding generations of the presence of a psychosis in a family we are confronted with many problems: "An uncle was insane or a cousin, or a father or grandfather was insane. Will it therefore be safe for me to marry?" Now, in order to answer this and similar questions, there are four factors in the matter of heredity which we have to consider: (1) Mental diseases are sometimes transmitted directly, that is to say, the father transmits the disease directly to the son, and the son to the grandson. This is known as "direct heredity." This is the most serious form of heredity influence. (2) Another form of heredity is known as "collateral," that is to say, the uncle, or aunt, or cousin or great aunt are known to have had mental disorders. This is a not uncommon thing to find in investigating the history of any family, but it is of vastly less and often of no importance. (3) Thirdly, how many persons are there who had the mental disorder, or *psychosis*, in the family, for this indicates the intensity of the characteristic? (4) What was the nature of the mental disorder for, as I have already said, one-third of the mental disorders are acquired, and those which are "acquired" need not be much feared, while of those which are not acquired, some are more serious in their transmissive power than others. There are, of course, no general rules to be followed inflexibly in these cases, but I think we would be fairly well agreed upon these points: *First*, direct heredity is the most serious and often the only factor to be considered seriously. When a father or mother has had a distinct psychosis, that was not acquired, and which came on early in life, this person takes the very greatest risk in marrying. Direct heredity is of importance in the case of grandparents only in rare cases. *Second*, if the heredity is not direct but collateral only, that is to say, if it involves only an uncle or aunt or cousins, and exists upon only one side, the danger of any transmission is remote, and does not of itself justify a refusal to the marriage. *Third*, if there is no direct heredity, but there is a mental disease in the collaterals on both sides, the danger of marriage is still only moderately great. *Fourth*, when there is an abnormal character in a family, but certain members have bred true for three generations, it will not reappear in that line. The degenerative psychoses and neuroses seem to be mainly or fundamentally due to teratological defects and to rank with such things as color-blindness, polydactylism, etc. But they are of varying degree of dominance. In all probability, the early dementias form the most serious of the degenerative psychoses. It is families, with this brand of psychosis, which should avoid perpetuating themselves. On the other hand "melancholia," or "mania," is less serious in its characters. And, as I have already stated, the late insanities and the acquired, are least serious.

I wish in conclusion to give the results of a special study of heredity in cases having one unit character, viz, that of a functional psychosis, known as *melancholia*, or *manic depressive insanity*. This is a malady which is usually constitutional, is very chronic and very difficult to eradicate from the individual, but which does not lead to any mental deterioration. It has the qualities of a migraine affecting the psychic instead of the sensory sphere. It has all grades of severity, and in its mildest form, it is represented by what is often called *neurasthenia*. Practically all the primary neurasthenias are forms of a functional melancholia, of the abortive type.* Many

*There is, to be sure, a "physiological" neurasthenia, due to persistent strain, infections and overwork, but it is relatively rare. And there are also local neurasthenias due to overwork of an organ.

of the hypochondriacal conditions of early life are simply abortive types of the melancholia which occurs at involution, and most of the depressive neuroses of adult life are simply partially developed attacks of the "melancholia-mania" psychosis.

In studying the heredity of insanity, it has often been customary to study insanity as a whole, and also to study the psychoses of various kinds in the collaterals and the remote ancestors. In my experience, it is only the direct parental heredity which is of much importance to the offspring in the psychosis under question. I have therefore gone over the histories of 111 selected cases in which I was able to obtain a good history of the parents, grandparents, and usually of the collaterals. The cases were all patients in the better walks of life, of whom the family history was well known. The result shows that in this psychosis, in about one-third there is a direct parental heredity, more often found on the father's side than on the mother's. In one set of 51 cases the results were as follows:

	Males.	Females.
Recurrent melancholia	18	33
Direct parental heridity of one parent..	14	
Indirect heredity alone.....	6	
Inheritance of similar psychosis in....	9	

In a second set of 60 cases the percentage of direct heredity was only 25. These cases were well developed types of the psychosis though rarely all custodial cases. In simple neurasthenic depressions this bad heredity is not over 8 per cent. and is rather insignificant.

Among 1246 cases of insanity of all kinds received in Bellevue Hospital, there was a history of direct heredity in 35 per cent.*; collateral heredity in 32 per cent. The direct heredity factor in melancholia among the well-to-do is therefore considerably less than that for insanity in general as it exists among the poor. From which one might infer that there are more influences leading to this psychosis in the exigencies of active life among the better classes; that insanities are more a matter of poor stock among the poor, or of poor environment and stress among the rich.

I have spoken of the melancholia psychosis as a unit-character. But it is not a stable unit like a sixth finger or a color-blindness preserving the same character in different generations. It is rather a variable unit taking different forms but always indicating a psychic defect in the family. It may show itself as an alcoholism or hysteria in the parent and a dementia precox in a child. The major and non-acquired psychoses have all a certain kinship and the different types interchange in the family tree. The melancholia indicates a medium grade of psychic instability and the ancestral "pull" tends to breed it out. But it is a very definite index of defect. It is, I think, a recessive character, as a rule, for I find these patients, if mated well, have sound children, but it seems especially important that such patients mate with a strong stock.

Summary.—1. If we accept the teachings of the advanced investigations into problems of heredity, we must conclude that the efforts in the direction of improving and educating poor stock, including the retarded minds, the abnormal, and the defectives generally, are of little permanent value to society, and do not directly affect racial progress. The work spent on the education of defectives should not make us lose sight of the fact that, to secure real advance we must work for and work with good stock.

2. If, as it seems likely, Mendel's law can be applied to human culture, we must conclude that the mixture of races having distinctly different characters produces a hybrid stock which never altogether breeds pure. Theoretically, about one-quarter would be pure, one-quarter bad or impure, and half would be mixed. The mixed races, therefore, which have opposite unit characters, will not produce a new, pure type, unless we are able to segregate at once the impure and hybrid three-quarters, which results from such mixtures. This may have a bearing on our immigration problems.

3. The law of Mendel affords one helpful indication for, according to it, by the third generation we can definitely say that in certain strains the breed is pure. That is to say, if in a family in which there is a so-called "family-neurosis" or psychosis, youth can look back three generations and find a clean record in his direct descendants, he can ignore his uncles, his cousins, and his aunts.

4. The law of ancestral inheritance (Galton-Pearson) shows that there is always an ancestral "pull" or tendency to bring the individual towards the average. This law, which is called the "law of regression," explains why tall parents have shorter children and short parents have taller children; also why parents of exceptional characters have children that are less so. It also tells us that the qualities of the parents are about equal in hereditary force, to those of all the other ancestry, and that those of parents and grandparents together, furnish three-quarters of the ancestral values. The most important single point, thus, in good ancestry, is the quality of the direct and immediate ascendant.

5. It is quite generally accepted that diseases, malformations, abnormal characters, and morbid habits which are acquired are not transmitted by inheritance. Thus, a person who has distinctly acquired an epilepsy, a migraine, or a psychosis, does not transmit it.

6. The modern studies of heredity show that there are certain characters in a family which are *dominant* and others which are *recessive*. In other words, that certain kinds of abnormalities and deformities or diseases have a tendency to transmit themselves very strongly, and to overpower the more normal qualities, while there are other characters which are recessive or of minor force, and have a tendency to disappear or, at least, to be submerged by the better qualities.

7. The functional psychosis known as manic-depressive insanity shows itself oftenest as a "recurrent depression." This psychosis is directly transmissable and is of direct ancestral origin in nearly one-third of the cases. Its presence in a family should lead to great caution in the marriage of the descendants.

I should not like to conclude this paper without expressing my belief that while hereditary fine stock is of the greatest importance, it is also, I believe, more true than the biometricians would admit, that the human mind is capable of overcoming obstacles and dominating its handicaps, and I should be sorry if the enthusiasm over Eugenics should lessen our faith in the power of the will to determine a man's course, for it is certainly true that the man or

*The statistics were kindly furnished by Dr. M. S. Gregory, physician to the Psychopathic Ward.

woman who is of powerful mould, and is captain of his soul, can greatly alter his ancestral "pull."

RECENT WORKS ON HEREDITY.

Davenport: "The Principles of Breeding," 1907.
R. C. Punnett: "Mendelesin," 1905.
Bateson: "The Principles of Heredity," 1909.
R. H. Lock: "Recent Progress in the Study of Variation, Heredity, and Evolution," 1907.
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TRAUMATIC AFFECTIONS OF THE KNEE JOINT.*

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BRENTWOOD, L. I.

It is a commonly acknowledged fact that the knee is more frequently disabled by injury involving the internal joint structures than any other joint of the human anatomy. Every physician, much to his chagrin, encounters "chronic knees," following injuries, direct or indirect, and often slight, in which the disturbance of function, through fluid formation, pain, locking, grating, weakness, or limitation of motion, is either unduly prolonged or appears in recurrent attacks. While it is impossible, with our present knowledge of these conditions, to determine just which structure is at fault in every individual case, there has appeared within recent years sufficient operative and post-mortem evidence to demonstrate that in practically all of these cases there is some derangement of one or more of the several complicated structures found within the capsule of the joint, of sufficient severity to mechanically prevent a return of the normal function and often, if not removed by operation, to seriously endanger the integrity of the joint.

It is a striking observation that this tendency for trauma to be followed by prolonged or recurrent disability is peculiar to the knee joint, and that in this joint it is common. And furthermore, so far as I have been able to ascertain, man stands curiously alone in the animal kingdom in his tendency to internal derangements of this joint. Veterinary text-books give scant attention to affections of this joint beyond a description of outward dislocation of the patella.

These observations indicate that there is some fundamental weakness in the construction of this joint, as compared with other joints of the body, and also as compared with the corresponding joint in the lower animals; a distinction which has not been appropriately emphasized, nor am I aware of its having been demonstrated by comprehensive anatomical comparisons. In venturing upon the anatomy, I do so with the belief that it may contribute to our knowledge of the causation of these affections peculiar to the human knee, and thereby aid in placing their diagnosis and treatment upon a more rational basis.

In the quadrupeds as a class, we find that this joint presents two main features of fundamental difference from that in man.

1. On account of the horizontal position of the quadrupeds, the condyles of the femur are decidedly elongated, and project directly posteriorly at right angles from the end of the bone. The articular surfaces are mounted on the ends of the condyles, and are separated from each other by a distinct interval. The elongated trochlear surface, for the articulation with the patella, is situated well up toward the anterior surface of the femur. Thus, these three articulations are well separated from each other and, therefore, are comparatively independent of each other in their actions. In fact, in some of the lower animals, they are separated by a distinct synovial cavity for each of these articulations, while in others there is but a partial confluence of these cavities. The space between the ligamentum patellæ and the articular surfaces is occupied by a soft, fatty, pad, presenting its posterior aspect to the interior of the joint, as a smooth, flattened surface. This arrangement affords a comparatively simple mechanism, with apparently little opportunity for mechanical interference with the joint activities. (Fig. 4.)

The erect position in man, however, brings the condyles almost into the axis of the femur. The articular surfaces are broadened for weight bearing, enlarged for the increased range of motion, and are less widely separated from each other. The trochlear surface connects directly with the condylar articulations, and the joint is converted into a compound, confluent structure, with but a single synovial cavity. The fatty tissue within the capsule anteriorly has consequently changed to a broadened and horizontally flattened wedge, pointing posteriorly, and now it presents as a menacing adaptation, extending its edges, flaccid and frayed, into the very cogs of this complicated machine. Little wonder if these edges, brushing the articular surfaces with every movement, were not occasionally caught between the bones, especially when congested by trauma, or in consequence of a wrench of the knee. (Fig. 1.)

FIG. 1.—Outer aspect, left human knee joint, showing the two external lateral ligaments, relaxed in flexion, and the fatty collection beneath the patella; the horizontally flattened wedge shape of the latter is apparent though somewhat obscured by the prominence of the alar ligament in the foreground extending up to the side of the patella; the posterior edge of the fatty wedge, irregularly fringed, is indistinctly seen within the joint lying on the upper surface of the semilunar cartilage, and the ligamentum mucosa is shown passing upward to attach in the intercondyloid notch. Note the relation of the subpatellar bursa to the fatty pad, the position and relations of the popliteus tendon, the continuity of the articular surfaces of the femur, and the extent of the synovial membrane with its fatty collection above the patellar articulation and its occasional fringed projections.

2. In both the mammalian and the human knees there are two main groups of muscular supports in

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relation to the joint. The quadriceps extensor, anteriorly, and the ham-strings posteriorly. These effectually control flexion and extension. In the quadrupeds, however, we encounter an additional group of lateral controllable supporters, variously found in the different species. This group is made

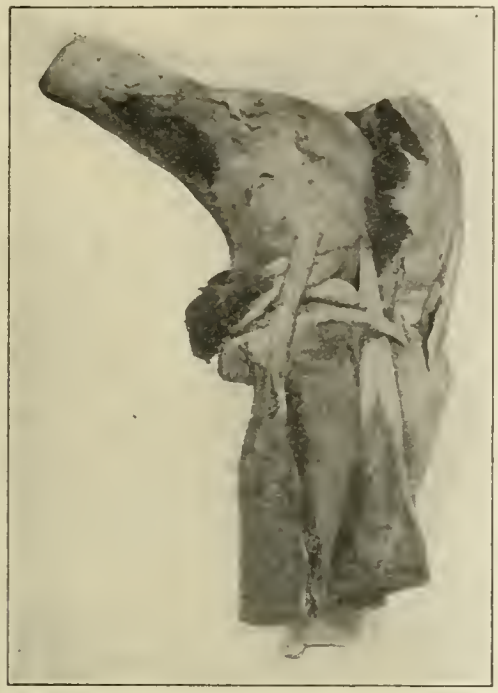

Fig. 2.—Outer aspect, right sheep's knee (stifle joint), showing and ligamentum patellæ and an external accessory ligamentum patellæ, the tendon of the extensor communis digitorum arising from the anteroexternal aspect of the condyle; the external lateral ligament and the perineus brevis arising in common from the lateral aspect of the condyle; and the position of the tendon of the popliteus muscle.

up of ligamentous and tendinous structures. The ligamentous consist, chiefly, of two accessory ligamenta patellæ of large size, one on each side of the patella. They pass somewhat obliquely across their respective condyles to be inserted into the corresponding lateral aspects of the tibia. These are well represented in the horse and the cow.

There are three of the tendinous lateral supports that are commonly found; two external and one internal. They consist of: the perineus brevis, taking its origin from the external condyle of the femur, in conjunction with the external tibiofemoral ligament, and lying on the lateral aspect of the joint; the extensor longus digitorium, taking its origin from the external condyle, in a stout tendon, which passes freely over the anterolateral aspect; and the semimembranosus, occupying a lateral position along the inner side of the joint, its tendon passing beneath or in conjunction with the internal tibiofemoral ligament, to insert into the tibia. Sutton[1] gives evidence to show that the internal lateral ligament is derived from the adductor magnus muscle. The relation of the insertion of the latter to the upper attachment of the lateral ligament suggests that the continuity of these structures, in times past, has also served as a lateral controllable support. By means of these attchments the joint tension, lateral motion, and rotation, are under muscular control in all degrees of flexion and extension. (Figs. 2 and 4.)

In man, however, these controllable lateral supporters are entirely wanting. The popliteus affords the sole lateral tendon in man and is identical with that in the lower animals. Its control over joint tension and lateral motion, however, is very slight, it being essentially an internal rotator. There is but the single ligamentum patellæ, and in the place of the above lateral tendons there are found, respectively, the two external and the internal lateral ligaments. These comparatively delicate bands become tense on extension and relaxed on flexion, thus exerting no controllable fixity over the joint during activity. And thus it appears that the human knee joint is comparatively ill provided, anatomically, to resist the strains and twists to which it is subjected through the various trades and sports to which man lends himself. (Figs. 1 and 3.)

A dissection of the sheep's knee (stifle joint) (Figs. 2 and 4) shows many of the above features. There one accessory ligamentum patellæ, about one-third of the size of, and lying about one-half inch external to, the ligamentum patellæ. The small external lateral ligament is blended with the origin of the perineus brevis, and the anteroexternal ligament is of large size and is purely the tendinous origin of the blended tibialis anticus and the extensor longus digitorum. The latter tendon arises from the anterior portion of the external condyle, and lies within the capsule and about one-third of an inch external to and parallel with the ligamentum patellæ. The semimembranosus tendon passes along the inner aspect of the joint and beneath the internal lateral ligament to insert in the lateral aspest of the tibia. The external semilunar cartilage is attached posteriorly on a different plan from that in man. Instead of being inserted into the tibia anterior to the posterior crucial ligament, it passes upward and inward obliquely over the posterior articular surface of the external condyle to be inserted upon the internal condyle just above and

Fig. 3.—Inner aspect, left human knee joint, showing the internal lateral ligament; the posterior position of the semimembranosus muscle and tendon; and the suggestive relation of the insertion of the adductor magnus to the upper attachment of the lateral ligament.

external to its articular surface. Now, in movements of the joint, the external condyle, being almost spherical in shape, rolls back and forth with practically no sliding motion, and the posterior portion of the external semilunar cartilage is seen to wind up on the condyle during extension and to

unwind during flexion. This posterior guy, together with the external lateral and the anteroexternal tendinous supports thus lends a firm and controllable fixity of the external condyle in all positions of the joint. The internal condyle is bean-shaped and fits into the deep concavity of a very thick semilunar cartilage. Its motion is almost entirely that of a gliding on the semilunar cartilage, with but slight anteroposterior shifting of the geometrical center. This difference in the motion of the two condyles is perceptible, to a slight extent, in the human knee. The trochlear surface of the femur is entirely separate from the articular surfaces of the condyles, instead of being blended with them as in man. This is due to the greater length of the condyles, and their axes being carried posteriorly to a right angle with the shaft of the bone. The synovial cavity is divided into two portions, the one for the external condyle which does not communicate with the larger one for the internal condyle and patella.

Fig. 4.—Inner aspect, right sheep's knee (stifle joint), showing the internal lateral ligament; the lateral position of the semi-membranosus muscle and tendon; and the fatty collection beneath the patella; note the posterior surface of the latter—smooth, vertically placed, and with no projecting edges; also note the elongation of the condyle and the distinct separation of its articular surface from that of the trochlear surface for the patellar articulation.

In recalling the anatomy of the human knee, as it bears upon our present consideration, we find here a large joint, occupying an exposed position, subject to the forces of powerful muscular action and weight bearing, and dependent entirely for its strength upon its ligamentous and muscular attachments. It differs more especially from other joints of the body, in the relatively large collections of fat found within its capsule, and, from other hinge joints, in its lack of the usual bony restrictions to rotation and lateral motion. These factors naturally invite the occurrence of trauma from direct and indirect causes.

The patella is practically its only protection, anteriorly, against direct injury. That direct injury is so commonly followed by acute synovitis in this joint, we have to look to the arrangement of the synovial membrane, for the chief explanation. Here we have the largest joint cavity in the body, lined by a delicate synovial membrane, which is exceedingly rich in blood supply, thus lending itself readily to congestion and excessive secretion. Its surface is increased by its following the irregularities of the fatty pads within the capsule, from the edges of which it projects as synovial fringes. As this membrane extends both above and below the patella, and laterally over the condyles, its exposure to direct injury is evident.

There are three collections of fatty tissue, covered with synovial membrane, found within the capsule of this joint. One is found between the ligamentum patellæ, femur, and tibia, and is a somewhat flattened, triangular, wedge-shaped pad, horizontally placed, with its base anteriorly, and an angle extending to either side. The apex extends up towards, and less frequently attaching into, the intercondyloid notch; this apex and the lateral fringes constituting the ligamentum mucosa. A second collection extends from the lateral angles of this fatty pad, upward on either side of the ligamentum patellæ, to the lateral and inferior aspect of the patella. Its free margins constitute the ligamenta alariæ. The third collection is of lesser extent and is found in the suprapatellar region. The free edges of the mucous and alar ligaments are made up of delicate fringes of synovial membrane, which, on account of their positions are likely to be caught between the adjacent articular surfaces. (Figure 1.)

Indirect injuries are even more potent than direct, in the causation of disturbances in the knee joint, and are certainly more commonly followed by chronic or recurrent trouble. As the lateral and crucial ligaments become relaxed on flexion, it is in this position that twists and lateral strains are prone to occur, resulting in injury to the internal joint structures. If either one of the lateral ligaments becomes stretched or ruptured through strained positions, injury, or disease, the corresponding side of the joint is thus predisposed to injury of its semilunar cartilage, synovial fringes, or fatty tissue.

The greater frequency of derangements at the inner side, as compared with the outer side, of the joint is the result of evident anatomical causes. In 428 cases of recurrent effusion with definite signs of derangement within the joint, recorded by Bennett,[2] the inner side was affected about three times as often as the outer. Now in external rotation of the tibia, we find that motion occurs chiefly between the internal condyle and the tibia, motion at the outer side of the joint being checked by the external lateral ligaments, and vice versa for internal rotation. But the crucial ligaments are so arranged that internal rotation is limited by their crossing, whereas in external rotation they are uncrossed. Therefore, external rotation, and consequently motion at the internal condyle, possesses a freedom not obtained at the outer condyle. Thus we find the inner side more frequently damaged than the outer, and, conversely, external twists are more commonly productive of trouble than internal twists. There is also a certain degree of control over the outer side of the joint which does not exist at the inner, because of the origin of the popliteus muscle from the external condyle, and its grooving, and consequent splinting, of the external semilunar cartilage.

The internal structures are thus seen to be in such relation to the joint activities as to cause more or less interference with its function, when lacerated, displaced, congested, and hypertrophied, or

otherwise altered as the result of injuries, twists, ill-directed muscular action, or undue ligamentous relaxation. There are abundant instances in literature, in which operation has shown these various conditions to be the seat of the trouble, in knees that have failed to respond satisfactorily to, or have recurred after, the most diligent and conscientious treatment.

Many of these conditions can be definitely diagnosed beforehand, though there is still much to be learned about the differential diagnosis of the structures involved, and the character of the change undergone. This knowledge is to be gained through increased familiarity with the component structures of the joint, in regard to their functions, and their relations to each other during joint activity; greater care in the study of the action of the causative forces, and of the subsequent history of the cases; and closer attention to the physical examination of the normal as well as the injured knee.

In a routine examination of an injured knee, both knees should be exposed and corresponding points compared. The presence of fluid is detected by means of the ordinary tests. The tension of the ligaments should be investigated, both in the extended and flexed positions, and it is essential that there be complete muscular relaxation during the examination. To secure this relaxation the patient is best placed flat on his back for extension, and seated on a table with the feet dangling for flexion. The range of rotation, anteroposterior, and lateral motion are then determined. There is considerable variation upon these manipulations in knees that are otherwise normal, though the finding of undue laxity in the deranged knee may be of fundamental importance. Attention should be directed to the prominence of the fatty pad, as determined by the state of the normal depressions to either side of the ligamentum patellæ. The joint should be carefully palpated for areas of thickening of the capsule, synovial membrane, or fat content, nodules, foreign bodies, abnormal semilunar cartilages, etc., and for the effects of motion upon these conditions when found.

For this examination I have found it most convenient and satisfactory, to have the patient lying comfortably upon his back with the knees relaxed. The leg is grasped between the two hands just below the joint, and gentle, passive flexion, and extension are made, though not sufficiently to drag the heel back and forth, as this brings on muscular contraction. The two thumbs are free to palpate the joint systematically, during this manipulation, and very slight changes are thus often easily outlined, which otherwise are not detectable. This manipulation is to be repeated with the knee placed in different degrees of flexion. Grating on manipulation, limitation of motion, and tenderness on pressure should, of course, be taken note of.

A summary of forty consecutive cases of traumatic knee affections, personally studied, brings forth some features of practical interest.

In all but three of these cases, the disability was referable to the internal joint structures, and, in these three it was referred to the tendon of the popliteus, or its bursa. Note the contrast with that of trauma of other joints, in which a simple contusion, sprain, or dislocation are the common results. Recurrent disability, often without apparent cause, was common. Fifteen, or more than one-third of the cases, either came for the treatment of a recurrence, or had a recurrence while still under observation.

Direct injury was not as common a cause as indirect. In fifteen cases, the injury was direct; in nineteen, due to twists; and in four, the condition resulted from unnatural or strained positions. Those due to direct injury, mostly ran the usual course of acute synovitis, and were cured in two to four weeks. One had recurrent trouble, with thickening, of the synovial fringes, in the anterior portion of the joint, and two had continued trouble, evidently from injury of the semilunar cartilages. In the cases due to twists, thirteen were heard from subsequently, nine of which had recurrences or continuation of the trouble. Those spoken of as due to unnatural or strained positions, were all patients whose occupation required their assuming a stooping, or kneeling position, the greater part of the time, and there was no other accountable cause. In all of them the fatty pad was prominent and thickened, and bulged at the sides of the ligamentum patellæ. Fluid was present in only one of these cases, and three of the four are known to have had recurrences of the disability, which consisted of pain, chiefly on extension, and weakness.

In twenty-four cases, the onset was sudden, and in five it was gradual. The latter included three of the above cases, and two others, in which thickened synovial fringes was the evident cause. Pain was recorded in twenty-five cases, grating on manipulation in eleven, weakness of the joint in eighteen, in many of which this weakness was the chief symptom, and locking of the joint in five. A number of cases were unaccompanied by effusion into the joint, three of which were evidently cases of hypertrophied synovial fringes.

In the differential diagnosis of conditions within the knee joint, producing chronic or recurrent disability, dislocated semilunar cartilages, and foreign bodies are better known and more frequently described, though often erroneously diagnosed for the more common condition of hypertrophy of the synovial structures.

The semilunar cartilages may be displaced, lacerated, fractured, or frayed at their edges. The characteristic feature of these injuries is the locking of the joint, which, however, is not necessarily present. The injury is usually a twist, when the leg is flexed near a right angle, the onset is sudden, the locking is complete until relieved by manipulation, and recurrence of the locking is the rule. The internal cartilage is by far the more frequently affected, and the detachment most commonly occurs at its anterior extremity. The injured cartilage may or may not be discovered by palpation. Undue mobility may be detected, or a hard nodular mass may be felt, which usually disappears on extension, and becomes prominent on flexion. In half of the cases in which the external semilunar cartilage is involved, the symptoms are referred posteriorly to the popliteal space. Relaxation, or rupture of the internal lateral ligament, if present, would contribute to the evidence.

Given a firm nodule, laterally placed at the articular junction, we may state, as a rule of probability; that, if found at the inner side it is a dislocated semilunar cartilage; whereas if at the outer side, it is not cartilage, but rather a bursitis or synovitis of the tendon of the popliteus muscle. The latter condition usually results from twists, and produces chronic disability through weakness of the

joint, and pain on flexion, or rotation. The nodule presents just anterior to the long external lateral ligament, where the tendon grooves the external semilunar cartilage, and is more prominent in semi-flexion than in any other position. (Fig. 1.) In consistency it is of cartilaginous density when small. The diagnosis ultimately rests upon the fluctuation, which is difficult of detection, except when of large size.

Free bodies may be soft, when derived from hypertrophied villi, which have become nodular and attached by but a thin pedicle. These usually result from trauma, but commonly occur in tuberculous synovitis, in which case the evidences of the tuberculous nature are otherwise present and clear the diagnosis. Hard bodies are often associated with rheumatoid conditions, in which case the diagnosis is based on the constitutional condition, and the involvement of other joints. The occurrence of multiple cartilaginous free bodies is occasionally encountered, and these cases are probably examples of displacement of cartilage cells, in the synovial membrane, which is derived from the same mesoblastic tissue that forms the articular ends of the bones. Trauma, causing the chipping off of a portion of the articular cartilage, is undoubtedly an important cause of the production of free, hard bodies. Barth[3], in experiments on animals, chiselled off pieces from the bones and found that they attached themselves to the capsule, after which the bony portions absorbed and the hyaline cartilage remained; they also became covered with an envelope of connective tissue. The histology of these bodies is identical with that of the cartilaginous bodies removed from the human knees. Virchow stated that loose bodies can and do grow after becoming loose in the joint, being nourished by the synovial fluid. Free bodies tend to shift their position within the joint, and when they present to view or palpation, they are not difficult to diagnose. They may cause locking, when placed near the line of articulation, but the locking is not so fixed as in dislocation of the semilunar cartilage, and they frequently slip out again on slight motion without resorting to manipulation. Often they are located in the upper part of the synovial cavity, where they are more readily recognized.

The crucial ligaments, both anterior and posterior, may be ruptured. Pagenstecher[4] reports three cases in which he united, by suture, ruptured crucial ligaments. Theoretically we should expect this injury to permit of undue anterior, or posterior, displacement of the flexed tibia, depending upon whether the posterior or the anterior ligament is involved.

Undoubtedly the most common cause of chronic and recurrent disability of the knee is to be found in the production of hypertrophied villous formations of the synovial membrane, following trauma. Since these affections of the synovial membrane have passed into the hands of the operating surgeon, their rôle in this connection has become better known. In 1903 Painter and Erving[5] gave a complete account of thirty-three operations for chronic villous arthritis, in which hypertrophied synovial villi were removed from the joints, with excellent postoperative results, and many similar reports have appeared in literature. The villi vary in number from a few, of considerable size, to a dense studding of the membrane with many small papillary growth. The formation of these enlargements is primarily due to congestive thickening, which, on subsiding, is followed by the production of a fibrous overgrowth, beneath the synovial membrane. This fibrous tissue has, apparently, a peculiar tendency to overproduction, as a result of the stimulus of congestion. A striking characteristic, in these cases, is that the hypertrophy does not appear until some interval of time has elapsed after the trauma, though the knee has not felt entirely normal during this interval. The fluid may have nearly, or entirely, disappeared, and it usually returns with the return of the symptoms, which consist of pain, grating, weakness, and limitation of motion. The trauma may result from direct external injury, or from internal injury from irregularities of the surfaces of the bones, foreign bodies, etc., acting directly in setting up the primary congestion.

When the synovial membrane, covering the fatty pads, or their marginal fringes, is injured, the result is a congestion which, if not quickly subdued, leads to a similar fibrous hypertrophy. The fibrous tissue is here interspersed with the subsynovial fat, forming more or less pedunculated masses, of fibrous or lipomatous consistency, depending upon the preponderance of the fibrous or the fatty element. The extent, number, and consistency of these enlargements vary in different cases. There may be a single nodule, a diffuse bulging enlargement of the fatty pad, or a marginal row of more or less pedunculated tabs projecting from the ligamenta mucosa or alariæ.

In disability of the knee following a misstep, a wrench, or a twist, our first thought should be of injury to the fatty tissue, or its synovial fringes, they having become engaged and pinched between the articular surfaces, the result of undue rotation or lateral bending of the joint. Relaxation of the lateral or capsular ligaments, from whatever cause, naturally renders the joint more susceptible to this occurrence. There may be a condition of lack of sufficient moisture in some joints, which causes the fringes to become primarily caught and pinched between the bones. General thickening of the fatty pad, from pressure from without, or possibly, from pressure of the capsule through muscular action, in the cases whose occupation requires constant stooping and kneeling, naturally causes the fringes to be crowded into the joint, and eventually to become hypertrophied. The hypertrophied tabs are here produced gradually, and without any direct sudden injury. An enlarged subpatellar bursa also presses the fatty pad into the joint, and produces the same internal condition. Its detection is to be found in the fluctuation at the sides of the ligamentum patellæ near its insertion. The masses thus formed continue to act as foreign bodies and produce recurrences or exascerbations of the symptoms, which consist of weakness and pain, usually with effusion, and often limitation of motion and catching of the joint.

These swellings can be felt as nodular or cord-like thickenings within the joint, usually at, or just above, the line of articulation, on either side of the ligamentum patellæ, though more commonly to the inner side. They are most easily palpated upon extension of the knee, and usually disappear on flexion. A single nodule when caught in the joint becomes quite firm and may be mistaken for an injured or displaced cartilage. But in this case the locking will not be so acute and absolute, and the nodule will be found to change in consistency, being softer on flexion and firmer on extension. It also becomes

more prominent on extension, whereas the displaced cartilage does not alter in consistency, and usually becomes more prominent on flexion.

It may be possible to distinguish the hypertrophied synovial tabs arising from the ligamentum mucosa from those arising from the ligamentum alaria by the position of the nodules, and, furthermore, by the fact that the former are more likely to become pinched between the femur and the tibia, on extension, and consequently to produce pain and weakness on going upstairs, whereas the latter are more likely to become engaged between the patella and femur, on flexion, and therefore causing difficulty on going downstairs.

The alar and mucous ligaments may also be detached, or lacerated by injury, when the edges are found, at operation, to be turned over or jagged. There is nothing in the history of these cases beyond the very sudden onset, to distinguish them from the above. The fatty collection in the suprapatellar region is less commonly involved..

As a further aid in the diagnosis of knee conditions, *x*-ray examinations of the joint, after a distention of the synovial cavity with oxygen, are advocated by Wollenberg[6] and Hoff,[7] who claim that a very clear picture is thus obtained, showing dislocated cartilages, floating bodies, rheumatoid and other forms of arthritis, proliferation of synovial fringes, and tubercular disease of the bones and synovial membrane.

It is not the purpose of this paper to consider the treatment. The operative aspect, however, deserves brief notice. It is seen that the structures commonly at fault are such as permit of operative removal or repair without endangering the functions of the joint; their presence, acting as foreign bodies in the joint, tends through repeated traumatic congestion to perpetuate and augment the disability; and they are usually located anteriorally and readily accessible to operative relief. When the cause of the disability is diagnosed beforehand the question of operation rests upon the merits of the case. In obscure cases exploratory incisions should be performed, but not until one is satisfied that the disability is persistent in the absence of adventitious thickening.

In conclusion I desire to recall that:

Anatomically the human knee-joint is peculiarly predisposed to injury to its internal mechanism.

Clinically traumatic knee conditions resisting conscientious treatment for months or followed by recurrent attacks of disability are almost invariably caused by some derangement within the joint.

Twists are far more likely to produce prolonged or recurrent disability than direct injuries.

The degree of damage to the joint structures is not dependent upon the severity of the trauma.

The synovial structures are most commonly the seat of the disability.

The structures at fault are usually palpable and should be more commonly diagnosed.

These injured structures are usually amenable to operative relief. Exploratory incision is a proper procedure in obscure cases.

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BRENTWOOD, L. I.

THE WASSERMANN REACTION.*

ITS CLINICAL VALUE.

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It is now nearly twenty years since pathologists began to realize the value of the blood serum as an aid to diagnosis. In 1895 H. E. Durham and his assistant Greenbaum, while working in Gruber's laboratory in Vienna, discovered that immune serum could agglutinate bacteria. Positive results were obtained in several cases. A few months before Greenbaum had published his results, Widal, in Paris, applied the test, and wrote a succession of papers describing the technique and was proclaimed the discoverer of the reaction bearing his name, he being the first actually to apply the reaction to the diagnosis of typhoid fever. It was prophesied at that time that serum diagnosis would in the future be applied to many other diseases besides the enterica. Of the more recent advances in the application of serum diagnosis to the detection of infectious processes being at work, none promises to be of more importance than the serum diagnosis of syphilis.

Statistics show that next to tuberculosis, syphilis is the most important cause of death in man. In 1906 Wassermann, or, more properly speaking, Wassermann, Neisser, and Bruck, first described a method of diagnosis of syphilis by means of the blood serum. This reaction occurred between the serum of syphilities and a watery extract of syphilitic fetal liver. This fetal liver produces a reaction of fixation in the presence of syphilitic serum, but produces no such reaction with the serum of normal individuals or those suffering from other diseases. In order properly to understand the Wassermann reaction, it is necessary to become familiar with the reaction of fixation, or what is known as the Bordet-Gengou phenomenon. Also we should understand the principle of hemolysis. Bordet and Gengou in 1901, five years previous to the description of the Wassermann reaction, found that when bacterial emulsions were injected into animals they were rendered immune to the particular bacteria used. Bacterial emulsions were called antigens. Animals injected with these antigens developed certain defensive bodies known as antibodies in their serum, in the process of becoming immune. Wassermann, in his modifications of these phenomena, substituted bacterial extracts instead of bacterial emulsions. Hemolysis is the power possesed by the serum of one species of animal to dissolve corpuscles of another species of animal. Hemolysis shows an absence of antibody in the serum of the patient, while absence of hemolysis shows the presence of specific substances, and therefore the presence of specific infection.

Although it is not my desire to inflict upon the members of this society burdensome detail of technique, much of which is of value only to the pathologist or laboratory worker, still I deem it important for the benefit of those gentlemen for whom this society is presumed to be instituted, as well as for those members of the society who are not familiar with Wassermann's reaction, to review briefly its technique. We must keep in mind cer-

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tain terms: antigen = bacteria, antibody = result of bacteria, complement present in all normal blood serum, its office being to complete the action of what pathologists know as the amboceptor, so-called because it has an affinity on the one end for antigen, and on the other end for complement.

I will now give the technique employed by Swift, of the Carnegie Laboratory, to whose courtesy and ability I am very much indebted in my experiences along this line. Various materials used are: (1) Suspected serum obtained by venous puncture or from the finger or ear. The blood is allowed to clot, and the clear serum is removed, then heated to 56° C. to destroy the complement. (2) Complement of guinea pig serum. (3) Antigen, alcoholic extract of fetal syphilitic liver. (4) Red blood cells of a sheep or other animal, freed from complement by careful washing with salt solution. (5) Hemolysin, consisting of blood of the rabbit, the animal having been injected three or four times with the washed red blood cells of the sheep.

Two tubes with following contents are prepared: Tube 1, antigen, extract of liver of syphilitic fetus, plus serum to be tested, plus complement of guinea pig serum; tube 2, red blood cells of sheep, plus hemolysin. Contents of tube 1 are incubated for one hour, then added to tube 2, and then put in the ice chest over night and the results are read in the morning. If the serum from tube 1 had come from a syphilitic individual its relation to the antigen would be a specific one, and complement would be absorbed thereby. So that when the contents of tubes 1 and 2 were mixed, no hemolysis would occur. If the serum was not from a syphilitic individual the complement would not be absorbed, but would remain active to cause hemolysis in tube 2.

Hemolysis as observed in the test tube is a tingeing of the contents a transparent red color, the red blood corpuscles being disintegrated and hemoglobin liberated. If hemolysis has not occurred the red blood cells settle to the bottom of the tube. Numerous controls are necessary to show that the antigen or serum when used alone does not inhibit hemolysis. Also sera that have previously shown positive and negative results, respectively, must be introduced if the investigator is at all conscientious. It will thus be seen that the reaction is cumbersome and exceedingly complicated, and will probably always remain a laboratory test.

Noguchi, of the Rockefeller Institute, has described what promises to be a much simpler test, and in experienced hands posseses a good deal of reliability. It is a modification of the original Wassermann test in that the relative quantity of the different factors—complement, ambocepter, corpuscular emulsion, and antigen—are known and definite. Reagents are employed in liquid form, or the various reagents are preserved in stable form upon dried filter paper ready for use. The quantity of blood serum required is small. It has been hoped that this modification might prove of value as a bedside test.

Both of these methods are still in their infancy, and the technique not yet perfect, yet they have given to us a large amount of positive diagnostic data. Many investigators have adopted various modifications of Wassermann's method. Each has its advantages in different hands. It would seem that each observer should select some method and adhere to same.

In passing on to the clinical value of the Wassermann reaction, I have reserved to myself the right to maintain a neutral ground, preferring to submit to you for your consideration some of the experiences and conclusions of some of our most noted and able American investigators. Many of the contributors to the literature thus far have been laboratory workers rather than clinicians. We must not expect the laboratories to do all the work. They must be assisted by the clinicians. At the present there seems to be a wide range of opinion regarding its value, from the boundless enthusiasm of the non-critical admirer to the growling pessimist who will not lend his aid nor recognize the value of any new method until it is completely analysed and investigated, properly labeled, and handed him on a gold plate for his use.

The history of bacteriological research in the past is full of illustrations of this proclivity on the part of medical men to be slow in recognizing many of the most valued aids to diagnosis and therapeusis.

The triumphs of Lister, Pasteur, and Koch all shared in this apathetic indifference in their early history. Between extreme optimism and extreme pessimism there should be established a middle or judicial ground. In the latest report of Gay of the Harvard Medical School, which is one of the most recent contributions upon the subject, he has attempted to cover all the literature upon the subject for the past three years. This comprises over 220 articles. The observations cover some four or five thousand cases of syphilis. Since these reports came from a dozen different sources, with probably a variable technique, it is surprising to note the uniformity of opinion regarding the accuracy of this means of diagnosis.

Estimates were given of the diagnosis in the various types of syphilis in the following percentage: Primary syphilis, average estimate of positive percentage of reaction, 75; secondary syphilis without symptoms, 75; secondary syphilis, with symptoms, 90; secondary syphilis, average percentage, 71; general paralysis, average percentage, 81; tabes, average percentage, 67.

These observers likewise examined about six hundred controls from normal individuals and from those suffering from other diseases, and with the exception of two diseases, scarlet fever and leprosy, all the cases gave a negative reaction. This shows that although the reaction as yet may not be absolutely specific, it is certainly of great diagnostic value.

Butler of Chicago, in his report, where he refers to finding the reaction positive in cases of scarlet fever, as well as in cases of leprosy, states that the inhibition of hemolysis was but slight in comparison with the complete inhibition in syphilis. In any event these two diseases would hardly come in conflict with syphilis in differential diagnosis. Swift points out that those cases in other diseases than syphilis, where a positive reaction is obtained, speak most strongly for the use of syphilitic organs in the test.

Max Nonne of Hamburg was one of the first to make use of the reaction in neurological practice, but maintains that spinal fluid should also be tested for verification. Neurologists appreciate the importance of any method that will enable them to state positively whether a suspicion of syphilis is justifiable or not.

Prof. Pritchard very aptly stated in his paper on "Neurological Syphilis," read before the Tri-State Medical Society and printed in the *Polyclinical Journal*, Vol. xii, No. v, that a neurologist is one who

knows all about syphilis and a little about neurology. That this maxim is undeniably true any neurologist will admit, and he will further admit that one of the first things that he is on the lookout for, while attempting diagnosis, is whether or not there is a syphilitic taint in his patient. This is often difficult to determine in the absence of symptoms. In fact, it is a practice among many neurologists, based upon results of experience, to treat a large number of diseases of the nervous system by anti-syphilitic remedies. In making a diagnosis it has to be determined by signs bearing a direct casual relationship to the nervous symptoms for which the patient is asking advice. The patient's remembrance of onset, duration, and course of the symptoms is often imperfect and vague. They often cannot or will not remember. Such facts as they can remember are often the same as in cases of so-called neurasthenia, and are misleading. In many cases, especially in women, there may be no history of syphilitic infection or no signs on the body, and yet the character of the disease may clearly point to the possibility of syphilitic origin. We may treat a patient by antisyphilitic remedies and he may recover and still we have no proof that the patient has had syphilis. A person suffering from an affection of the nervous system, giving a positive Wassermann reaction, is much more liable to be suffering from syphilitic affection than one who is admittedly syphilitic, but has shown no signs, owing to treatment. Heretofore we have had no reliable diagnostic measure in cases where no symptoms are present and infection is denied. Cases under treatment show a positive reaction much less frequently than those untreated. While a positive reaction indicates that the individual has had syphilis, it does not necessarily prove that the particular lesion from which patient is suffering is syphilitic. It is a well-recognized observation in neurology that exactly those cases of syphilis that run a mild course and clear up early are often later the subjects of tabes or general paresis. The virus may have a selective action upon the cerebrospinal system. Wassermann was led to the hypothesis that long years of antibody production on the part of the nervous system lead to pathological degeneration of it. The presence of these antibodies in the serum of syphilitics may be irrespective of length of time that has elapsed since the first infection. Sachs believes that although much stress has been laid upon the value of the reaction in the diagnosis of tabes and general paresis, its principal value lies in its corroboration of our belief in the syphilitic origin of these two diseases. In cases presenting symptoms of either general paresis or tabes, but not marked, or marked by symptoms of so-called neurasthenia, the reaction might prove valuable. We must not infer, however, because a patient possesses neurasthenic symptoms, and it is proved that he has had syphilis, that he will develop general paresis. He may have been well treated early in the disease and his present symptoms be due to other causes. The reaction would throw much light on these obscure cases. Sachs believes that the reaction may prove of more value in the diagnosis of a number of other conditions, namely, between multiple sclerosis and cerebrospinal syphilis; central gliosis and specific myelitis; in cases of intracranial pressure, whether due to malignant neoplasm or to syphilitic gumma. In cases of epilepsy and hemiplegia, it would always be a matter of scientific interest, if not of therapeutic value, to know if the cause was specific. Butler's conclusions, based upon experience, are that the reaction is positive in 100 per cent. of cases of primary syphilis and in 95 per cent. of secondary syphilis. In tertiary and latent cases, parasyphilitic diseases, and visceral syphilis, he believes the reaction positive in 60 to 75 per cent. of cases. He believes with Swift that the reaction may be made a reliable guide as to treatment, since such reaction is influenced by treatment. A positive reaction would indicate activity of the specific virus. A negative reaction is therefore not of necessity of negative value. The patient's destiny may thus be controlled. He may be protected from the serious ravages of late syphilis of internal organs, or possibly the parasyphilitic affections, by the institution of vigorous antisyphilitic treatment.

Although we have a valuable therapeutic aid, we have not had a satisfactory diagnostic measure. In skin lesions where syphilis is manifestly present it cannot have more than a confirmatory value, and the fact that the reaction is found positive so frequently in this condition renders its use in more obscure cases a fairly certain diagnostic sign. There are a number of irregular skin manifestations that cannot surely be diagnosed as syphilitic. Formerly the therapeutic test was applied when such condition presented itself. The Wassermann test might justify our suspicions, and proper treatment could be at once instituted, thus saving valuable time. If negative reactions were obtained, the saturation of the system with damaging drugs might be prevented. Butler again draws our attention to the difficulty of diagnosing visceral syphilis. If gummata exists they are often located so that they do not interfere with the function of any organ, and may be out of reach of the palpating hand. Syphilis of the liver often resembles in symptoms malignant growths of same, which are inoperable. There may be no history or evidence of past syphilis. Lesser, in his post-mortem studies of visceral syphilis, found thirty cases of liver gumma that had gone unrecognized clinically. Very many cases of gumma of the heart and lungs are never diagnosed. We thus have in the Wassermann reaction what would seem a valuable aid to the surgeon and internist, valuable especially in early diagnosis. Knowing the wide prevalence of syphilis as an etiological factor in a large number of visceral conditions, it should receive consideration and the blood be examined for reaction.

Castelli, after reviewing the subject at length, makes a plea for the recognition of the value of the reaction from a social standpoint. Unrecognized and untreated cases of syphilis creating degeneracy and insanity, it puts us in position to advise more scientifically upon the question of marriage. He believes that in addition to its value as a tremendous factor for benefiting our fellow-beings, it might become an important factor in dispensation of justice where we could recommend courts to leniency in those cases where previous syphilitic infection had produced a derangement of mental poise.

In drawing to a conclusion this rather chaotic arrangement of experiences and opinions, I realize that many important considerations relative to the reaction and its value may have been omitted, not by intent, but through lack of time and space. My own experience with the reaction has taught me that in the study and analysis of groups of cases submitted to the test some discrimination is necessary, as in the analysis of any symptom. In my opinion the clinical value is well established, but it is difficult sometimes to find a satisfactory scientific

explanation. The controversy has already assumed voluminous proportions. The unwary reader is tempted to feel that the test itself must be a doubtful one, in view of the differences of opinion that exist as to the details of its explanation. The specificity of the test is the matter of paramount importance. The uniformly negative results found in controls and a large percentage of positive reactions in leutic, or even suspiciously leutic cases, tend to establish the reliability of the test. It is upon these two points that the reliability of any blood test depends.

If we will regard reaction as a symptom and measure it in the same light as other symptoms, we will appreciate its true value. Physicians should recognize in the Wassermann reaction a valuable addition to their armamentarium, become thoroughly conversant with its possibilities, and utilize it at every opportunity.

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A CASE OF TUBERCULOSIS WITH PERIODICAL HEMORRHAGES FROM THE BOWEL.

By DAVID I. MACHT, A.B., M.D.,

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Menstruation, powerfully as it affects the entire constitution of even a healthy woman, exerts a much more marked and detrimental influence on the body in impaired health. A great many diseases are aggravated in catamenia, but perhaps in no other disease is the impress made on the course of the malady by menstruation more clearly and strikingly exemplified than in the case of tuberculosis, and especially of pulmonary tuberculosis. The increase in blood-pressure, the changes in metabolism, the congestion of the internal organs, and other accompaniments of the monthly sickness, as described by Riebold and others,[1] all play their part in modifying the progress of the disease, so that in studying a case of tuberculosis we cannot help being struck by the periodic recurrence of certain signs and symptoms directly referable to menstrual molimina. We note an increase of pathological physical signs, such as the multiplication and accentuation, and sometimes even the development of râles; we find, very frequently, a premenstrual or a menstrual rise of temperature; we observe an aggravation of certain symptoms, such as cough and expectoration. G. Daremberg,[2] Jean Noncher,[3] Heimann,[4] and others have emphasized this so-called Cyclical Cause of Tuberculosis.

Among the most interesting phenomena elicited by the menstrual state and not so infrequently to be observed in tuberculous patients are the so-called "vicarious" hemorrhages. I have observed at least half a dozen patients in the Phipps Dispensary of the Johns Hopkins Hospital with periodic hemoptyses occurring either simultaneously with, or taking the place of, the menstrual flow. Various observers have reported similar cases.

It has been my good fortune recently to study a patient with a rather different form of periodic hemorrhages, namely those from the bowels. The case is rare and interesting enough, I think, to be worth reporting.

History: Miss E. D.; private patient; 30 years old; American; designer. On March 13, 1908, patient came to me complaining of a chronic "cough."

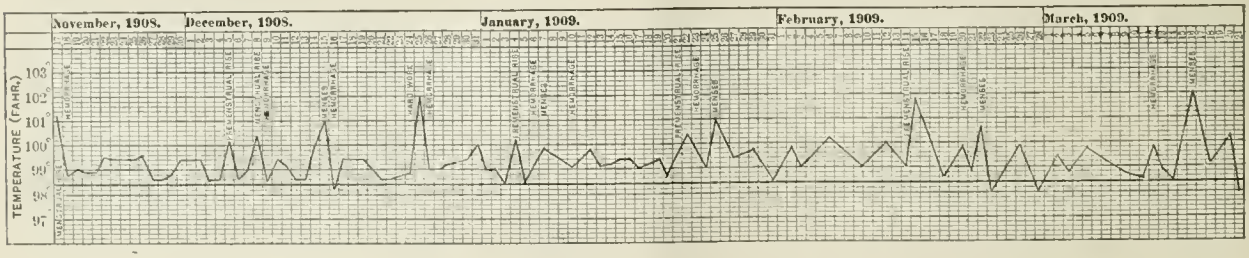
Family History: Father living and well; mother died recently of consumption at age of 44 years; one sister also died of tuberculosis; one brother died of tuberculosis; two brothers living and well. No other history of tuberculosis in the family.

Past History: When a child, patient had measles, mumps, and diphtheria; suffers occasionally from tonsillitis; had pleurisy nine years ago. No diseases of any other organs. Habits good.

Present Illness: Patient has been ailing for some months, losing flesh, and getting weak. About two and one-half months ago she caught a cold; since then has had a slight cough at night, which gets worse in the morning. Has slight yellowish expectoration, with garlic-like smell. Is not spitting blood now, but did have several hemorrhages about a year ago. Is short of breath on exertion; has night sweats, and has lost some weight. The appetite and digestion are fair; the bowels regular. Has occasional palpitation of the heart. No swelling of the feet. No trouble with micturition. Has noticed no fever or chills.

Periods come a little too soon and are very profuse, lasting 7-8 days. No leucorrhea.

Physical Examination: The patient is about 5 feet 8 inches high; weighs 131 pounds. Temperature, 98. Pulse, 100, rather small and irregular in rhythm. Respiration, 20 to minute. The patient is fairly well nourished; looks rather pale; tongue clean; throat shows a rather enlarged and reddened left tonsil and a slightly congested



pharynx. The glands of the neck are not enlarged.

The chest is fairly well formed; long and flat; both clavicles are slightly prominent, the left a little more than the right. The left scapula is more prominent than right. Vocal fremitus is increased on both sides of chest. On percussion, the note is distinctly impaired at left apex, and down to third rib in front and over left supraspinous fossa in back. There is slight dullness at right apex. On auscultation the breath sounds are impaired on left, harsh in quality, with prolonged expiration; and on coughing fine moist crackling râles are heard. The breath sounds at right apex are harsh and exaggerated, and on coughing fine moist râles are here also elicited. Heart: Point of maximum impulse is in fifth interspace, inside of mamillary line. Cardiac dullness not increased. The sounds are clear; there are no murmurs; there is an occasional reduplication of first sound at apex. The abdomen is natural; the liver and spleen not enlarged. Slight tenderness in right groin.

I gave the patient the skin and eye tuberculin tests and ordered her sputum examined. The skin and eye tests were positive, and the sputum was found to contain a few acid-fast bacilli. These findings led to the diagnosis of pulmonary tuberculosis.

I have had occasion to examine the patient a little later, on April 5, at her menstrual period. The patient at that time had more cough, was running a slight fever temperature, and was in general more sick. The physical signs in the chest were also more marked.

About two months later the patient complained to me of pain in back and in right side under the ribs and of hemorrhages from the bowels. These hemorrhages, she said, were especially liable to occur at the time of her menses, and greatly weakened her. On examining the patient, I found tenderness on pressure in the right hypochondrium. The urine and stools were ordered for examination. I found the urine normal; no signs of albumin or sugar. The stool contained considerable dark red blood and had a foul smell. On microscopic examination, I did not succeed in definitely demonstrating tubercle bacilli.

I have had occasion to watch the patient for many months afterwards, and found the course of events something as follows: The patient between periods feels tolerably well, and though working runs but a slight temperature. With the approach of the menses, she begins to feel more sick, the appetite grows worse, she has headache, and pains in back and in right and left hypochondrium. There is a premenstrual rise in temperature, and patient also runs a higher temperature during her menses. At the time of her periods, she gets severe cramps in the abdomen, especially in the region of the hepatic and splenic flexures of the colon, and under colicky pains passes considerable quantities of more or less pure blood.

Such a hemorrhage at one time, on July 26, 1908, amounted to about half a pint, and weakened the patient exceedingly. I found her hemoglobin, by Tallquist paper, to be about 70 per cent. A rectal examination gave no clue as to the cause of the hemorrhage. There were no signs of hemorrhoids whatever.

The whole history of the case, with the physical and chemical findings, led me to make a probable diagnosis of tuberculous ulcers of the intestines.

I need not dwell here on the therapeutics of the case. I tried almost every remedy recommended, both by mouth and per rectal injections, with very little success. The patient was then sent to the country, where her general condition improved; but when I heard from her last, she stated that the hemorrhages, though not as severe as they used to be, still continue.

The chart here drawn shows the temperature curve of the patient, and gives a picture of the periodic rises in temperature and accompanying hemorrhages from the bowels.

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TREATMENT OF CARCINOMA WITH THE BODY FLUIDS OF A RECOVERED CASE.*

A PRELIMINARY COMMUNICATION.

By EUGENE HODENPYL, M.D.,

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About four years ago the writer became interested in a case of carcinoma of the breast in a woman then 37 years of age. The clinical history and the morphology of the tumor were typical of a rapidly growing malignant cancer. In spite of radical operation, multiple recurrences appeared in the neck and in the primary scar. After the thorough removal of these, secondary growths appeared which were morphologically typical of rapidly growing carcinoma. Still other tumors developed in the neck and breast, which, owing to local complications and the debilitated condition of the patient, were not removed. Later large tumors developed in the liver, which nearly filled the abdominal cavity, followed by the occurrence of excessive chyliform ascites. The prognosis was unqualifiedly bad and the patient's death seemed imminent.

But, nevertheless, the tumors in the neck and breast gradually dwindled and disappeared. The abdominal tumors gradually grew smaller and became imperceptible, while the liver became smoother and smaller. At length about four years after the first operation the liver is approximately normal in size and position. With the exception of the scars and decreasing emaciation, and extreme chyliform ascites, requiring frequent tapping, there is now no indication of the original disorder.

In his deliberations upon this rare case of recovery from extensive carcinoma, with residual chyliform ascites, the writer was led to weigh the possibility, so often discussed especially in connection with experimental tumors in mice, of the development by the patient of some sort of antibody inimical to the progressive growth and persistence of the tumor cells. The alternative hypothesis, which seemed plausible, was that in the processes of tumor-tissue formation in the abdomen, some physical or physiological disturbance of organic or internal secretions might have occurred, leading to the accumulation or formation of substances antagonistic to tumor cell growth or existence.

The ascitic fluid having been freely placed at the writer's disposal to test these theoretical conceptions, a series of mice, which had developed tumors after the implanting of some of the well-known

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strains of mouse cancer cells, were injected with varying amounts of the ascitic fluid. These injections were made near the tumors, into the tumors, and into the body at large. The effect of these injections, in brief, was to lead to marked necrosis of the tumors, to a noteworthy diminution in their size, or to their complete disappearance.

After experimental tests of the harmlessness of the fluid, first in animals, then in human beings, injections of the fluid in cases of carcinoma of various types in man were undertaken. These injections have been made in small quantities, near or directly into the tumors, or in large quantities into the veins. The general effects of these injections in man has been nearly uniformly to induce a temporary local redness, tenderness, and swelling about the tumors, which soon subside. Then occur softening and necrosis of the tumor tissue, which is now absorbed or discharged externally, with the subsequent formation of more or less connective tissue. In all cases, the tumors have grown smaller; in some they have disappeared altogether. In no instance has any tissue in the body, other than the tumor, shown the least reaction after the injections, nor have any systemic effects been manifest even after large venous infusions.

The greater number of the forty-seven cases thus far treated were distinctly unfavorable, many of them hopeless and inoperable. Many of the cases are still under observation by the writer or by other physicians in and out of New York.

The records of the cases treated, the technique employed, and the results obtained will be placed at the service of the medical profession as soon as time permits, together with the results of various obvious control experiments which are now in hand under the direction or with the concurrence of the writer. In the meantime this preliminary communication is made, first, in order that the attention of the profession may be called to the possible significance of body fluids from the rare cases of those who have recovered or are recovering from carcinoma; second, to correct the false impressions which may have been conveyed by the premature and unauthorized news items in the daily press; and, finally, to secure an opportunity to remind physicians practically interested in this study, that the urgency for this treatment, of hopeless inoperable cases, is hardly just, either to these patients themselves or to a method from which it is hoped to secure new resources and new light through deliberate and reasonable tests.

It is not my purpose to announce at this time a new cure for cancer, but to call attention to the remarkable, selective necrotizing effects upon carcinoma cells of the ascitic fluid from a recovered case of carcinoma, wherever in the body of the patient this fluid is introduced. The nature and significance and the practical importance of the substances contained in this fluid and the ultimate value of this method of treatment of carcinoma are to be finally determined only by a continuance and completion of the various correlated series of investigations, chemical and biological, now under way, or by such tests as other observers may undertake.

Gastric Cancer.—Rattermann says: "The future of gastric cancer cases depends on early operation, and the suspicion of its presence where conditions exist must stimulate the keenest observation over a period varying from several weeks to that of many months, when 80 to 85 per cent. of the cases will be recognized or at least far enough advanced to warrant exploratory incision."—*Lancet-Clinic.*

OPHTHALMIC INSTRUMENT CASE, STERILIZER AND TRAY COMBINED.

By MAX TALMEY, M.D.,
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When performing major ophthalmic operations at the patients' homes I frequently met with annoying difficulties and lost a good deal of time. The instruments had to be transferred from their case into the sterilizer and thence into a tray to be handy for the operation. Sterilizing delicate surgical instruments in a household not adapted for the purpose is a task bothersome to all, to the family no less than to the surgeon. I have therefore devised an ophthalmic instrument case to serve also as a sterilizer and a tray and which can be handled even roughly without any injury to the instruments. Such a case first of all does away with two transfers of instruments when they are sterilized in the house of the patient. The instruments properly arranged in the case are boiled herein and not removed until they are used directly for the operation.

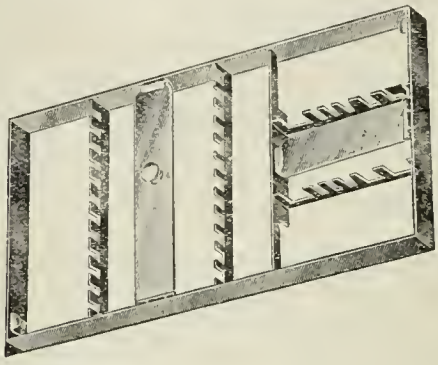

Fig. 1.—Rack with springs in place without the instruments, showing the two compartments, the separating band and the dentated cross bands.

The greatest advantage of the case, however, lies in its rendering sterilization in the house of the patient unnecessary. The following procedure, which I usually practise now, is feasible by means of the case. The instruments are boiled in the case at the surgeon's office and then instruments and case are dried with a sterilized cloth. The instruments are now put back into the case in their proper order, the case is wrapped in a sterilized towel, and the package taken to the home of the patient. Here there is no need to handle the instruments any more before the operation. After preparing the patient the sterilized towel is spread on a table near the bed, the case is opened, the springs holding the instruments in place are loosened, and the operation may begin.

The exact construction of the case is shown in the accompanying drawings (Figs. 1 and 2). The general features of the implement are the following: A rack carrying the instruments fits tightly into a box and can be easily lifted out of it by two hooks attached near two opposite angles, together with all the instruments which remain undisturbed in their places. The rack has two compartments, each with two dentated cross bands (Fig. 1), on which the instruments are resting, held in their places by two springs parallel with the bands. The compartments are different in size, one being 142 x 112 mm., the other 112 x 72 mm. They are separated by a band on the lower side, of which a rectangular piece is cut away at each end, thus pro-

curing two windows. Owing to this device three scissors, instrumnets usually difficult to place on account of their rings, can be put in one interspace of the cross bands in the smaller compartment, the rings fitting partly into the windows.

Since the instruments are resting on a removable rack it is not necessary to use the box for sterilization, but the rack alone with the instruments in their places may be boiled in any kettle.

The box, 214 x 112 x 21 mm. in size, consists of base and cover (Fig. 2). When the case is closed, the cover overlaps the base 5 mm. and both are

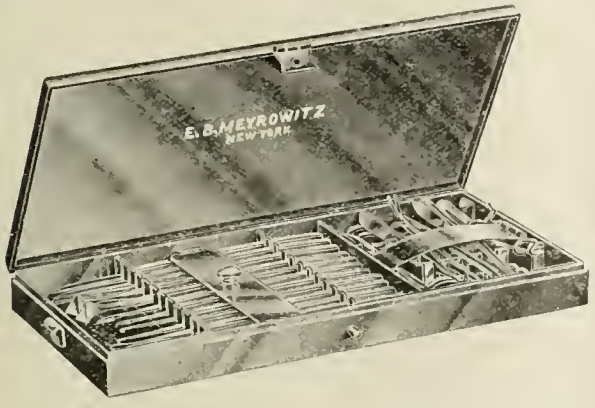

Fig. 2.—Open case containing the rack, showing the instruments held in their places by the springs.

firmly held together by means of hinge and lock. Two hooks fastened to the short sides of the base serve for lifting the case. When closed the case can also be lifted by a handle attached to the cover.

The case, although of small size, has room for 20 instruments sufficient for any operation on the lens and iris, and the instruments are not crowded. The larger compartment of the rack may contain: Two cataract knives, 2 keratomes, 2 discission needles, 1 iris hook, Tyrell's double, sharp and blunt; 1 cystotome, 1 cystotome and Daviel's spoon, 1 lens snare, 2 iris spatulæ. Into the smaller compartment of the rack may be put: One eye speculum, 1 de Wecker's scissors, 1 fixation forceps, 1 iris forceps, 1 capsule forceps, 1 curved scissors, or coagulum forceps, 1 Stevens' scissors, 1 straight probe pointed scissors.

I am indebted to E. B. Meyrowitz for the construction of the case after a pasteboard model.

55 West One Hundred and Twenty-sixth Street.

LETTERS TO A NEUROLOGIST.

By JOSEPH COLLINS, M.D.,
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PHYSICIAN TO THE NEW YORK NEUROLOGICAL INSTITUTE.

V.

My Dear Doctor:—

I have been reading some of your "Letters." What strange experiences you must have had with patients. They are almost as strange as those I have had with physicians. When I write my memoirs, I intend to devote nine chapters to what physicians have said to me. That part of the book I shall name "The Bedside Manner, with a Few Side Remarks on the Office Manner as Well."

I am what may be called an expert patient. I am a neurotic of vast experience, and on the Resurrection Day it will be impossible for me to rise "altogether," so to speak, unless the final trump has power over laboratory bottles.

During a long and somewhat roving life, divers and sundry physicians of all schools and kindergartens have attended me. Experience teaches me that there are but two kinds of physicians: those who ought to have been something else; and those who ought to have been twins. Both kinds almost invariably wear beards. I have never understood why, unless it is taught in medical schools that drawing a beard through the hand is an impressive gesture, likely to convey to the patient that his case is under consideration by a mighty intellect. I have seen a physician come into a scarlet fever ward clad in a long, linen gown, his bald head protected by a linen cap, but with his beard flowing free. Perhaps germs respect beards. The general public certainly does.

The first bedside manner I recall belonged to a physician of the calomel and quinine school. He was a jocular person. He used to come in gaily, pinch my nose and ears—I think clinical thermometers had not been invented at that time—and say, "Tut! Tut! This won't do." It seemed quite useless to protest that I hadn't been supposing it would do. He was not a person one could argue with. His next question, asked with an air of suspicion, was, "What have you been eating?" This always made me feel guilty, for I had no way of concealing from him that I had partaken of food. I will say for him, however, that he sometimes varied his "Tut! Tut!" by "Well, well, what have we here?" I used to think that by concentrating his mind on the matter, he might find out that he had a patient there, but I never ventured to say so. He was the "family physician" of my native town, and since his death the place is noted for longevity and a low birth rate. Nobody quite likes to take the responsibility of going out of the world or coming into it without Dr. B.'s permission. When last I saw him he told me, with the air of accusing me of arson, that I was nervous. Biliousness seemed to involve no moral turpitude, but if he called one "nervous" he would be adding presently the accusation of "hysterical," and being hysterical was a capital offense. His last treatment of me was for a violent attack of spasmodic asthma. I have never had a clear conscience since, for I knew he had discovered that I had been guilty of appearing at dinner in elbow sleeves.

There is, perhaps, no bedside manner that is quite suited to asthma unless it is accompanied by a dose of cyanide of potassium. I recall one young physician who, being sent for suddenly, insisted on fanning me. When one is getting almost no breath at all, a flutter of air will take away that little, and loose ends of hair fanned into one's mouth are not a pleasing substitute. The same young man inquired of me what treatment was usually given to me, and I was obliged to gasp out, "The usual treatment in such cases." This seemed to help him out tremendously, and he begged me not to be alarmed, since such attacks are never fatal." "Unpleasant," he said (as if I hadn't already gathered as much), "but never fatal." One of the ought-to-have-been-born-twins physicians would have said, "Cheer up. You'll be comfortably dead in a minute."

I must not neglect to mention a very important physician who always thought of his patients by number. When one entered his office for perhaps the twentieth time he would glance up from his desk and begin at once to look for one's record in a large book he kept. Arriving at No. 5,386, he would say, without looking up, "What is the trouble"? Perhaps it was fifteen times that I patiently detailed

my symptoms. Each time he wrote them down in his book, gave me a prescription, and, without further remark, rang for the next patient. There was always that in his manner which made me feel that by asking what my trouble was I should be committing a grave breach of etiquette. On perhaps the sixteenth visit—I was going to him not to have him ask me, but to have him find out what was wrong—when he asked me, "What is the trouble"? I replied, "Paralysis of the tongue." This surprised him so much that he positively shut his book.

His bedside manner always made me select the largest room I had to be sick in. He always sat in the farthest chair and looked at me as if he hoped I'd disappear. I never knew him to seem human except once when he called to look after an abscess in my ear. He told me then that an abscess in the ear is the most acute agony one can endure. I found out afterward that he'd had one himself.

No man who frowns and wears a silk hat should ever be allowed to practice medicine. Such an one attended a child of mine in a severe case of measles. The frown so disturbed me that I asked him to bring a colleague in consultation. The colleague had red hair and as he sat, watching the child, he twirled a straw hat in his hands. This reassured me completely. Nobody would twirl a straw hat in the face of death.

No man who is short of breath should be a physician. Nothing is more exasperating than a series of gasps from a doctor. Any physician who crosses his legs and waves one toe up and down ought to be boiled in oil. Five minutes of watching that toe wave would induce a nervous prostration in Sandow.

Perhaps the most extreme form of bedside manner belongs to a physician I shall call Dr. X. His touch at the door bell was gravity itself. He stepped solemnly and safely to my room, but before he entered, I heard him asking for water and a towel in a subdued voice. As he came in, he glanced at the side of the bed, as if to assure me that so modern a man would never dream of such an enormity as seating himself there. He lifted a chair to the bedside. I could hear him thinking to himself, "I shall do nothing to irritate the nerves." He took my pulse and temperature with the manner of a clergyman administering baptism. I do not know what questions he asked, the only near-English one was whether I experienced discomfort in the gastric region. I felt abashed to think that I had been on the verge of saying the word "stomach." I recall, too, that he inquired whether I allowed myself much nitrogenous food. The rest of his questions I might understand if I had time to take a course in medical terminology, but at that time I was not at all sure whether "proteids" meant a disease or something to swallow. He was really a most thorough man. On rising in the morning I was to have six pitchers of ice water and six pitchers of very hot water poured in alternation down my spine. This was to shock something, possibly myself. Then I was to have what is called "gastric lavage" and take hydrochloric acid through a glass tube. In case these simple treatments should make my head ache, I was to have bromide. I was to take "nourishment." I forget what it was, but experience has taught me that nourishment is never good to eat. The fainting attacks which invariably came on about the glass-tube time, he told me were doubtless hysterical, though they might be due to something more serious with a long name. I will say for his treatment that it was eminently successful as a flesh-reducer. He charged me above all not to let anything prey upon my mind and to be cheerful.

This well-trained young man lived at some distance from my home. One morning, on fainting, I fell backward and nearly removed the metal handle of a bureau with the back of my head. A member of my family, after asking me how I came to fall, sent for the nearest doctor. He was a homeopath and several things beside, which I am too polite to call him. It was his habit, as it is the habit of another homeopath whom I have met, to do all his thinking aloud. He looked at the cut in my scalp and discussed with himself whether he had better shave the head and stitch the wound or merely paste it together. What worried him most seemed to be the fact that he couldn't attack the cause. I listened to the discussion, till I felt justified in rising to a question of privilege and mentioning one of the things he was. He remarked that I seemed excited, and made me a neat gauze turban, scented with iodoform. Iodoform does not seem to be homeopathic. Perhaps if it had been another time of the day, he would have used something else. In homeopathy, when one coughs at 10 o'clock at night, it is a fatal error to give the remedy which is indicated by a cough at 4 a. m. I asked for something to relieve the pain, and he asked me if I did not consider it nobler to endure pain than to seek relief in opiates. He told me also that it was my duty to my family to recover my health, his idea being, apparently, that I was being ill just out of spite.

The idea of bearing pain nobly is not, however, confined to homeopaths. To my mind, all a physician should expect of a patient is that he obey directions and hold still while things are being done to him. I conceive it to be the patient's right to howl as much as he pleases. One physician out of three says, "Now, be brave." Nothing is more odious, unless it be to have a physician say, "Why, I took a man's foot off yesterday and he didn't make as much fuss as you're making over having this boil lanced." Without discussing the relative pain of amputation and opening a boil, it is never any comfort to hear how much worse things have happened other people. The medical profession as a whole has still to learn this.

There is a very common bedside manner that is marked by extreme sympathy. It is usually accompanied by a pudgy hand; one pudgy hand holds the hand of the patient, and the other pudgy hand pats it soothingly, while the person to whom the manner belongs murmurs smilingly, "There, there, don't be alarmed; we'll take care of you. You're not going to suffer." I have frequently noticed this manner in etherizers. The same bedside manner belongs to the physician who won't tell you at what hour you're to be operated upon, but, going outside the door, whispers to the nurse.

In regard to operating-room manners, I have been obliged to tell a surgeon or two that hearing is apparently the last sense to succumb. It is not pleasing to hear the etherizer say, "She's going off very fast." "She's almost under." "You may as well get ready, doctor." Neither is it helpful when in extreme pain one expresses a wish to die, to be told, "Oh, you mustn't talk that way. You don't want to die."

Nobody in pain wants sympathy. He can give himself all he needs. He merely wants the physician to do something for him and to do it quickly.

I should like to record the most delightful com-

pliment I ever received. A surgeon called in a second surgeon before removing some of my works. They had what is called a consultation over me. This consists in the first surgeon saying what the trouble is, and the second surgeon agreeing with it. (It's a little different when three medical men are present. In that case they argue a little, but after they've whispered in the hall awhile, two of them always come back and tell you that the first was right.) This second surgeon I am speaking of, stood up and beamed down on me approvingly; "I like your looks ever so much," he said. It was a delightful moment, considering my age, my illness, and the way my hair was done. I was cheered at the thought of dying, believing that someone liked my looks. "For our purposes," he added, "you'll make a splendid subject."

A very uncommon bedside manner is one that seems apparently to go best with those who specialize in stomach troubles. This is what I may, for brevity's sake, call the "nearly-bored-to-death manner." I shall never forget the day I first experienced it. "What is your name, madam?" with a falling inflection at the end of the sentence, as if about to extinguish the flame that was burning dimly within him, although my card was lying on the table before him. Whenever I volunteered any information, or attempted to tell him of the illness that forced me to come to him, he would say, with a weariness of tone and a blandness of expression associated with an atmosphere of resignation to the inevitable, "Madam, if you will kindly answer my questions. That will suffice for the information that I seek." If he betrayed any interest in me or my disorder, it was as an object to which he could apply rules that had been drafted in his mighty mind and then printed, so that his mind might not be burdened with retaining them.

I have had experience with many others. The doctor who used most to frighten me was one who was always treating patients who were "threatened" with pneumonia, or with typhoid fever, or with meningitis. He never spoke of his skill in relation to the escape of the patient from these threatenings, but his assiduity stood in direct relationship to the escape. I always supposed that when you got certain germs in your system and they developed in you, you developed that particular disease. I have learned otherwise.

There isn't anything particular for you to reply to in this letter. I thought you'd like to hear some of my impressions about physicians. I trust you will enjoy them as much as I have your impressions of patients.

Yours very sincerely,

Dear Madam.—I venture to say that although I have received much pleasure from reading your letter, it is small in comparison with the entertainment your experience has afforded you. A sense of humor is a desirable asset at all times, but particularly so when one has a chronic illness. The bedside manner has apparently been neglected by your profession, which, by the way, I assume is that of a writer. I am at a loss to understand this, as it has been a very conspicuous feature of physicians from time immemorial. How very much more interesting the lives of Cardan, Caius, or Parcelsus would have been if we had had a thorough description of their "bedside manner."

In very ancient times those who were ambitious to become members of the medical fraternity were instructed in both appearance and conduct. When Bharadyaga, the prophet, went to Thousand Eyed Indra, in Heaven, to acquire knowledge in medicine, it is said that this Deity told him not only how to play the part, but how to dress it as well. Fifteen hundred years before Christ the aspirant to our Guild was told that he should be inquisitive and observant, not covetous, zealous, or lazy. He should be a philanthropist, possess a generous heart, and his disposition should be amiable and happy. He was apprised that the indications of such qualifications are an agreeable voice, a small tongue, eyes and nose straight, with thin lips, short teeth which do not expose the gums, and thick hair which retains its vigor. He was adjured to possess a healthy body, to keep his nails and beard short, his clothes clean, and to wear shoes and a small turban. He should carry an umbrella and a stick in his hand.

Do you think his bedside manner would be suited to asthma, or would it be more adapted to hysteria? As a matter of fact, in this country at least, we are evoluting out of the bedside manner. It is entirely a volitional appanage, often a natural, but by no means a necessary accomplishment. In England, for instance, the country in which the bedside manner has its greatest development, convention prescribes the top-hat and frock-coat. A physician would as soon venture to call upon the patient without the latter as without the former. This is in marked contrast to our own custom, which is to go clad in automobile costume, riding boots, and in clothing that makes bicycling comfortable.

I am inclined to think that the conventional doctor does not particularly appeal to you, otherwise, the man who twirled his straw hat would not have made so favorable an impression. We ought to be glad that we are not shackled with purposeless convention and you will agree with me, I am sure, that the restoration of health would not be facilitated if doctors were to return to the use of the full-bottomed wig, the robe and the cane which were necessary in the time of Radcliffe and Sydenham.

I wish you had offered some suggestions as to what you consider is a desirable bedside manner. I should like to speak of it to my young physicians in the hospitals. They go out into the world of strife without any hints regarding this important matter. Unlike the profession with which we are supposed to do some team-work, there are no regular gestures, intonations or *coups d'œil* which can be used in the beginning and then improved upon as opportunity offers or experience teaches. I sincerely hope that many physicians, however, are like the immortal William Maclure, the sight of whom put courage in sinking hearts. "But this was not by the grace of his appearance, or the advantage of a good bedside manner. A tall, gaunt, loosely-made man, his face burnt a dark-brick color by constant exposure to the weather, red hair and beard turning gray, honest blue eyes that look you ever in the face, huge hands with wrist-bones like the shank of a ham, and a voice that hurled his salutation across two fields." His raiment, compared with that of the fourteenth century practitioner, as described in the Doctour of Physick in the Canterbury Tales:

> "In sanguin and in perse he clad was al,
> Lined with taffeta and with sendal,"

was less suggestive of the bedside manner than his appearance. "His jacket and waistcoat were rough homespun of Glenurtach wool. His shirt was gray flannel and he was rather vague as to a collar, but

certain as to a tie, which he never had, his beard doing duty instead, and his hat was soft felt of four colors and seven different shapes. His point of distinction in dress was the trousers. 'Some threep that he's worn thee eedentical pair the last twenty year an' a' mind masel him gettin' a tare a' hind when he was crossin' oor palin' and the mend's still veesible.'" No, my dear madam, despite the immense amount of opposing poetical testimony, dress and manner do not contribute very much to the physician's usefulness, although they may to an ephemeral success.

I am interested to hear some of the things that physicians have said to you and have said at you. I should like to be able to recount to you some of the things that physicians have wanted to say, but didn't. I recall a passage from a little book, called the "Gold-Headed Cane," which is a brief biography of five physicians of the seventeenth century in England—a passage which should receive a cordial reception by many readers. It is said that Baillie, one of the five, sometimes betrayed a want of temper in hearing the tiresome details of an unimportant story. After listening with torture to a prosy account from a lady who ailed so little that she was going to the opera that evening, he had happily escaped from the room, when he was urgently requested to step upstairs again; it was to ask him whether on her return from the opera, she might eat some oysters: 'Yes, ma'am,' said Baillie, 'shells and all.'"

You say you are an experienced patient, but I imagine that there are some experiences with the bedside manner that would be entirely new to you. Those that you have described are, I think, what might be called rather commonplace. Do you suppose in the chapter of your autobiography on the office manner you will be able to describe anything quite so amusing and "fetching" as this picture of Radcliffe, with whose name so many institutions at Oxford are now associated? He was King William's physician and a great swell. This is a description of him in his sixtieth year: "His full-bottomed wig was dressed with peculiar care; when he wore his best suit of lilac-colored velvet with yellow basket buttons, his air on the whole was very commanding. He had an elevated forehead, hazel eyes, cheeks telling of the good cheer of former days, if anything, a little too ruddy; a double chin, a well-formed nose and a mouth round which generally played an agreeable smile. When he sat in his easy chair, with his right hand expanded, and placed upon his breast, as if meditating a speech, and clearing his voice for the purpose of giving it utterance; his left wearing his glove, and resting on his side immediately above the hilt of his sword, which was a very usual attitude with him, he certainly had a most comely and well-favored appearance." Do you think that you would have had a pleasanter interview with him than with the physician who referred to you by number?

A suspicion arises in my mind that although you are an invalid of experience, you have never been very ill. If you have been, you kept reflections gained from it out of your letter. It has been my experience that it is only what I shall call dilletante invalids who pay much attention to the "bedside manner."

In reality, what you have been on the lookout for has been a doctor who could amuse you while curing you. Someone who would discuss with you the symbolism of Strauss's and Wild's "Salome"; the decadence of modern German art (if you happen to have seen the recent exposition of pictures from Germany at the Metropolitan Museum); the value of pragmatism in bringing metaphysical speculation to the test of scientific exactness and in testing theories by practice. It is apparently considered a patency of good form to talk "psychology" in society nowadays, and a certain amount of skill on the part of the practitioner to guide the conversation at the bedside of the dilletante invalid into this channel, might be received as evidence of great preciosity.

Genuinely ill patients do not care whether the doctor has culture or not; what they want him to have is experience, knowledge, and skill, and the more "businesslike" he is in the display of them, the more they like him and the deeper he impresses them. "Have you ever had a case like mine before, and have you cured him?" is the vital question to them. It does not interest them to know what the doctor's views on materialism or modernism are; whether he thinks Maeterlinck is a genius with the voice of a prophet and the divination of a seer, or a belated mystic with an inclination for the primitive and a capacity for the symbolic; or whether he has views on the meaning of good at variance with those generally held. In fact, if it comes to their ears that the doctor devotes much time to these or to a propaganda of them, or to anything else called culture, a suspicion gets into the patient's mind that that doctor is too versatile to give proper concern and care to his case and he is likely to send for someone else who is absorbed in the doctoring business.

I am not belittling culture, I am deprecating it as an aid in the practice of medicine. When we discuss the things that make life worth living, it may astonish you to hear the value I give it.

Your remark about the doctor who told you that the pain of abscess in the ear is the most acute that one can endure, is an indication to me that he was very human, despite the fact that he referred to you by number and always forgot what you had previously consulted him for. It also leads me to the reflection that the best training a doctor can have is to experience a serious illness, and for a surgeon to have a capital operation. Either one will give him as nothing else can possibly do, inside information concerning the problem with which he is dealing. It will humanize him to a degree that no amount of second-hand experience can approximate, and it will provide him a point of view in dealing with persons that no other kind of experience can furnish.

The implication in your letter that the physician makes an impression upon his patient by his manner as well as by his matter, is very true. Indeed, in some instances the patient needs more skillful handling than the disease, and frequently the latter cannot be successfully combated until the former is won over. In a large measure, this constitutes what is called inspiring and gaining confidence. I have heard that the bedside manner has very little to do with this.

As physicians we are constantly made aware of the fact that we are serving more than one master; our profession is one, our patient is another. Both are exacting. The former demands a conformity to ethical principles, some of them ideal; the latter, infallibility and the capacity to give and to give generously on every demand. That many of us fail in both does not at all mean that many do not succeed in satisfying both. Those who succeed do so by simplicity of purpose and sincerity of manner.

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THE INCREASED COST OF LIVING AND THE DOCTORS.

IN a personal way, the present increased cost of living, of course, results to the material disadvantage of physicians. As part of the great unorganized majority upon which the economic burden chiefly falls, they must stand helpless as individuals and see conditions created under which the purchasing power of their incomes steadily diminishes. Lacking the solidarity of the plasterers' or hod-carriers' guilds, they have no union to scale up their incomes commensurate with the rise in beefsteak and eggs—unlike the tradesman who meets the rise in wheat and potatoes by adding a fourth to the selling price of his wares, they cannot regard their professional services in the light of a commodity, the cost of which is to vary with fluctuation on the produce exchange. Few if any are there who would attempt to readjust their incomes to an increasing outgo by adding an extra half dollar to the charge for a visit to the ailing storekeeper or groceryman. And beside depreciation in purchasing power, the income itself tends to shrink—persons who find the struggle for mere existence steadily more bitter, hesitate to deplete an already insufficient wage by calling in a doctor in the early, more amenable stages of disease, and many honest, grateful folk there are who find the new order of things an absolute bar to paying the doctor's modest honorarium. Clearly the situation is one which is of vital personal importance to the medical profession, even though its members remain capable of securing the actual necessities of existence.

But there is a large class of the public which is even less fortunate, not only those to whom the maintenance of a hand-to-mouth existence has always been a struggle, but those whose incomes, formerly sufficient for comfort, are now inadequate to provide the ordinary decencies of life. Women, whose labors should have remained domestic for the sake of the unborn future, have become conscripts in the army of industrial toilers; tender children are snatched from school and play to be stunted in body and mind by the exigencies of too early labor. Even if the medical profession is too unselfish to fight for its own advantage like the artisan guilds, yet it is its duty to champion the cause of the suffering and helpless. While others may bow to the sordid god of Business, the high calling of the physician lifts him superior to all interests save that of humanity, and this duty is even more urgent since, bad as conditions are, there is every reason to believe that they will become worse. Entrenched monopoly is loth to give over its fattening; and the rapid aggregation of wealth into steadily vaster masses means economic conditions, outside of competition, under which, without repressive measures, not only individuals but communities will become powerless. A thoughtful, dispassionate profession will, therefore, in union with all good citizens, consider the vital question of corporations, with the view of identifying and opposing such as seem to be inimical to the best interests of the community and the race.

If, as has been said, the tariff is the mother of trusts and bestows its benefits and imposes its burdens unequally and unjustly, or if it necessary to the prosperity of the country, in either case it is a subject which, from its profound influence upon the individual, society, and humanity, the doctor would do well to consider and study. When it is next subject to legislation, he should insist that its provisions be bared to the white light of publicity, and that the welfare of human beings be given as much consideration as the rights of property. The doctor should vote as he practises—for the benefit of humanity. Himself well satisfied with a modest competence as return for the exercise of his humanitarian functions, it should be difficult for mere sophistry to betray the physician into supporting any principles, groups, or individuals whose success may mean the acquisition of excessive wealth by the few at the expense of want, suffering and physical deterioration by the many.

Industrial competition is, of course, a most necessary and excellent thing in its way, for the material progress of mankind undoubtedly depends upon the fitting reward of special ability and zeal and the due penalizing of inefficiency and sloth. But these rewards and punishments must not be allowed to become excessive if the welfare of the race is to be considered. There is no harm done either to the present generation or to posterity when relative inefficiency punishes itself through inability to provide luxuries; but it becomes quite another matter to the State if rewards for success are allowed to become so excessive that punishment for failure carries with it deprivation of the actual fundamental necessities of existence and the perpetuation of a robust, healthful race. It is therefore a question, which carries its own answer, whether any economic system which permits the generations yet unborn to come into the world degenerate in body and mind as a result of the deprivation of their parents, can be approved by the physician. Aside from any menace to our national institutions, the piling up of the tremendous modern private fortune, the very vastness of which absolutely precludes the use of even a fair fraction of its income by its possessor, seriously threatens the public health and the physical efficiency and standards of the body politic. Originally, there is a fair living with reasonable comforts available to us all in this country, and it is a matter of simple mathematics to show that the aggregation of an undue proportion of the available

wealth in the hands of the few means a subtraction all along the line from the resources of the many and corresponding reduction in standards of living.

And in respect to the sociological and health problems created by such excessive fortunes the physician, in an individual way, has opportunity to work for society through his intimate professional relations with the very rich. He can honestly assert that the creation of unduly great fortunes is a benefit neither to their possessors nor to the race. Ability habitually to overindulge in costly indigestible food and drink and to avoid physical labor, combined with the excessive nervous strain of business competition and the complexities of social life, have their results in the steadily rising rates for disability and death from neurasthenia, gout, rheumatism, and the diseases of the kidneys, heart, and circulatory apparatus. The poor man, with all his ills dependent on malnutrition, fortunately escapes that of corpulency, a condition which was recently shown had never, in the experience of the two largest life insurance companies, existed in risks who survived to a good old age. Both extremes in the social scale have their special perils.

As doctors we appreciate that beyond the ability to provide for all one's physical and mental needs, the acquisition of wealth serves no useful purpose; while the corresponding deprivation under which the general public is thus made to labor has too profound an influence on the race to permit us to countenance wealth-getting as a pastime or an obsession. The collection of dollars has quite a different effect upon the community than that of the collection of postage stamps, for example. And when the man with superabundance apparently regards money-getting as a sport, like hunting or fishing, it is well to recall that particularly all our States now have laws fixing a legal limit to the bag of quail or trout; when the desire reaches the intensity of an obsession, suggestive treatment like that required for the victim of any other unhealthy idea is desirable.

Nor does the ultimate good disposition of great wealth repair the damage wrought by its accumulation. With all appreciation toward those who build hospitals, endow institutions, and donate libraries, nothing they thus do can compensate the race as a whole for the results of the less wholesome conditions and environment which continued denial of their adequate share in the rewards of industry have brought about. It would be now both impossible and unwise to give this share back—but it was an injury to the nation and race to take it away in the first place.

Finally, while standing always for material progress, the physician ought to preach the doctrine of the simple life as opposed to the useless artificialities which constantly and unnecessarily tend to render existence more complex. He can consistently set his face against the follies and extravagances which weaken the race as a whole and create conditions which favor the elimination of the social extremes. Of far clearer vision than the self-centered money-grabber, he must interpose to stop the scramble to discount, for present advantage, the future health and happiness of the nation.

THE EVOLUTION OF THE MODERN HOSPITAL.

In Europe and in England the hospital has been in being from very early times, and it would be a grave error to imagine that the up-to-date hospital had its inception solely in the brains of the present day scientific practitioner of medicine. More than two thousand years ago there were hospitals in Europe in which the sick and injured were cared for. With the institutions devoted to the treatment of suffering humanity which flourished in countries far advanced in civilization, like the Roman Empire, Greece, and Egypt, there is no space to deal here except merely to remark that it is probable that the Egyptians had a very considerable knowledge of the healing art, even when considered in the light of comparatively recent discoveries. In England and in Great Britain generally a study of the subject will quickly convince one that the evolution of the hospital there has been steady and gradual, extending over a period of eleven centuries or more. Miss Rotha May Clay has just published a work on the medieval hospitals of England, in which she emphasizes and illuminates the fact that such institutions are not the outcome of any modern philanthropic movement, but are England's inheritance for nearly eleven hundred years. In the beginning of the movement, however, a hospital was not regarded simply as a place in which the sick and injured might be cared for, because in the middle ages the word had a somewhat different, or it will be perhaps more correct to say, a far wider significance. Then hospital might mean anything from the infirmary of a monastery to a leper house. Indeed, all charitable institutions, including almshouses, hostels for pilgrims, refuges of infirm or superannuated priests and decayed gentlefolks, lunatic asylums, and orphanages, were termed hospitals. In short, the hospital played an even more important part in the social life of the dwellers in medieval times than does now the modern hospital, which was evolved from these vast foundations.

The hospital had its origin in piety, or in superstition and fear, or in all three combined. The earliest of which there is any record in England dates back to Saxon times. St. Peter's Hospital in York, and St. Wulstan's Hospital near Worcester, the former being built by Althelstan the King, somewhere between the year 925 anl 940, and the latter a century later. At the time of the Norman Conquest the hospitals were a component part of the monasteries. Every religious house had its own public infirmary, at first within the monastery precincts and later outside the walls, in the form of a separate building. After the divorce of the hospitals from the monasteries became more general, independent charitable foundations sprang up on all sides, and during the next three hundred years it became the custom, it might be said almost the fashion, to found charitable institutions of every description. In some instances piety was the compelling force, but often the desire to expiate sin, and that type of human vanity which is evident even in these days, the wish to perpetuate a name, were the levers which moved the human action.

Then came separate establishments for the sick alone, such as St. Thomas's Hospital, Canterbury. In connection with this institution Archbishop Stratford, in 1342, directed "that poor pilgrims in good health shall be entertained only for one night. . . . That greater regard shall be had for the sick than for the well pilgrims." At about this period also the necessities of parturient women began to be seriously considered and in 1414 the foundation deed of Holy Trinity Hospital, Salisbury, sets forth that "lying-in women are cared for until they are delivered, recovered, and churched." At the same time the insane were first isolated. The first English madhouse was erected near Charing Cross, but Stow, the historian, says that "sometime a King of England not liking such a kind of people to remain so near his palace, caused them to be moved farther off, to Bethelem without Bishopsgate." As evidence that leprosy was very prevalent in England in the middle ages, Miss Clay states that there is documentary proof of the existence of over two hundred leper institutions in England.

When the reformation came and when the monasteries suffered severely, to a large extent the hospitals suffered with them, and the system received a serious check. But its foundations had been laid too firmly to be wholly destroyed, and slowly but surely hospitals continued to improve, until they reached their present height of development. It must be borne in mind, then, that to the religious orders is due the credit of founding all charitable institutions, and among them hospitals, and that it is also owing to this fact that the hospitals of Great Britain are conducted on a charitable basis.

Sleeping Sickness in Uganda.

Sir Henry Hesketh Bell, late Governor of Uganda, has written recently a report on sleeping sickness in Uganda, a résumé of which was published in the *Lancet* of January 22. It is probable that more people have died directly from sleeping sickness during the past twenty years than from any disease, certainly than from any tropical disease. Uganda has been absolutely decimated by its ravages, and other parts of Africa have suffered almost to an equal extent. In some degree even now the malady is mysterious, for although it has been proven with sufficient clearness that its spread is due to the tsetse fly, *Glossina palpalis*, there are many more points in connection with its infectivity and dissemination which still need elucidation. For example, there is no agreement as to the length of time that the malevolent fly carries infection. It was formerly believed that this term was but a few days, but Sir David Bruce, the greatest authority on the matter, now states it as his opinion that *Glossina palpalis* may retain its infectivity for two years. According to Sir H. Bell, two features of the disease stand out vividly. One is its intractability to remedial or curative therapeutic measures, and the other is that prevention is the sole means of successfully coping with the pestilence. Either the tsetse fly must be exterminated or persons must be removed from infected areas. To exterminate the tsetse fly is a hopeless task. The alternative measure seemed to be within the power of the administration, and it was hoped that by placing all sick persons beyond the reach of the fly to prevent the flies from procuring the means of further infection. Eventually action was taken on the following lines: (1) The removal of all persons to fly-free areas, and their treatment by medical officers in specially organized camps; (2) the temporary removal of all healthy persons from areas infected by flies which are presumably infected; (3) the elimination of flies as far as possible in all localities from which the population cannot be removed, and in all places through which travelers are obliged to pass; (4) further investigations into the life-history of the tsetse fly with a special view to the discovery of conditions that appear to be inimical to the fly; and (5) the study of curative agencies. The carrying out of the above measures has resulted in an immense reduction of the mortality from the disease. It is estimated that between the years 1898 and 1906 more than 200,000 persons died from sleeping sickness in the provinces of Buganda and Busoga. During 1907 the deaths were about 5,000, and in 1908, 3,662. The most remarkable incident in the history of sleeping sickness is the complete failure of therapeutic remedies in the treatment of the disease. Sir H. Bell states that if an individual contracts the disease he or she is surely doomed to die. The treatment by injection of atoxyl, so warmly lauded by Koch and others, has not given the results expected. In some cases atoxyl caused blindness to such an extent that its use had to be greatly restricted. Mercury in conjunction with atoxyl seems to have given more satisfactory results, but as said before, no reliance can be placed upon any form of treatment. This being so, preventive measures are the only measures left, and thus it appears that so long as no cure is discovered the only safeguard against the disease is a rigid taboo of all fly-infected localities.

Rupture as the First Symptom of Aneurysm.

Though aneurysm of the aorta may be among the most distressingly painful affections to which mankind is heir, it not infrequently happens that extensive fusiform or even sacculated dilatations of the aorta give few or no subjective symptoms. An example of this occurred a few years ago in the wards of the Johns Hopkins Hospital. The patient, a professional gymnast, was admitted for indefinite thoracic symptoms, and was found to have a large aneurysm of the aortic arch. After a short sojourn in the hospital, however, he left of his own volition and for some weeks, during which his aneurysm increased in size, he continued in his profession of a trapeze performer, experiencing but little inconvenience from his aneurysm, though later, owing to the tumor eroding the sternum, he suffered the most intense anguish and finally died in the hospital. In such cases of latent aneurysm the diagnosis is often difficult, and may be made only at autopsy after a sudden hemorrhage, internal or external, has carried off a man apparently in perfect health. A case of latent aneurysm of especial interest owing to the location of the rupture and the resultant clinical picture is reported by J. Lloyd Roberts in the *Liverpool Medico-Chirurgical Journal* for January, 1910. The patient, a laborer in a lumber yard, sixty years of age, appeared, until the day of his death, to be in perfect health. While carrying a heavy beam, he suddenly became faint and fell to the ground, but did not lose conscious-

ness. On admission to the hospital he was cold and collapsed. There was no dyspnea. The pulse was fairly good, regular, varying from 80 to 90 per minute, and equally strong on both sides. The striking feature was an intense cyanosis of the head, neck, arms, and the trunk as far down as the third rib. At this level the cyanosis disappeared with a well-defined line of demarcation, below which the skin was normal in color. Examination of the chest revealed an aneurysm extending from the region of the second to the fourth right intercostal spaces. The sudden collapse and peculiarly localized cyanosis led to the suspicion of a rupture of the sac into the superior vena cava. The death of the patient four hours after admission to the hospital and the subsequent autopsy confirmed this suspicion. The heart was hypertrophied; the aorta was atheromatous; there was a fusiform aneurysm of the descending arch, and a large sacculated one of the ascending and transverse portions; the superior vena cava was flattened over the surface of the tumor, and a tear was found near the opening of the right innominate vein connecting with the cavity of the aneurysm. These findings fully explained the peculiar and unusual clinical picture, and accounted for the localized cyanosis.

A Significant Contribution to the Study of Cancer.

In the present issue of the Medical Record, Dr. Hodenpyl makes the first announcement of certain new principles and methods in the treatment of carcinoma. While various unauthorized statements of this discovery have appeared in the daily press, little which is definite has been heretofore made known. The concise, reserved, scientific treatment which Dr. Hodenpyl now makes puts forth no present claim for a cancer cure, but reveals what seems to be a remarkable biological phenomenon and contains suggestions of a promise of far-reaching benefit to the victims of this sinister disease. It would be rash and unscientific to claim more for this discovery than the author himself claims in his modest presentation of the subject, but it is permissible to welcome it as one step forward in the progress toward the solution of a problem which is engrossing the attention of a multitude of workers the world over and which no one who is conversant with the work of these investigators can doubt will finally be solved.

News of the Week.

The Association of Tuberculosis Clinics of the City of New York was incorporated recently. Its purpose is to organize dispensary control of tuberculosis in New York and develop a uniform system of operation of such dispensaries as are organized. The association will retain patients under observation until they are satisfactorily disposed of and prevent them from drifting from one dispensary to another. It will facilitate the work of visiting nurses in the homes of the patients and provide, where necessary, special funds and assistance for the patients, such as proper hospital, sanatorium, or dispensary care. It will cooperate with the Board of Health in the suppression and cure of tuberculosis. The incorporators are Dr. James Alexander Miller, Dr. John H. Huddleston, Dr. John S. Billings, Jr., Dr. Gaylord S. White, and Mr. Lawrence Veiller of No. 105 East Twenty-second street.

A Medical Tribunal Suggested.—At a dinner tendered to Dr. Carlos Frederick McDonald recently in New York, ex-District Attorney William Travers Jerome in a speech warmly advocated the formation of a tribunal in the medical profession, with powers similar to the Appellate Division of the Supreme Court over lawyers, to disbar or suspend unworthy members of the medical profession. In reference to the subject of expert testimony Mr. Jerome spoke as follows, as reported in the *New York Times:* "There is no subject on which more poll-parrot nonsense is uttered than the subject of medical expert testimony. Out of the fifteen thousand lawyers in New York there are not more than fifty who are qualified by experience to speak with authority on this question. No man has had more experience with experts than myself during the eight years I was District Attorney. And during that time I recall only one man whose testimony was radically dishonest. There were many who disagreed with me honestly. In only one case was there any miscarriage of justice. And in every case the judgment of the experts retained by the State was justified by subsequent clinical history. There was only one case which attracted great public attention, and there was only one physician who was touched by the great scandals arising therefrom. And I am positive in stating that the scandals arose through judicial incompetency rather than from any corrupt medical testimony."

To Amend the Insanity Law.—Assemblyman J. S. Phillips has introduced into the New York Assembly, at Albany, two proposed amendments to the Code of Civil Procedure and the insanity law which are aimed to meet the situation involved in such repeated attempts to secure freedom from asylums as have been made by Harry K. Thaw and others. Under the present procedure there is no limit to the number of attempts which may be made through certiorari and habeas corpus writs to secure the release of such persons. The first of the Phillips bills would amend Section 2016 of the civil code by providing that except as provided in Section 93A of the insanity law a person shall not be entitled to a writ of certiorari or of habeas corpus when he has been committed to or is detained in a State hospital for the insane or for insane criminals or for insane convicts by virtue of a judicial determination of his insanity by a competent tribunal and has been granted one writ. The second bill provides Section 93A as a new section of the insanity law and limits the right of a person confined in a State hospital to a second writ of habeas corpus or certiorari. It requires a certificate under oath of two physicians that they have examined the person under custody and believe him to have recovered his sanity. The authorities of the hospital may present facts in opposition and the granting of the writ is within the discretion of the Court.

Pure Polonium is reported to have been isolated by Mme. Curie of the Paris Sorbonne, the discoverer of radium. It is stated in the dispatches that polonium has a radioactivity 400 times more powerful than radium, but that its active life is much shorter.

New York State Health Commissioner's Report.—In this report of Dr. E. H. Porter to Governor Hughes he lays stress upon the pollution of State waters. He says in part: "Many of our streams have reached the limit of the amount of pollution they will care for. That such a condition

of affairs exists is a disgrace. Little relief in the conditions can be obtained under the existing laws, and the Legislature is urged to pass a bill affording effective means for requiring the pollution to be taken out of the streams. In many places where the water supplies are protected by rules of the department, orders have been issued to clean up the watershed. Particular attention has been paid during the year to summer resorts having impure water supplies and improper methods of sewage disposal. The conditions of a number of places have been found to be dangerous to the persons visiting them, and the Commissioner insists that they be placed in proper sanitary condition."

Pasteur Institute for Toronto.—Several physicians representing the Toronto Academy of Medicine waited on the Cabinet of the Ontario Legislature, on February 14, and requested that a Pasteur Institute be established in Toronto, in connection with the University. The deputation was composed of Prof. McKenzie of Toronto University, Dr. R. A. Reeve, Dr. Alex. McPhedran, and other prominent practitioners of the city. In view of the fact that there is quite a "mad dog scare" in the western part of Ontario at the present time, and that many victims of dog bites have gone to the Pasteur Institute in New York for treatment, the physicians of Toronto contend that such an institute should be established in connection with the University there.

To Abolish Compulsory Vaccination in Ontario.—A bill was introduced into the Ontario Legislature, on February 11, which seeks to abolish compulsory vaccination. Municipal councils now have the right to pass by-laws to enforce compulsory vaccination. Some councils have availed themselves of these powers. The bill is to repeal the present act and to leave it to each person to decide for himself whether or not he shall be vaccinated.

Optometrist Bill in Massachusetts.—A bill is now before the Massachusetts State Legislature, which, if passed, will license optometrists in that State in a somewhat similar manner to the existing law in New York State.

Army Medical Supplies Bill.—A deficiency appropriation of $307,000 to replace medical and hospital supplies destroyed by fire at the army medical supply depot in New York City on February 4 last was recommended to Congress recently by Secretary of War Dickinson. The recommendation is based on a report by the Surgeon-General of the army that the balance of the appropriation for this year is insufficient to meet this extraordinary loss "without dangerously encroaching on the reserves which every provident Government must maintain in anticipation of military emergences such as the recent intervention in Cuba requiring the immediate issue of large quantities of equipment."

Virginia Epileptic Colony.—Within the last few days, Virginia has selected an admirable site on which to locate an Epileptic Colony, as provided by the Legislature. The place, which has been purchased for $35,000, is located within two miles of Lynchburg, but is secluded. It is in the foothills of the Blue Ridge and has a frontage of three miles on the James River, and contains 1,000 acres of well watered and wooded land, about one-half of which is either rich lowland or fertile, tillable soil. There are several houses on the place which may be used for various purposes in starting the colony.

La Crosse Asylum to Be Rebuilt.—The Wisconsin State Board of Control has notified the county board that the La Crosse insane asylum at West Salem is to be reconstructed at a cost of $60,000.

A New Contagious Disease Hospital in New York Harbor.—Health Officer Doty expects to have completed and ready for occupancy on Hoffman Island, in New York Harbor, on March 1, a hospital and four pavilions for the isolation and treatment of measles, scarlet fever, and diphtheria. Previously such cases have been allowed to go on with the ship to its pier, and at the pier have been turned over to the Board of Health. Dr. Doty believes that the removal of those patients at quarantine furnishes better protection to the public than the older method of supervision. Dr. Doty's opportunity to carry out his ideas in the matter was given him by the transfer on June 1, 1909, of the duties of the Quarantine Commission to the Health Officer of the Port, with full jurisdiction over Swinburne and Hoffman Islands. With the approval of the Governor and of the Legislature Dr. Doty has reconstructed a large dormitory in the northern end of Hoffman Island into a hospital and has added to this four wooden pavilions. The five buildings will accommodate 300 patients. The various sections are separated for the most part by glass partitions. The Health Officer is making arrangements to give local health officers and other physicians opportunity to study at first hand the methods of his staff in the treatment of the various infectious diseases. These students of the problem will be put up at Hoffman Island for a few days each without expense to them. The total cost of the hospital and pavilions, including an estimate of the original cost of the old dormitory, is something less than $230 a bed.

Typhoid Fever on Washington Heights.—A small but rather sharp epidemic of typhoid fever has recently made its appearance in the Washington Heights section of New York City. The epidemic is strictly localized in this neighborhood and Commissioner Lederle is reported to have stated that its source had been discovered and eliminated.

Scarlet Fever in New York.—Scarlet fever seems to be decidedly more prevalent in New York this winter than usual. For the week ending February 12, 632 new cases of the disease were reported to the Board of Health as comparing with 339 for the corresponding week in 1909. The disease is most prevalent in the lower east side of Manhattan and the Brownsville section of Brooklyn. There are said to be about 2,500 cases in Greater New York.

New Jersey State Board to Investigate Cold Storage.—The New Jersey State Board of Health has decided to institute an investigation into the condition of the cold storage plants in that State. The inquiry will be conducted under the supervision of Dr. R. B. Fitz Randolph, who has charge of the State Laboratory of Hygiene. Samples of meat, poultry, eggs, and other cold storage stuff will be subjected to analyses. Should these disclose any violation of law the Attorney-General will be asked to prosecute.

A Pension Asked for Yellow Fever Victim.—Application for a pension of $100 a month has been made by John B. Kissinger of South Bend, Ind., on the ground that he offered himself for inoculation with yellow fever during the Government experi-

ments in Havana a few years ago, that he contracted the disease, and has never recovered his health.

"Typhoid Mary" Released.—The woman who a few years ago was the cause of a series of local epidemics of typhoid fever, and gave the original clew to the possibility of healthy persons being "typhoid carriers," with the result that she has been quarantined for three years on North Brother's Island in New York, has finally been released by the Board of Health on the condition that she will not return to her former occupation of a cook and will report to the Board of Health at frequent intervals.

The German Roentgen Society will hold its Sixth Congress in Berlin, beginning on April 3, 1910, at the Langenbeckhaus. Lectures and demonstrations should be announced to the secretary of the society, Dr. Immelmann, Berlin. W. 35, Lützowstrasse 72, before March 4, 1910.

The Medical Society of the Missouri Valley will hold its twenty-second semiannual meeting at Omaha, March 17 and 18, 1910, under the presidency of Dr. A. B. Somers. The arrangements are under the auspices of the Omaha-Douglas County Medical Society. Members of the association desiring to present papers at this meeting should send their titles to the secretary, Dr. Charles Wood Fassett, St. Joseph, Mo., at once. Abstracts of papers must be furnished by February 20, to insure a place on the program.

Dr. Jacobi's Text Book.—In the review of the "Collectanea Jacobii" (MEDICAL RECORD, February 12, 1910) an error was made by using the expression "Though he has written no text books." The mistake was made by the reviewer in misinterpreting the words of the editor of the "Collectanea Jacobii," who in his preface said "he has not rehashed any text-books and then published them as his own." The last edition of Dr. Jacobi's "Therapeutics of Infancy and Childhood" was published in 1903 by the J. B. Lippincott Company.

University Appointments.—Dr. George W. Vandegrift of New York has been appointed Professor of Ophthalmology at the Brooklyn Post-Graduate Medical School and Attending Ophthalmic Surgeon to the Williamsburg Hospital, Brooklyn. Dr. Mary M. Wolfe has been appointed Clinical Professor of Psychiatry in the Woman's Medical College of Pennsylvania.

The Late Dr. Follen Cabot.—At a meeting of the Faculty of the New York Post-Graduate Medical School, on February 14, the following resolutions were adopted: *Whereas:* We learn with profound sorrow of the sudden and untimely death of our esteemed associate, Dr. Follen Cabot, Jr., who has been connected with this School for the past twelve years, and has held the Chair of Professor of Genitourinary Diseases in this Faculty since 1907, and *Whereas:* It is but a just tribute to his memory to say in deploring his removal from our midst, that we mourn for a man whose integrity and character were above reproach, who was faithful to his trust, and who always gave his best for the advancemet of his specialty in this School, and *Whereas:* It is particularly to be regretted that he should have been cut off from his life work at so early an age, and as a result of his hard work and conscientious devotion to his duty, much of which was in the interests of this School, therefore, be it *Resolved:* That we hereby record a last sad tribute to his memory, and unite in expressing our heartfelt sympathy to his sorrowing and bereaved widow and children, and be it further *Resolved:* That these preambles and resolutions be spread upon the minutes of this Faculty, and that a copy of the same be transmitted to his widow as a token of our respect, and as reverence to his memory. EUGENE FULLER, M.D., GEORGE G. WARD, JR., M.D., *Committee.*

Obituary Notes.—Dr. JOHN E. JAMES of Philadelphia died suddenly on February 16, 1910, aged 66 years. He was a graduate of the Medical Department of the University of Pennsylvania in 1866 and of the Hahnemann Medical College in 1886, in which institutions he was Professor of Gynecology.

DR. CHARLES F. MCGAHAN of Aiken, S. C., died at his home February 15, 1910, aged 49 years. He was a graduate of the Dartmouth Medical College in 1885, and a member of the Aiken County Medical Society, the South Carolina Medical Association, and the American Medical Association.

Dr. FREDERICK WENTWORTH MERCER of Chicago died at his home on February 9, 1910, aged 71 years. He was a graduate of the College of Physicians and Surgeons of New York in 1862, a surgeon major in the Civil War, and a member of the Chicago Medical Society, the Illinois State Medical Society, and the American Medical Association.

Correspondence.

PROFESSOR POLITZER TO HIS AMERICAN PUPILS AND FRIENDS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In reference to the anniversary of attainment of the degree of Doctor of Medicine at the University of Vienna my American pupils and friends have given so many evidences of friendship and attachment, that I am only able in this way to thank them all. I beg to say to all American specialists who visit Vienna, if they will call on me it will be a source of great pleasure to show them my collection of pathological and anatomical specimens which, through years of careful selection, contains many instructive objects.

At the same time, I would like to inform those colleagues who are under the impression that I have retired from private practice, that such is not the case, and that I am carrying on my consultations and practice now just as I did formerly.

Thanking you in advance for your kindness in publishing this letter, I beg to remain, faithfully yours,

PROF. DR. A. POLITZER.

VIENNA, January 30, 1910.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

VENTILATION OF SCHOOLS—BACTERIA IN LOW TEMPERATURES—SPINAL ACCESSORY NERVE—SPLENIC ANEMIA—FIBROLYSIN—OBITUARY.

LONDON, February 4, 1910.

THE school medical inspectors have evidently paid great attention to the subject of ventilation. Dr. Newman, chief of the department, in his report noticed in my letter of the 21st, ult., refers to the cases in which defects have been reported. These defects he attributes to (a) inadequate or defective means, or (b) full advantage not being taken of the means that exist. As a rule, natural methods are depended on, *e.g.* windows, doors, open fireplaces, and these are supplemented by Tobin's tubes, Boyle's valves, Sheringham valves, Galton's grates, roof, ridge, or ceiling ventilators, air gratings, and towered openings. Where inadequacy was recorded an increase in the number or area of windows, or some auxiliary means, were suggested. In some cases inadequacy was only relative, due to overcrowding. In some cases the ventilators were out of order or improperly situated. In others

the defects were of a radical kind. It is evident from many reports that the teachers do not make adequate use of the means at their disposal. In many schools the windows were not sufficiently opened and there seemed to be no attempt to secure cross-ventilation. These school medical officers made analyses of the air in schools and give tables of the results. Dr. Oliver found in the various rooms of one school from 8 to 21 parts per 10,000 of CO_2, instead of the fresh air standard of 4. Dr. Clements found in two schools 9 to 15. Dr. Williams in three schools found from 6.8 to 11.8. These proportions prove the need of teachers being intrusted to make use of all the means at their disposal to secure fresh air in their schools.

Sir James Dewar, lecturing last week at the Royal Institution, said he had been trying to press further our knowledge of what actually takes place when micro-organisms are subjected to very low temperatures. At the time liquid air was produced it was shown that the germs of putrefactive organisms in the air were still active. When liquid hydrogen was made, seeds from Kew were kept from 6 to 7 hours under the hydrogen without killing them. The tubercle bacillus subjected to the same treatment suffered no modification of its virulence. The phosphorescent bacteria, said Sir James, were good subjects for investigation, for as long as they were living they were luminous and their luminosity was essentially connected with their vital transformation. Therefore, it was easy to observe when death had taken place, so it occurred to him that experiments might be arranged to determine whether any known agents produced any effect on these bacteria at excessively low temperatures. Here he propounded some experiments before the audience. In one he showed a metal plate covered with bacteria which were luminous in the dark. A quantity of liquid air, which the lecturer declared to be less dangerous than had been supposed was then poured over the plate, when the luminosity vanished. Next by moving the plate to and fro, so as to raise the temperature, the phosphorescent bacteria again became visible. "You cool them, but you do not kill them," said Sir James, and continued that there was no getting over the fact that chemical action takes place at low temperatures and there would be nothing extraordinary in admitting that a solid piece of protoplasm might in certain cases be capable of being broken up in such a way that it was not a living organism.

At the Medical Society of London, on the 24th ult., Dr. Parkes Weber showed a case of frequent attacks of vomiting, tympanites, and abdominal pain. The patient, a woman of 36, had suffered for some 14 years, during which she had been at times in several hospitals and had had the abdomen opened four times, but no organic disease had been discovered. The case had been described in the *Transactions* of the Society for 1898 and a further history given in *Brain*, for 1904.

In 1896-1897 there had been vomiting of feces, having the form of scybala and of enamata of oil and others colored with methylene blue. Dr. Guthrie discussed the case in reference to enterospasm. Mr. Barker referred to another similar case in which he had conjectured a communication between stomach or colon. Mr. Openshaw said he had operated on a case diagnosed as reflex peristalsis. A distinct lump was felt along the greater curvature. At the operation he found a communication between the stomach and the colon. In his reply Dr. Weber pointed out the significance in such a case of the formed scybala.

Mr. Warren Low showed a case operated on 18 months previously for removal of a carcinoma of the pelvic colon. End-to-end anastomosis of the bowel was done and there is no inconvenient result. Mr. Low examined him a week ago and found no sign of recurrence. The sigmoidoscope passed easily for 8 inches and the lumen of the bowel when inflated could be inspected further on. Dr. Spilsbury examined the growth and reported it to be an adenocarcinoma projecting into the lumen as a polypoid. The peritoneum at the back of the growth was puckered but not invaded. There was marked muscular hypertrophy of the bowel.

Mr. Openshaw showed a case of paralysis of the spinal accessory nerve after a removal of the cervical glands. The whole of the trapezii and the left sterno-mastoid muscles were atrophic, but the right sterno-mastoid acted feebly. In such cases Mr. Openshaw said the spinal accessory should certainly be sutured if it had been divided, and Mr. Drew urged the importance of separating the nerve when removing the glands. Dr. W. Harris remarked on the very slight disability produced in these cases. The patients could do almost anything except carry weights on their shoulders.

In the previous meeting of the same society, there were several interesting exhibits, among which Dr. P. Weber showed a heart affected with chronic malignant endocarditis from a case which he said had simulated splenic anemia. The patient had been a sailor who contracted malaria when abroad and developed an enlarged spleen. He had been in several hospitals and the diagnosis in each had been splenic anemia. Dr. de H. Hall remarked on this that a good deal of doubt existed as to "so-called" splenic anemia, a disease which was not based on satisfactory evidence, so that its diagnosis suggested sceptiasm. Dr. Parkinson mentioned a case of malignant endocarditis in which during life the spleen was observed to be enlarged, and Dr. S. West said there was a further difficulty to be considered, viz., that malignant endocarditis might be a secondary infection.

In the Clinical Section of the R. S. M., Dr. Howard showed a case of stricture of the rectum and recto-vaginal fistula. The condition had followed an operation for hemorrhoids at a hospital. Colotomy had been proposed, but the patient (a woman of 40) refused to submit to it. In June, 1900, injections of fibrolysin were begun, the condition at that time being very distressing. The finger could not pass through the stricture without an anesthetic and the feces were passed as much by one passage as the other. At the time of the meeting (January 14) the following improvements were stated to have taken place: (1) An arrest of the growth of the fibrous tissue; (2) a certain amount of absorption of the stricture; (3) relief of pain; (4) the motions were passed, per anus, with little or no pain. The fistula was reduced to a small slit, though it was not presumed that this was an effect of the fibrolysin. The President, Mr. Pearce Gould, confirmed the statement that the stricture at this time was patent.

Dr. Leonard Williams related a case of sciatica treated by fibrolysin injections over the nerve, which seemed beneficial, as in three weeks the patient walked well.

Prof. Osler asked if any member had tried fibrolysin in Dupuytren's contraction, to which Mr. Carless replied that he had given iodolysin for it by the mouth and after six months the fingers were more movable.

Mr. Tilley remarked that as to ear cases reported the scars said to have been improved were out of sight.

Mr. Barker had seen no advantage from fibrolysin, but some disadvantages. In one case of Volkmann's contraction sloughs had followed. Sciatica might be benefited by the mere meddling. He could not see how Dupuytren's contraction could be remedied by the injections which could not affect any absorption of fat.

Two deaths have to be reported in connection with the Royal London Ophthalmic Hospital. Mr. William Ilbert Hancock, F.R.C.S., assistant surgeon, died on the 26th ult., aged only 36, but he had attained a good reputation in his specialty, to which he had made some useful contributions, chiefly in the *Transactions* of the Ophthalmological Society. His colleague whose death has also occurred, Dr. Daniel Mowat, was an Edinboro graduate, M.B., C.M., 1884, and M.D., with honors, 1887. He will be remembered by many of our readers who have been over here, for he was the Chief Clinical Assistant at the hospital, a post in which he diligently worked for 22 years. He contributed to the society and *Transactions*. His most important paper, perhaps, being on "Lymphangiectasis of the Eyelids."

Lt.-Col. C. M. Douglas, V.C., M.D., died on December 31 last, aged 69. He entered the Army Medical Service in 1862 and retired in 1882. He was awarded the Victoria Cross early in his career for the "gallant and daring manner" in which he and four privates of his regiment risked their lives and thereby saved seventeen officers and men from fearful risk, if not certainty of death.

Dr. J. N. Prentice died suddenly on January 24, at Ladybank, Fifeshire, where he had practised for four or five years. He was only 32, and was visiting patients within three days of his death.

Dr. Evan Thomas died on January 15 from septicemia contracted while making a post mortem a few days previously. He was M.D. and B.S. Lond.

OUR CANADIAN LETTER.

(From Our Regular Correspondent.)

EPIDEMIC OF TYPHOID FEVER IN MONTREAL—OUTBREAK OF TYPHOID FEVER IN TORONTO—RABIES WIDESPREAD IN PROVINCE OF ONTARIO—FOOD SUPPLY AND COLD STORAGE IN CANADA—VITAL STATISTICS OF ONTARIO—MEDICAL STUDENTS IN UNIVERSITY OF TORONTO—THE ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION—ENLARGING ST. MICHAEL'S HOSPITAL, TORONTO—CONSERVATION AND PUBLIC HEALTH IN THE DOMINION OF CANADA—ADDITION TO ISOLATION HOSPITAL IN TORONTO—DEATH OF DR. JAMES H. RICHARDSON.

TORONTO, February 9, 1910.

THE most serious happening in Canada from a medical and a sanitary standpoint has been the outbreak of typhoid fever in Montreal. It is believed now that the epidemic, for it has been no less, is subsiding, but data concerning the outbreak is very difficult to come at. Unless one is on the spot, even now it is by no means easy to discover whether the number of cases are really becoming fewer, or whether the whole matter is being concealed so far as is possible from the outside public. It was announced, it is to be presumed officially, as the announcement is published from the *Canada Lancet* for February, that there were 226 fresh cases in the city of Montreal in the last week of December, and that the deaths from the disease during the same period numbered thirteen. It is obvious that matters in the early part of January had not bettered greatly, because it was found absolutely necessary to establish an emergency hospital, the other hospitals being filled to overflowing. The history of the emergency hospital is interesting. It appears that the city fathers of Montreal were not impressed with the need of providing further accommodation for typhoid patients, or at least that they were not willing to vote the money requisite for the establishment of an emergency hospital. This being so, some public-spirited citizens of Montreal decided to take the bull by the horns and supply accommodation, treatment, and nursing for typhoid fever patients. Four days after this resolution had been come to a fully equipped hospital with an adequate and competent medical and nursing staff had been organized, and an ample guarantee fund subscribed. The old factory building belonging to the Northern Electric Company, capable of accommodating more than 300 patients was let, and, as said before, ready within four days for the reception of patients. There are, however, several points in connection with the epidemic which should be made clear, the most important of which is the cause of the outbreak. Unbiased authorities say that the prevalence of typhoid fever in Montreal is undoubtedly due to a polluted water supply, and Dr. LaChapelle, the chairman of the Quebec Provincial Board of Health, is publicly quoted as saying that in his opinion the contaminated water supply is mainly responsible; and that this condition of things will continue until steps have been taken to render the supply free from disease germs. If this be the case, it would seem to be the duty of, as well as good policy on the part of the city authorities, to recognize these facts and to improve the water supply with a speed. The initial cost may be heavy, but in the long run it will be money well spent.

In Toronto also there are many cases of typhoid fever, far more cases than usual at this season of the year. During January, sixty-one cases were reported to Dr. Sheard, City Medical Officer of Health, and nineteen deaths. Up to the time of writing in this month forty cases or thereabouts have been reported. In January, 1909, only four cases were reported, and in February, 1909, ten cases. Dr. Sheard holds the view that there will be a large increase of the disease in the spring, and furthermore states that winter and spring typhoid in Toronto is wholly waterborne. The malady is of a virulent type, hemorrhage occurring in a larger percentage of cases than usual. Toronto has decided to dispose of the city sewage in a more sanitary manner than that in use at the present time, and has likewise resolved to filter the water supply. Perhaps it might not be going too far to say that Montreal would be wise to follow so rational an example.

A somewhat extraordinary object lesson in the origin and spread of rabies is now being provided in the Province of Ontario. It is said, and there appears to be no doubt as to the truth of the statement, that the disease was first introduced into the Province by a dog which crossed the suspension bridge over the Niagara river at Queenstown in May, 1907. This infected animal bit several Canadian dogs, since which time cases of rabies, or rather it should be said suspected rabies, have cropped up at intervals in different parts of western Ontario. The statement was issued the other day from the Veterinary Director General's Department in Ottawa, that there are probably between three and four hundred mad dogs roaming about all parts of western Ontario. Since May, 1907, forty-two persons, of whom half were children, have been bitten by mad dogs; sixty-three cattle, one horse, six sheep, and thirty swine have died from rabies, and 206 premises have been quarantined owing to the presence of the disease. No deaths among the human beings bitten have occurred. Most of the injured persons went to the Pasteur Institute in New York for treatment.

The situation is considered so grave that the Dominion Minister of Agriculture and Dr. Rutherford, the Veterinary Director General, acting in concert with the Health Department of Ontario have determined to adopt drastic measures to stamp out the disease. Under authority of an order in Council containing regulations in respect to rabies, an order was issued on February 5 by the Department of Agriculture on the report of Dr. Rutherford to the effect that rabies is known to exist in many widely separated parts of the western peninsula of Ontario, directing that all dogs in that part of the Province must either be constantly muzzled, securely chained, or kept under lock and key. The course of the Government of the Province of Ontario has been determined by a similar provincial order in Council drawn up by the Provincial Board of Health. Your correspondent thinking that the situation might be exaggerated, and desirous of obtaining facts from the fountain head, interviewed Dr. Charles A. Hodgetts, secretary of the Provincial Board of Health, on the subject. Dr. Hodgetts most courteously gave him all the information required, and stated emphatically that there was no exaggeration whatsoever; that in the Veterinary General's Department in Ottawa the disease had been demonstrated as rabies in many instances by the inoculation of guinea pigs with virus drawn from suspected animals. In this connection it is instructive to refer to the experience of Great Britain with rabies. But a few years ago the disease was fairly common there, and has been wholly extirpated by muzzling dogs and by quarantining against the importation of foreign dogs. So successful have these measures been, that no muzzling is needed now, for the disease is practically extinct. The Federal authorities of Canada and the Government of Ontario are to be highly commended for running counter to public sentiment in the interests of the health of the community.

As in the States, so in Canada the question of the food supply from the economic and health points of view is being widely discussed. The Hon. S. P. Fisher, Minister of Agriculture, has ordered an investigation into alleged abnormal increase to consumers during past years of the prices of various food products. Also, the manner in which big packing firms make use of, or perhaps it might be said, abuse cold storage plants, is attracting attention. It is alleged that food products are kept back by large packing firms in order to keep up prices. There is another and a more sinister aspect of cold storage which has not been dealt with as its importance deserves. This is the possible or probable menace to health in the abuse of the cold storage system. It is acknowledged that cold storage exerts little or no deleterious influence on food products if employed for a certain number of days only. Several weeks of cold storage may not appreciably harm meat, for instance, although this is doubtful. After a limited time the assertion may be made that deterioration commences and progresses with more or less rapidity, until it reaches the stage when the food becomes a source of danger to health and life. This is a matter which calls for a careful scientific investigation, as it closely concerns the health of the community and of the individual who may have to suffer both in pocket and stomach in order that corporations already over-rich may amass more money.

Vital statistics of Ontario show that during 1908 tuberculosis in all forms caused the death of 2,530 persons, pneumonia killed 2,564, and typhoid fever 500. Pneumonia is about the most deadly disease in Canada, just as it is in the Eastern States of America. The too numerous deaths from this disease may be partly attributed to the sudden climatic variations, but they are more frequently owing to overheated and badly ventilated houses.

Medical students in the University of Toronto number 681, and the cost of the administration of the medical department is stated to be $153,050.

The annual meeting of the Canadian Medical Association will take place in Toronto on June 1, 2, 3, and 4 next. Names of papers must be submitted by February 1, and a synopsis of each paper by April 15. St. Michael's Hospital, Toronto, is to expend forthwith the sum of $180,-

000 on the erection of a four-story addition. Canada wisely intends to profit by the mistakes of some other countries, including the United States, and take time by the forelock in conserving her natural resources. A commission has been appointed recently for this purpose, and it has been announced that questions of public health will come directly within the scope of its work. For example, the Hon. Clifford Sefton, its president, pointed out in his inaugural address that while the Dominion spends annually hundreds of thousands of dollars to eradicate the diseases of animals, nothing is spent to stamp out diseases of men. He thinks that the Dominion will willingly find money to investigate and endeavor to extirpate such diseases as tuberculosis or cancer. The pollution of waters which is manifestly a public health question, will receive the immediate attention of the commission. A new wing is to be added to the Toronto Isolation Hospital at the cost of $102,000. The wing will accommodate 100 patients.

In the account of the death of Dr. James H. Richardson which appeared in the MEDICAL RECORD, January 29, no mention is made of an occurrence in his career that made him better known to the people of Canada than any of his medical achievements. Throughout the length and breadth of the Dominion he was famed as the man who chose the maple leaf as the national emblem of Canada.

Progress of Medical Science.

Boston Medical and Surgical Journal, February 10, 1910.

Suggestion: the Mainspring of Hypnotism and Psychotherapy.—J. S. Lewis says that the average physician may employ suggestion at its full value without charlatanism, without mysticism, without deception, in common-sense suggestive treatment. The patient who leaves the hospital with the delusion that he has been drugged to sleep by virtue of a capsule containing powdered sugar is in no sense better off than the one who leaves with a discharging sinus or a crutch. It should be our endeavor to supplant the bread pill, the bluff wafer, and the sterile water hypodermic injection by verbal suggestion, or, if time be lacking, use these helps only until such time as we can tactfully give to the patient the key to his functional disorder. We can use these means to distinguish between what is functional and what is organic. But once the condition is clear the patient should be given the use of that power with which suggestion has invested the bread pill or the water "hypo." For the competent there is still hypnotism, where the weaker suggestion fails. Is it in vain to hope that this generation shall see many hypnotists in this country, who, like anesthetists, devote their time to this specialty and in particular to the difficult cases? There is need of men who can write and talk intelligently to their colleagues. Most of us fail to sympathize with the possibly honest though flatulent writings of certain professional hypnotists to whom, with averted faces, yet with the hope of cure, we refer our own wrecks of the drink and drug habits.

Prevention and Inhibition of Peritonitis, with Especial Reference to the Harm Done by Cathartics in Incipient Peritonitis.—This subject is considered by A. J. Ochsner, who lays down, among others, the following definite directions: While careful examination should always be made in any abdominal case, violent manipulations are unnecessary. Patients suffering from intestinal obstruction due to either strangulated hernia, constriction by bands or adhesions, volvulus, intussusception, kinking of the gut, gallstones, carcinoma, Meckel's diverticulum, etc., should be operated on at once and should never under any circumstances receive cathartics or food by mouth after any of the foregoing conditions are even suspected. Gastric lavage should be performed in these cases at once and again immediately before operation, and it is well to leave the stomach tube to drain out any intestinal fluid which may regurgitate during operation. Opium should never be given before a diagnosis is made and never in the presence of any form of peritonitis unless gastric lavage has been made and the introduction of every form of food and cathartics has been forbidden. This applies to broths, champagne, and other stimulants. Gastric lavage should be performed in every case suffering from any form of peritonitis except from stomach or duodenal perforation. Water by mouth should not be given in peritonitis until the patient is well on the way to recovery. Instillation of normal saline into the rectum by the drop method of Murphy is one of the most valuable means of inhibiting peritonitis. Large enemata except by the drop method should never be given in peritonitis. In acute appendicitis the organ should be removed before the infection extends beyond it. In acute cases which have received some form of food or cathartics after the beginning of the attack and reach the surgeon too late for a safe early operation and are suffering from beginning diffuse peritonitis, gastric lavage, absolute abstinence from food and cathartics by mouth and the slow instillation of normal saline by rectum are indicated.

New York Medical Journal, February 12, 1910.

Affections of the Colon.—In the course of a general paper on this subject E. Martin says that the large bowel is commonly regarded as an organ the main function of which is to accumulate the feces until such time as their extrusion from the body suit the convenience or pleasure. In health there is but little water extracted from the feces by the intestine. The bacterial content is much larger then than that of any other part of the intestinal tract. He alludes to the common affections of the tract and deals with the dangers which may follow absorption of its contents. Muscular atony, torpor, and enteroptosis are complications which may follow exhausting diseases. As to the effect on developed enteroptosis of any belt or support, *x*-ray examination seems to show that there is practically none. Relief to symptoms may come through these measures. The author is inclined to give a support to the theories of Metchnikoff, though it is difficult to form a clear judgment as to the value his measures may have in preventing intestinal putrefaction. The question as to whether surgery is called for in large intestinal conditions depends on the possibility or not of efficient colonic irrigations. If they can be given there would seem to be no call for appendicostomy or colostomy. He calls attention to cases described by Lane in which the intestinal stasis is due to gut fixation dependent upon bands passing from the parietal peritoneum and producing such functional results that the large intestine becomes a foul, undrained, and undrainable sewer. Lane's picture of the toxemia resulting from this condition is extremely vivid. Other symptoms on which a definite diagnosis might be based are not given in detail. His treatment consists in an ileosigmoidostomy either with or without complete removal of the colon, the more radical operation being indicated in the cases characterized by pain. He has thus operated upon many patients, but gives neither the total number nor information concerning the perseverance and skill with which a previous unavailing hygienic, medical, and mechanical treatment was applied; nor are ultimate results noted. Under such circumstances his contribution, though full of promise, will probably remain for most surgeons a matter of curious speculation until further experience, which, it is to be hoped, may be gained at the expense of other than American citizens, will have demonstrated the applicability and utility of his procedures.

The Medical Aspect of Affections of the Colon.—L. Weber speaks of acute infection and disease and of chronic infection. Under the first head he includes dysentery, diphtheritic inflammation of the ileocolon in the course of acute infectious diseases, or as a terminal process in chronic disease, or through mercurial and other metallic poisons, and ileocolitis. He looks on mucous colitis as a neurosis. Of chronic cases of ileocolitis—catarrh without infiltration or with hypertrophy or atony of alternate portions of the colon which do not offer the signs of ulceration—there have been many cases reported which have not yielded to careful dietary, or irrigations per rectum in connection with the albuminate tannic acid by the mouth in 15-grain doses five times daily. Here the most careful examination of the stools for mucus, shreds of mucosa, parasites, and particles of organized material indicating new growth is of the utmost importance. He has had two cases of ileocecal tumefaction which with the greatest probability could be diagnosed as tuberculous. He closes with the relation of three interesting cases, one of hepatic abscess of the left lobe occurring ten years or longer after dysentery, in which the patient might have been saved by timely operation, which terminated fatally by perforation into the right pleural cavity; another showing that the entire colon may be filled with feces for two years and return to a normal condition after operation, and a third proving that even a very aged person who is still alive can get along without a colon for nearly three years and main-

tain her health and weight. The stools she passes prove good digestion. A permanent artificial anus was established in the cecum.

The Problems in a Case of Typhoid and Pregnancy.—S. M. Brickner and B. S. Oppenheimer relate a case of this nature in which with the exception of typhoid the pregnancy followed a normal course. The patient was placed on a Prochownik diet and had a premature labor at the eighth month, a dry labor requiring low forceps for prolonged second stage. Recovery was complete. The authors study the literature of the condition and advance the following statements: Pregnancy certainly does not confer complete immunity against typhoid as was thought years ago. They believe that in typhoid complicating pregnancy up to the fourth month the typhoid will be the predominating factor and the temperature higher than with a later pregnancy, whereas if typhoid occurring after the sixth month, the pregnancy will prevail, so to speak, and the typhoid will be mild. As to the influence of typhoid on pregnancy the latter is terminated in about 65 per cent. of the cases by premature labor or abortion. Transmission by placenta from mother to fetus occurs in various infectious diseases. It probably does in typhoid, but in the fetus in such cases the result to the fetus is almost invariably a pure typhoid sepsis without any lesions in the intestines or mesenteric nodes. As regards placental transmission the Widal test was found positive in the fetus in seven out of twenty-five cases on record. Most authors do not believe in the transmission of agglutins from mother to infant through the nourishment. The Widal reaction was present as early as the sixth day after the patient took to bed. The hematuria which she had was regarded as due to urotropin she had taken. The mother's condition should make the indication for artificial delivery. Forty-four per cent. of the children are saved. Certain authorities have found in the children of mothers who have suffered from typhoid or other infectious diseases during pregnancy show certain abnormalities, anatomical, chemical, and physiological. Thus far the child referred to by the authors has had a normal development in every way.

The Contractile Elements in the Connective Tissue.—J. Wright presents a paper on this subject dwelling on the elastic fiber, its origin, structure, biogenesis, and dynamics. He speaks of the theories of origin, some regarding it as embryonic while others consider it intracellular. In the author's own observations there are appearances in adult tissue which argue for the origin of the elastic fiber from the exoplasm of cells. So far as concerns the modus operandi of elasticity which the author develops from the anatomical account of a granular stage in the genesis, it matters not whether the fiber is built up of visible or invisible granules or whether it is formed within the cell or in the ground substance. Elastin whatever its source is manifestly a living thing. From his own experience the author thinks there can be no doubt that the elastic fiber has the power of reproducing itself by branching or longitudinal fission. The elastic fiber is frequently demonstrable in the stroma of cancer and fibroma. It has been suggested that the fibers have been squeezed out of the cells by the pressure of excessive growth, but the author thinks this is a lame conclusion. In certain chronic inflammations the elastin or stuff taking the Weigert stain is thrown out in abundance. In atrophic processes and in edematous infiltrations supervening on the chronic inflammations both the elastic fiber and unformed elastin finally disappear. In the chronic inflammations referred to as producing elastin apparently as an exudate of connective tissue cells there is always a considerable diminution of efficient elastic fibers. That chromatin can be built up out of elastin is not impossible in view of the fact that after all within the nucleus it is built up out of material in the surrounding protoplasm, perhaps of the elastin itself. It has been held that chromatin, whatever else of a directive and formative nature it may represent, is a reservoir from which energy is radiated to surrounding protoplasm, while elastin in this regard may well be looked upon as a substance of lower potentiality. It is chiefly a matter of degree and complexity. Let it be remembered, however, that elastin does not become elastic until its granules or its molecules are arranged in efficient order.

Journal of the American Medical Association, February 12, 1910.

Amebic Dysentery.—J. M. Anders and W. L. Rodman discuss treatment of amebic dysentery. One of the most important indications is rest, especially in the acute form of the disease, and to insure it in some rare cases opium may be required. So long as scybalous masses are being passed, they prefer to use Epsom salts in dram doses every third hour. If the general strength is good a brief course of calomel should precede the use of the saline. In their opinion purgatives have no place in the advanced stages of amebic dysentery or in the treatment of cases of highly acute invasion symptoms. The saline laxatives, therefore, in all cases should not be long continued after the dysenteric ejections have been made diarrheal. The question as to whether there is a specific remedy for the disease is taken up and the authors have been profoundly impressed with the therapeutic value of ipecac in the early stages of the disease. Its success depends on the method and care of its administration, and with capsules of animal membrane or salol-coated pills large doses can be used without provoking nausea. They advise not less than 30 grains at a single dose on the first day, diminishing the amount 5 grains a day so that on the sixth day only 5 grains are given. They doubt whether the irrigation treatment by rectum has been more successful than the ipecac treatment, but some authorities, like Boggs, claim that the local treatment is the only effective medication. For this purpose quinine solutions are most approved, commencing at 1:5,000 blood-warm solution and progressively increasing in strength to a 1:1,000 in a few days. Most authorities think it wise to begin the irrigations after the acute symptoms have, in part at least, subsided. Next in efficiency to quinine is silver nitrate in solution. Special mention as regards details is made of marked elevation of the hips, the use of a soft rectal tube introduced from 3 to 4 feet into the colon, and the retention of the enema for from 15 to 20 minutes. The irrigations should be kept up until repeated examination shows no amebæ in the stools. Success will depend somewhat on the location of the ulcers. If high up in the bowel they are less easily reached. Two cases are reported in which the operation of appendicostomy was performed to facilitate the complete irrigation of the large bowel with success. They believe in doing the operation in two stages and advise against ligation of the mesoappendix on account of the danger of gangrene. It is especially in cases where the lesions are highly placed in the bowel that this method will be most useful. Cecostomy is mentioned but not considered as advantageous as appendicostomy.

Oral Prophylaxis.—The importance of personal cleanliness of the mouth as a factor in the prevention of disease is emphasized by A. Irwin, who thinks that it is through the public schools that a reform in this matter can be accomplished. The mouth may become the gateway for all kinds of pathogenic germs and, without attention to this, the school may become a menace to the health of the commonwealth. Epidemics may originate from oral infection which could be avoided by due attention to cleanliness. He gives a summary of the work done along this line in various parts of the country and abroad in the inspection of school children's teeth and submits the following propositions for consideration: "1. Oral prophylaxis is the art of preventing disease, deformity, and injury to the mouth by means of manipulation, instrumentation, and skillful surgical treatment. 2. Practical application of oral prophylaxis (prevention by surgical instrumentation) should be made in behalf of public school children. 3. The consent and active cooperation of the school authorities is the most essential consideration now to secure the introduction of oral prophylaxis into the public schools by dentists. 4. The practical application of oral prophylaxis is a problem in economics, because it is the most effective means of combating the spread of contagious disease from oral infection among the public. 5. The solution of the problem lies in the establishment of free dental school clinics for the introduction of oral prophylaxis by dentists."

The National Formulary.—H. P. Hynson relates how the National Formulary originated out of the multiplicity of local formularies that had appeared a little after the middle of the last century, stimulated by the increasing number of "elegant preparations and the then increasing activity of the homeopaths." The idea was to consolidate these local formularies, and it was not the intention of the American Pharmaceutical Association to set up a standard for the medical profession. Since its earlier editions it has served a good

purpose and developed and improved in all regards as rapidly as could be expected. The adoption of an unfortunate plan or policy for the earlier editions may be blamed for most of the bad pharmacy which it contains. When the formulas are constructed to provide for permanent instead of extemporaneous products the poor pharmacy complained of will disappear. The recognition of the National Formulary by the Government has greatly enhanced its importance and has led the American Pharmaceutical Association to undertake a complete and rigid revision, making the coming edition as nearly ethical and scientific as the present-day exigencies of medical practice will permit. Hynson quotes in this connection from the report of the committee on revision as to the policy adopted regarding the admissions and eliminations that are to be made. Just and helpful criticism is requested to aid the work, and the writer says that deserved praise will be appreciated.

Simulated Tubal Pregnancy.—H. S. Crossen says that the difficulties of diagnosis of tubal pregnancy are due largely to the fact that many cases are atypical, presenting some symptoms but not all. These may be grouped in two classes—first, those in which the principal feature is a tender pelvic mass associated with some of the other symptoms, and second, those in which the principal feature is sudden abdominal pain and collapse without apparent cause. First among the first class he mentions gonorrheal salpingitis. Ovarian and broad ligament abscess may also cause confusion and embarrass diagnosis, and three cases of this class, discovered after operation, are reported. There are various anomalous conditions that may cause an intrauterine pregnancy to simulate a tubal pregnancy. He reports cases of hydatiform mole, hysteria with uterine displacement, irregular softening of uterus during pregnancy, and retrolateral and anterolateral flexions which have caused mistakes of diagnosis of this kind. Tumors may produce similar errors. When a married woman in the child-bearing period is seized with severe abdominal pains without apparent cause and passes into collapse such as is usually associated with severe internal hemorrhage, we naturally think of ruptured tubal pregnancy. If there happens to be a history of missed menstruation a tentative diagnosis of rupture and prompt action accordingly is justifiable. Hence the importance of careful consideration of all the causes that may cause such symptoms. Among these are hemorrhage of the ovary, ovarian cyst with rupture, hematosalpinx, salpingitis with collapse, ruptured appendix and pelvic tumor, and fulminating pelvic edema. Summing up, he insists on the importance of excluding sudden exacerbations of dormant gonorrheal salpingitis by careful examination for all possible symptoms of that condition and also the rare cases of acute gonorrhea which manifest themselves by explosive tubal symptoms. An early miscarriage, if associated with tumor or followed by mild salpingitis, may simulate tubal pregnancy. An unsuspected tumor in the pelvis may give rise to severe disturbance and, if other symptoms indicating tubal pregnancy occur, mistake is easily made. Ovarian hemorrhage or tubal hemorrhage may so closely simulate extrauterine pregnancy as to be indistinguishable before operation and in some cases even leave doubt after an operation has been performed. In addition to the affections mentioned salpingitis, appendicitis, and perforations in the gastrointestinal tract, and fulminating pelvic edema are also causes of error at times.

Tetanus Antitoxin.—C. J. Rowan reports a case of tetanus with mixed infection in which the patient received a prophylactic dose of 1,500 units of tetanus antitoxin. Notwithstanding this, tetanus developed on the twenty-fifth day and terminated fatally in four days. While several European cases have been reported of tetanus following prophylactic doses of antitoxin, this is the first one he can find reported in this country. An examination of another 1,500 unit package from the same lot, made by Dr. M. J. Rosenau of the Hygienic Laboratory, Washington, D. C., revealed that it contained over 2,000 units or 500 more than it was claimed to contain. Rowan concludes that, while 1,500 units of antitoxin will prevent tetanus in case of wounds not followed by severe infection, it may fail when used only once when there exists a mixed infection lasting over ten days. In such cases the author would advise a repetition of the dose every week while the infection lasts, especially if the latter is due to any of the saprophytic bacilli, which reduce the resistance to the tetanus bacilli.

The Lancet, February 5, 1910.

Ankylostomiasis a Menace to the Industrial Life of Nontropical Countries.—T. Oliver discusses this question from the standpoint of history as well as from present conditions. Only three factors are necessary for the development of the parasite, oxygen, a favorable temperature, and moisture. It is in badly ventilated and moist coal mines that the best grouping of these conditions favoring development are found and consequently free ventilation is the first thing to be attended to. It has been found that ashes taken from the engine rooms about the mines give, when soaked in water, an alkaline reaction and are hostile to ova and larvæ. If this fact shall prove to be well grounded we have in cinder ash a cheap and effective way of combating the disease in coal mines by filling up the grooves at the sides of the main ways in which larvæ are frequently found by sprinkling ashes round the sanitary pails underground and at all places where people resort when their bowels are to be moved. Fresh cinders are less hostile to larval life than those which have been kept for some time. Creosote kills larvæ very quickly and this suggests the using of cresoted props in the woodwork of mines where there is no danger of fire and the air is moist. The object aimed at in all these measures of disinfection is the destruction of the ankylostoma ova and of the young before they become encysted. Ordinary garden soil is very liable to be infected, but many of the ova found in them through resembling the dangerous ova are in reality harmless. As the encapsulated ova lives largely on material stored up in their own body they can live for months in water apparently without requiring nourishment from the outside. It is to this long power of sustenance on their own bodies that ankylostoma ova owe their capability of long endurance under conditions trying to most other forms of life.

A Simple and Efficient Operation for Hemorrhoids.—N. Porritt thus describes an operation recently performed by him. The sphincter having been stretched, one of the hemorrhoidal masses was seized with vulsellum forceps, pulled well out of the anus and encircled with a loop of loose purse-string suture of Pagenstecher's thread. Above, the suture entered the healthy mucosa beyond the hemorrhoids; below, it took up that just within the anus while at each side it was inserted far enough apart to allow the blades of the crushing instrument to grasp the base or pedicle of the pile seized. For crushing he used an appendicitis clamp, but a pair of hemostatic forceps with blades long enough to overlap the base of the pile would answer. When the clamp is released a broad band of thin tissue connects the pile with the rectum. This pedicle is now folded on itself by giving a half-turn to the pile, the clamp is reapplied, and the crushing is repeated. When the clamp has been removed something like a pedicle has been made, but another half-turn and another crushing leave only a fine pedicle of crushed tissue. The pile is then clipped away through this pedicle, which is tied with a fine ligature beyond the clamp. The stump of crushed tissue with the ligature upon it is then buried by drawing tight and tying the purse-string suture already inserted. Other portions of the mass were isolated and removed in the same way. The patient did well and got up in two weeks after operation. It is now five months after operation and there has been no after-contraction. In order to insert each separate purse string and get a good grip laterally with it a bridge of tissue must necessarily be left between each group of pile dealt with. The little bridge is a safeguard against destroying too much of the involved structures and while not seriously militating against the efficiency of the operation it certainly makes the occurrence of after-contraction improbable.

The External Examination of the Alimentary Canal.—Under this title, L. MacAuliffe describes the proper method of abdominal examination, treating of inspection, palpation, and percussion, and illustrating some of his views by photographs. Nothing essentially new is advanced. The author pretends to think that a new system of examination has been advanced, but either the French, to which nationality the author belongs, are very much behind the times or else we have failed to understand the article, for it contains nothing that has not been in essential details published in every text book of clinical diagnosis for the last five years. Its thoroughness and completeness call for hearty commendation.

Book Reviews.

Introduction to Practical Chemistry. For Medical, Dental, and General Students. Specially adapted to meet the requirements of the Conjoint Boards' examination of the Royal Colleges of Physicians and Surgeons, but suitable for general use in schools and for private students. By A. M. Kellas, B.Sc. (London), Ph.D. (Heidelberg); Lecturer on Chemistry at Middlesex Hospital Medical School; formerly Examiner in Chemistry to the Conjoint Board of the Royal Colleges of Physicians and Surgeons. London: Henry Frowde and Hodder & Stoughton, 1909.

Laboratory manuals do not as a rule make interesting reading. The present volume gives more complete explanations than are usually supplied in such volumes; otherwise it does not differ materially from other works on the same subject. But the book has an interest in that it shows what is required in chemistry at one of the licensing examinations in England. The author has prepared students for these examinations for seventeen years, and he has also served as examiner, so the book may be taken to indicate the requirements pretty accurately.

Textbook of Hygiene. By George H. Rohé, M.D., and Albert Robin, M.D. Fourth Revised and Enlarged Edition. Philadelphia: F. A. Davis Company, 1908.

This book, of 570 pages, not only contains the work of the authors above named, but also that of certain eminent contributors on subjects which partake of the nature of sanitary specialties, such as military, naval, and personal hygiene, and the management of quarantine. The book is divided into twenty chapters, covering the subject in all its phases. There are fifty illustrations, but these are not particularly well selected, and add little to the value of the book.

The text is relatively well balanced, and the questions which appear at the end of each chapter serve to impress the more important features upon the students for whose use the book is especially intended. It seems curious to find a chapter entitled "The Germ Theory of Disease," since the matter of the pathogenicity of disease germs has long since passed from the domain of speculation to that of fact. There is also an unfortunate tendency to quote too largely from the writers of a generation ago rather than from the more illuminating and scientifically exact work of investigators of the present day. The bacterial purification of sewage does not receive as much consideration as its importance warrants, and might well have been illustrated for the benefit of the student. Modern methods for the purification of water by heat are not fully covered, and it would seem that Pettenkofer's theory as to the relation of ground water to the production of disease is given undue importance. The subject of "The Carriers of Infection" could be much enlarged upon with material advantage; plague is not classed with "Diseases of Animals Communicable to Man"; typhoid fever receives scarcely a page of comment, and no mention is made either of typhoid "carriers" or of antityphoid inoculation as a measure of prevention; we find no mention of diphtheria antitoxin in its use as a prophylactic; nor of the use of prophylactic sera in plague and cholera. Tuberculosis, the chief cause of death, is given entirely inadequate consideration, and no mention is made of the various uses of tuberculin in the establishment of early diagnosis. Various other points might be cited to show that the work has not been brought as fully abreast of current knowledge as the date of its publication would seem to warrant. This is unfortunate, as the book has otherwise much to commend it in its announced function as a textbook for students.

Gynécologie Médicale. Traitement médical des maladies des femmes. Par le Professeur Albert Robin et le Dr. Paul Dalché. Troisième Edition, revue et augmentée. Paris: Vigot Frères, Éditeurs, 1909.

The earlier editions of this book have met with marked success in France because of the eminently practical character of its teachings and the authoritative position of the authors in the subject they have chosen. The present edition follows the plan of the earlier issues. The book is divided into five parts, the first two being devoted to a clinical and therapeutic study of the effects of uterine disease upon other systems or organs of the body. These chapters contain a great deal of material that is otherwise scattered through numerous publications dealing with the subject. The menstrual function and its disorders are considered in the third part of the book. Diseases of the vulva, vagina, uterus, and its appendages form the subject of the next chapter, while the last portion of the book is given up to the description of a hydrotherapeutic system of treatment of diseases of women. The therapeutic recommendations throughout the book are specific in character, numerous procedures being fully described and actual prescriptions being given. Conservative treatment in preference to operative interference is given especial attention. The volume is written in the clear and entertaining style that marks French scientific publications, and should prove of interest to American gynecologists.

Essais de Médecine préventive. Par P. Londe, ancien Interne des Hôpitaux de Paris. Paris: Félix Alcan, Éditeur, 1910.

This small volume is an attempt to prove that the great majority of nonspecific diseases of mankind are caused by disturbances in the functions of the gastrointestinal tract. The latter is looked upon as a "laboratory of poisons," and various means of opposing the dangers lurking in it are discussed, regulation of diet and general hygienic measures being, of course, the most important measures both in the prophylaxis and in the therapy of the diseases discussed. Bouchard's theory of autointoxication thus forms the central idea of the book. The main thesis of the author remains far from being proved by the evidence adduced for its support in this book and elsewhere; his discussion, however, is quite interesting, and numerous points of value can be gleaned by the attentive reader. The fact that the book is written in a style and manner calculated to appeal to the laity as well as to the medical profession hardly speaks in its favor; unproven theories are best presented to the circle that is well acquainted with the subject, for otherwise enthusiastic acceptance or opposition of the tenets presented simply serves to hide the partial truth contained in all such discussions.

The Relation of Medicine to Philosophy. By R. O. Moon, M.A., M.D., Oxon., F.R.C.P.; Physician to the National Hospital for Diseases of the Heart; Assistant Physician to the Royal Waterloo Hospital. New York, Bombay, and Calcutta: Longmans, Green & Company, 1909.

To the thoughtful physician for whom the practice of medicine is an art as well as a science there is great fascination in considering the various stages in the development of its underlying principles as we understand them today. For such a reader a work on the history of medicine is more than a mere series of biographies, or rehearsal of scientific discoveries, and he likes to read between the lines something of the general "Weltanschauung" of each epoch and to trace its bearing on the advance of medical knowledge through the effect of the prevailing habits of thought on those engaged in practice or investigation. The present volume is written from this point of view, and while in a way an epitome of the history of medicine it is so in the broadest and most interesting sense. A selection from the chapter headings will give some idea of the manner in which the author develops the subject: The relation of early Greek philosophy to early Greek medicine; influence of early Christianity on medicine; medicine and the renaissance; Arab medicine and Arab philosophy; the effect of philosophy on medicine in the seventeenth century; influence of contemporary thought on medicine in the second half of the eighteenth century, etc. It is dispiriting, and yet also encouraging, to read of the growth, flourishing, and decay of one system of medicine after the other, for on looking back through the centuries it is evident that each of the older errors led to a subsequent approximation to the truth in one direction or the other, with the constant result of actual progress as measured in terms of amelioration of the human lot. This is the conclusion to which the author comes, and the volume in which he records the milestones along this ascent of our art to its present height is one of the most enjoyable it is possible to suggest for the physician's leisure hour.

A Manual of Otology. By Gorham Bacon, A.M., M.D.; Professor of Otology in the College of Physicians and Surgeons, Columbia University, New York. With an Introductory Chapter by Clarence J. Blake, M.D., Professor of Otology in the Harvard Medical School, Boston. New (Fifth) Edition, thoroughly revised. Philadelphia and New York: Lea & Febiger, 1909.

The publisher's statement that this manual is a model of what such books ought to be is no exaggeration. Five editions tell the story. The present edition discards all that has become obsolete and tells of all the advances of modern otology. Among the additions may be mentioned the advocacy of tonsillectomy rather than tonsillotomy, and a brief though complete description of the operation for submucous resection of the nasal septum. Pyelitis is referred to as a complication of acute otitis media, and new illustrations are inserted of the Schwarze-Stacke operation.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held January 20, 1910.

The President, Dr. John A. Wyeth, in the Chair.

The meeting was held under the auspices of the Section on Pediatrics.

Experimental Epidemic Poliomyelitis.—Drs. Simon Flexner and Paul A. Lewis presented this paper. They said that poliomyelitis had existed in some parts of the United States in the late summer and autumn months since 1907. The cause of the disease was unknown until very recently, and its mode of dissemination had not yet been discovered. Consequently there existed no intelligent means of prevention, but the knowledge of the nature of the disease had been immeasurably advanced by the opportunity for experimental study opened up by the successful transmission of the disease to lower animals. In May, 1909, Landsteiner and Popper published a report of two successful inoculations of monkeys with the spinal cord obtained from two fatal cases of poliomyelitis. The injections were made into the peritoneal cavity. One monkey became paralyzed in the lower extremities, and died on the sixth day after inoculation; the other was killed on the nineteenth day. In both lesions of the spinal cord, similar to those in man, occurred. The disease could not be transferred to other monkeys. Since September they had secured suitable material from two cases of poliomyelitis in human beings. The patient in one instance died on the sixth day after the appearance of the paralysis which affected the lower extremities; the lumbar cord was obtained in a sterile condition twenty-six hours after death and was inoculated into a monkey twelve hours later. The entire spinal cord was obtained in the second case twelve hours after death; the lesions were diffuse throughout the cord. Paralysis had been very extensive. In order to favor the transmission of the disease to monkeys the brain was chosen as the site of inoculation, which was made under ether anesthesia through a small trephine opening. After the inoculation the animals were lively and normal. The injected material consisted of emulsions in salt solution of the spinal cord from the children, and later of the emulsion of spinal cord from monkeys developing the disease. Up to the present time the two viruses had been carried successfully through eleven series of monkeys, and it was regarded as highly probable that the transmission might be carried on indefinitely. Not only was the spinal cord active, but also the cortex of the brain, and still other organs might harbor the active virus. Not all the monkeys developed the disease, even when the inoculation was made into the brain. A delayed or unsuccessful inoculation with one virus might be converted into a successful infection by reinoculation with another, and apparently more active, virus. It could now be stated definitely that it was not absolutely essential that the virus be introduced into the brain, but that successful transmission was possible by way of the peritoneal cavity, by intravascular injection, by subcutaneous injection, and by intraneural injection. The lesions in the monkey in which the virus was introduced into the sheath of the sciatic nerve developed first in the side inoculated and later extended to the opposite side of the spinal cord. It could not be affirmed that still other avenues did not exist whereby the virus might enter into the central nervous system. Additional observations were required before the statement could be ventured that infection might not occur by way of the skin, the respiratory passages, and the digestive tract. It seemed at the present time, however, that it was more difficult to effect infection through these channels. It was entirely clear, however, that no matter which avenue of infection was traversed the virus became established in the spinal cord and medulla, where it set up characteristic lesions which were followed by equally characteristic effects. Not all monkeys which developed the disease succumbed; a certain number recovered in a large measure from the paralysis. There tended to remain, however, residues of paralysis which resembled the paralytic effects persisting in human subjects of poliomyelitis. In their study of the nature of the virus responsible for producing poliomyelitis they had failed utterly to discover bacteria, either in the film preparations or in the cultures. Since in the long series of propagations of the virus in monkeys not one animal showed in the lesions the cocci described by some investigators and they had failed to find any such bacteria in the human material studied, they thought that they could be excluded from consideration. They had made a most painstaking study, but found neither bacterial nor protozoal parasites that could account for the infection. The readiness with which poliomyelitis could be transmitted to monkeys and the failure to find visible and stainable parasites in the lesions led to another line of investigation. It was known that the viruses of vaccinia and rabies withstood the action of glycerin very well, neither of which had been certainly demonstrated in films or sections, while bacteria withstood it far less well. They, therefore, suspended the comminuted spinal cords of monkeys affected with poliomyelitis in glycerin, and after an interval of several days inoculated the glycerinated virus into normal monkeys. These monkeys developed paralysis and showed the characteristic microscopical lesions of epidemic poliomyelitis in the spinal cord and brain. To determine whether this effect was produced by the living virus or by an adherent toxic body, the cord of a monkey which developed the disease after inoculation with the glycerinated virus was injected into a normal monkey, which developed paralysis eleven days after inoculation. The lesions were characteristic. A series of experiments was then planned to determine the probable size of the organism producing epidemic poliomyelitis. The cord of a monkey which succumbed to the fifth generation of virus K was triturated with sterile quartz sand mixed with salt solution, thoroughly shaken and pressed through a Berkefeld filter. The clear and bacteriologically sterile filtrate was injected intracerebrally into a monkey, which developed paralysis on the seventh day following inoculation. That this effect was due to living organisms, and not to soluble toxic bodies, had been shown by transferring the disease to healthy monkeys by means of the spinal cord obtained from monkeys that succumbed to a filtrate. From these experiments it would seem that the infecting agent of epidemic poliomyelitis belonged to the class of minute and filterable viruses that had not thus far been demonstrated with certainty under the microscope. The virus had been shown to be present in the spinal cord and brain, but it had yet to be determined whether it was present in the blood and other organs. They had produced the disease in a monkey by injecting an emulsion of the regional (axillary and inguinal) lymphatic glands communicating with a nodule set up by a subcutaneous injection of the virus that had induced paralysis. Two other monkeys were inoculated at the same time, one from the spinal cord and the other from the local subcutaneous lesion. Both developed paralysis, but the latter after a longer interval. The blood taken at the height of the disease from an affected monkey, defibrinated, and injected into the circulation of a healthy monkey was capable of producing the disease. It had been determined that the spinal cord from a human case of poliomyelitis retained its virulence apparently unimpaired on being kept constantly frozen at $-2°$ to $-4°$ C. in the Frigo apparatus for a period of at least 40 days and also when kept for at least 50 days at a temperature of about $+4°$ C. This indicated that the reduction in the number of cases occurring with the onset

of cold weather did not depend upon the destruction of the virus, although it might have an effect on its multiplication. The spinal cord of a monkey still transmitted the disease after having been suspended for at least seven days over caustic potash in a dessicator. To determine whether the virus could be cultivated artificially, portions of a bacteria-free filtrate were inoculated into bouillon containing 10 per cent. of rabbit's serum which had been rendered perfectly clear and sterile. One cubic centimeter of a filtrate was mixed with nine cubic centimeters of the serum bouillon and incubated. On the second day the fluid in the upper half of the tube was cloudy; the turbidity increased, and on the fourth day the fluid was used for inoculating a monkey, which developed paralysis on the thirteenth day. A single loop of this turbid fluid did not set up turbidity in other tubes of the same medium. A second series of cultivation tests had been made with human ascitic fluid bouillon to which clear filtrates prepared from the spinal cord of affected monkeys were added. In these turbidity developed in twenty-four hours or less, and the turbid fluid inoculated into fresh clear tubes of the same medium caused them to become turbid. None of the turbid fluid contained bacteria that could be seen under the microscope or cultivated in nutrient agar, and the dark field microscope showed no definite bodies. Experiments as to whether an attack of poliomyelitis recovered from afforded immunity to reinfection showed failure of the virus to act, while it produced paralysis in the control monkeys. In seeking for facts relating to artificial protection from or resistance to infection, a considerable quantity of an emulsion of active spinal cord, which had been warmed to 55° or 57° C. for one hour, or 60° C. for one hour, was injected beneath the skin at the same time that the usual intracerebral injection of virus was given. The two monkeys employed in the experiment developed paralysis in the usual manner. Many guinea-pigs and rabbits, one horse, two calves, three goats, three pigs, three sheep, six rats, six mice, six dogs, and four cats had had active virus introduced in the brain without causing any appreciable effect whatever. These animals had been under observation for many weeks. It was to be hoped that the experimental method would solve the question as to the mode of entrance and exit of the virus. In the beginning of the acute stage of the disease in monkeys the cerebrospinal fluid was much altered; it contained an excess of protein, might coagulate spontaneously, and showed under the microscope many lymphocytes. The changes in the fluid depended upon the cellular changes in the membrane. Should it be shown that the cerebrospinal fluid contained the infectious agent of epidemic poliomyelitis, it might be considered probable that the virus passed from the cavity of the skull by way of the lymphatics to the nasopharynx, and that the buccal and nasal cavities were the sources from which the virus was distributed and into which it was received. In other words, that the nasopharynx bore the same relation to the spread of epidemic poliomyelitis as it did to epidemic cerebrospinal meningitis.

Dr. L. Emmett Holt, referring to the clinical features of the disease as it appeared in the epidemic of 1907, stated that they were absolutely identical in symptomatology with those described by Dr. Lewis as occurring in monkeys. The etiology of poliomyelitis was a great puzzle. Small epidemics appeared in widely scattered areas, appearing quickly and disappearing as abruptly as they came. Two years ago, in an attempt to collect data of the various epidemics that had appeared previous to the one of 1907, he was able to learn of but thirty-five, and most of these were small epidemics, and of many the records were poor. Since that year more epidemics had been observed than in all previous time. An interesting question in regard to this new aspect of the disease was that of its frequency: was it more frequent now than formerly, or was it only more generally recognized? Again, was epidemic poliomyelitis as it appeared to-day different from the sporadic form from a study of which our previous knowledge was obtained? Dr. Holt was not certain that the differentiation was at all sharp between the sporadic and epidemic forms of the disease. He thought, however, there had been much confusion in the diagnoses made; also that there had been a great and alarming increase in frequency; but he was not certain that the disease had changed its character. Was Landry's paralysis only a more serious form of the disease, but hitherto not identified as such? So, at least, it now appeared to be. Dr. Holt wished to point out the necessity for more clinical research in poliomyelitis; much work should be done by those who saw the cases, especially in country epidemics, where the association of cases could be determined with some degree of certainty. He called attention to the work the Massachusetts Health Department was doing; every case of poliomyelitis reported to it was investigated. To his own knowledge several epidemics of this disease had occurred in New York State during the past year. The State Board of Health in New York should recognize poliomyelitis as one of the epidemic diseases, and investigate its occurrence wherever it prevailed. The infectious nature of poliomyelitis had been believed for five or six years. Dr. Flexner's researches had now demonstrated it. Was it also contagious? This was a matter about which we could not be certain, but the results of experiments, as well as clinical observations, pointed strongly in that direction. Dr. Holt referred to one instance in the literature in which seven cases of the disease occurred in one family; to three instances in which four cases had occurred in a family; five instances in which three were affected; forty in which two were attacked. In thirty-seven of the cases mentioned the interval between the first and second case was ten days or less. They might then infer that the period of incubation was the same as had been found experimentally in monkeys. Further study of poliomyelitis, both clinical and experimental, could now be based upon definite established scientific facts, and it was to be hoped that future investigation of the disease would bring some tangible practical results.

The Conditions Pertaining to the Safeguarding of Early Life from a Pediatric Point of View.—Dr. Thomas Morgan Rotch of Boston read this paper, which he illustrated by lantern slides. He first reviewed the work which he had already done on the establishment of an anatomical index representing the development of children in the first thirteen years of life, and he showed Roentgen pictures of their wrists. He then showed pictures of children taken from the elementary schools, and gave their heights, weights, school grade, age, and anatomical index. An analysis of these data showed how with a high or low anatomical index, as compared with their age, the children could be graded so as to determine whether they were being forced beyond their resisting powers or, on the other hand, if they could, if necessary, be pushed into a higher grade. Dr. Rotch also explained how important it was to determine the time when children should work in the mills not by age alone, but by a combination of educational standards and age regulated by reference to the anatomical index as obtained by the Roentgen ray. Illustrations were shown of some of the Southern children who were infected with the hookworm, looking as though they were years younger than they really were and yet who, by means of their index, could, if proper laws of development were made, be prevented from working in the mills, even though their age was far above that presented by the laws. Dr. Rotch then spoke of the Roentgen work which, at the request of

the United States Government, he was having carried out at the United States Naval Academy for the purpose of aiding in the proper grading of the cadets. He showed how, with this object in view, he was using the Roentgen ray to determine an anatomical index for older individuals at an age when they were in the Naval Academy, college, technical, and high schools. He stated that, while his Roentgen index had been determined for individuals from one to thirteen years by the order of appearance of the carpal bones and the epiphyses of the radius and ulna, from A to M, he was now presenting merely the lines on which he was evolving the later age anatomical developmental indices. He wished it to be understood that this later index was still merely empirical and not yet worked out as fully as the earlier index, but that there was no doubt but that this later index from N to Z could be evolved just as rationally as the earlier one from A to M. The method of establishing the later index was to determine the time, and thus classify the individual by tabulating in each individual the appearance of the ossification or later union of the epiphyses of the metacarpal bones, the epiphyses of the phalanges, and those of the radius and ulna. He explained that this was not difficult from the age of fourteen up to eighteen or nineteen years, but that after that period much finer Roentgen work would be needed to determine the completion of development by the arrangement of the striæ in the bones at their epiphyseal junctions. Dr. Rotch then showed illustrations of how the Roentgen picture would aid in deciding whether girls at the period of maturity should have their mental and physical work increased or decreased according as their anatomical index showed an advanced vigorous stage of development or an undeveloped condition, irrespective of whether they looked well and were of the average height and weight. He next showed the Roentgen pictures of a set of boys who had entered college at eleven or twelve years of age and were doing the same mental work as boys four or five years older. He explained how their anatomical index indicated whether they were safely undertaking this work beyond their years or not. In some cases the index showed that the individual was absolutely safe in doing such work. One of these cases was a boy of fifteen who had been through Harvard and had taken a *cum laude* and was in one of the post-graduate courses with young men of twenty-two. Although seven years younger than his classmates, his anatomical index showed a development so nearly that of the older individuals that there was evidently no question of his being harmed mentally. Other cases showed the reverse of these conditions. Dr. Rotch also presented the beginnings of some work that he had undertaken on feeble-minded children. Here he had found that such individuals might be of the same height and weight as others of their years and yet their anatomical index corresponded more nearly to their low grade of mental capacity than to their general physical development. He also gave instances of how, from time to time, by taking the Roentgen anatomical index it was possible to determine whether the mental capacity was improving or standing still; this in private practice was often an exceedingly difficult question to answer unless some such aid as the Roentgen ray was invoked. Finally, he showed the Roentgenographs of some twins in which two girl twins showed exactly the same development. Two boy twins also showed the same development, but a twin boy and girl showed that the development of the girl was decidedly in advance of that of the boy. Dr. Rotch stated that these cases supported his view that from birth the development of the epiphyses of the girls was decidedly in advance of the boys, and that this continued so throughout the whole of the child's life, the final union taking place earlier in girls than in boys.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

Stated Meeting, Held January 7, 1910.

Dr. John W. Brannan, President, in the Chair.

Three Cases of Scleroderma with Resulting Deformities.—Dr. V. P. Gibney presented three patients illustrating scleroderma with deformity of the face and feet, all unilateral and all in girls.

Case I. This patient, aged 5 years, had developed the skin lesion when a year old. The parents observed at this time a peculiar hardening of the skin around the left ankle. As she grew older this hardening had extended up the calf along the outer side, involving the parts supplied by the anterior tibial nerve. The process had gradually extended deeper than the skin, and tendons and fascia were now implicated to the extent of including a talipes valgus. The patient presented a peculiar mottling, hardening, and thinning of the skin covering the dorsum of the foot and the inner side of the leg to the upper third. A patch was found on the inner and posterior aspect of the thigh, but here the skin was alone involved, while on the foot the tendons and fascia were participants, and the peroneals, as well as the common extensors, stood out in bold relief. A peculiar "withering" of the second toe and the fascia on the dorsal aspect, as well as on the plantar aspect of the foot running from the base of this toe, extended string-like in a kind of sulcus to the midtarsal region, narrowing the foot noticeably. The thigh was a little smaller, the knee, calf, and foot markedly so, and measurements showed a decided atrophy. This patient came under observation in September, 1909, and the treatment had been massage and an apparatus to correct the valgus, as yet very inefficient. Dr. George T. Eliot saw her in September and recommended thyroid and hot packs, following massage. Dr. L. Duncan Bulkley also saw her in the hospital and advised the use of nitroglycerin for the benefit of the circulation.

Case II. In the second child, aged 5 years, the first signs were noted about a year ago, no cause being assigned or found. There was a patch over the right shoulder about the size of a quarter of a dollar, another covering two-thirds of the right scapula through the axilla, but movements were free here. There was a patch over the right thorax two inches long and three-quarters inch wide below the clavicle, one the size of a quarter of a dollar to the right of the ziphoid cartilage, an inch from the nipple. The skin was glossy. The whole of the right groin, front of thigh, knee, inner side of leg and foot, completely encircling the ankle, were involved. The skin was mottled. The internal ham strings and adductors of the thigh were involved. There was moderate bow-leg, the knee was not completely extensible, and the foot rested in moderate calcaneus. This case differed in degree only from the first one and might show quite as much involvement of the subcutaneous structures later. The child would be admitted to the hospital, where the treatment could be the better carried out, and where the bow-leg deformity could be corrected.

Case III. A woman, now aged 36 years, came under Dr. Gibney's care about twenty-six years ago, and presented signs very much like those in Case I., except that the left foot, leg, and thigh were involved. The skin was not so seriously damaged as the muscles, tendons, and bones even, for the left lower maxilla was smaller than the right. This case was presented now to this society, about twenty-five years after Dr. Gibney presented it to the Neurological Society, and an oppor-

tunity was afforded for noting an end result. The changes which were now so pronounced, viz., extreme atrophy of the left face, with skin laterally hugging the bony processes, atrophy and hardening of the cervical skin and tendons of the left side, bands of hardened skin at the lower third of the left thigh, outer side, adhering closely to the external hamstring, which stood out in bold relief, and involvement of the left leg, ankle, and foot, an extreme valgus resulting. All of these changes took place during the first five or six years, and since that time all the signs had remained unchanged. So that it could be seen that for the last twenty years the lesion had not made any progress.

End-to-End Intestinal Reunion by the Invagination Method.—Dr. C. L. Gibson showed two specimens of experimental resections on dogs. The method was very simple and dated back to Ramdohs in the eighteenth century, and had been resuscitated from time to time, but had never become a recognized method. The speaker found it an extremely simple and easy method and free from some of the disadvantages of prevailing modes of operation. It was particularly adapted for resections of the sigmoid and upper colon, where Dr. Gibson had employed it successfully in four patients, the first in 1905. The upper segment was telescoped into the lower for a distance of two to six inches. At their point of junction or "neck" the two segments were joined by a series of sutures involving the seromuscular layer only and applied on the Lembert principle, so that the free cut end of the lower end was turned in on itself, giving a broad peritoneal approximation. The experimental work and clinical experience showed a total absence of narrowing of the lumen of the intestine by this procedure.

Demonstration of Various Instruments.—Dr. Gibson demonstrated several new surgical instruments which had recently come into popular use. The first was a new French catheter, which could be boiled indefinitely without any apparent damage to the catheter. He showed one that had been boiled one hundred and twenty times, but on comparison with one that had never been used the old one seemed quite as perfect as the new. They were manufactured from some special preparation of rubber which was said to be practically indestructible. The next instrument was a late improvement on the trephine, which, after grinding the bone and penetrating the inner table of the skull, joined automatically. It was a great improvement over the older trephines, as it did away with the danger of injuring the dura or brain and could be used with greater rapidity in brain operations. Some Gosset self-retaining retractors were also shown and the speaker thought they might become popular, as they were a great improvement over any instrument devised formerly. He also showed a new urethral catheter director, used in external urethrotomy, and a new filiform carrier for passing a filiform from a point below the stricture after Cock's perineal section had been performed.

Heredity.—Dr. Charles L. Dana read this paper. (See page 345.)

Dr. R. Abbe spoke of the surgical aspects of the subject, especially as regards the criminal insane. He mentioned the fact that several States are trying the experiment of castrating both sexes, to diminish their increase by propagation, with very satisfactory results. He cited the case of a negro that he had seen in Richmond, who, before castration, had killed two men and was most refractory and unmanageable, being kept with ball and chain. After the operation he became quiet and tractable and was made a helper in the hospital. More extensive recourse to this procedure among the insane would probably improve the condition of the human stock. Unfortunately such a course has been received very lukewarmly by society and it seems difficult for a legally constituted mind to deprive a man of his important procreative faculties. Possibly unanimity of opinion in the medical profession would bring about a more general acceptance of such a course.

Dr. W. Gilman Thompson asked Dr. Dana about the advisability of the marriage of cousins.

Dr. Dana replied that if the family stock was good and the family history clean as regards disease—especially mental abnormalities—he could see no reason why cousins should not marry. Theoretically it would be safe sometimes even for brothers and sisters to marry. He cited the Egyptian dynasty of the Ptolemies as an example bearing out this latter statement. The danger of close intermarriage lies in the fact that the evil traits in the family stock are likely to become intensified in the offspring. Physicians, before giving advice in such matters, should inquire very carefully into the family history of the individual.

Dr. Janeway said that the transmission of Huntington's chorea, especially in women, was particularly striking and he pointed out the probable influence of heredity in that disease.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Nineteenth Annual Meeting, Held at Omaha, Neb., December 20 and 21, 1909.

The President, Dr. Arthur L. Wright of Carroll, Iowa, in the Chair.

(*Concluded from page 294.*)

A Scientific Inquiry into the Present Treatment of Peritonitis.—Dr. Arthur E. Hertzler of Kansas City, Mo., reviewed the present treatment of diffuse peritonitis, taking up the various factors which went to make up this treatment and examined them in the light of established facts in abdominal physiology and pathology. He concluded that the explanation of their mode of action had but limited scientific basis. Most of the papers lauding the effectiveness of the modern treatment were unaccompanied by case reports, but those which were so elucidated showed that the favorable prognosis was dependent largely on the fact that cases were included in the statistics which were in no sense diffuse. The present improved prognosis was dependent on earlier diagnosis of the disease, and a more accurate determination of the exact anatomical relation of the disease, making it possible to accomplish the necessary operative work with the least possible traumatism and loss of time. The Fowler position and the introduction of fluids into the body either by vein or rectum, had but a minor influence in the determination of a favorable outcome. In order to facilitate the grouping of cases of peritonitis, he proposed the following classification: 1. The perforative. This group included those cases in which there was expelled into the peritoneal cavity some of the contents of the hollow viscera without there having been any previous protective reaction on the part of the peritoneum. 2. The progressive, in which there was escape of visceral contents into the peritoneal cavity unprotected by adhesions, but in which the peritoneum had undergone a protective reaction. 3. Imperfectly encapsulated. This type joined in the preceding without a sharp line. There were adhesions present in some areas, but there was extension in some directions, *e.g.* along the cecum or into the pelvis in appendicitis. 4. The peritoneal abscess, in which there was perfect encapsulation of the infected area.

Dr. R. C. Coffey of Portland, Ore., said that in acute perforative conditions the point of drainage would depend

largely upon where the perforation had taken place. Another important feature to which he wished to call attention was drainage at the point of suture of the opening. If one sutured a perforated intestine and that intestine was allowed to come in contact with drainage, a fecal fistula would likely result; therefore, it was important to make drainage remote from the point of suture. It was also important that the intestines be lifted away from the drain and the drain not inserted, irrespective of its relation to the intestines.

Dr. Van Buren Knott of Sioux City, Iowa, agreed with Dr. Coffey that the Fowler position had had more to do with recent success in the treatment of diffuse septic peritonitis than any other method.

Dr. Daniel N. Eisendrath of Chicago stated that there were points in the pathology and etiology of peritonitis to which neither Dr. Davis nor Dr. Hertzler had referred, and as a few of these cases had come under his observation during the past three or four years, he thought it might be well to speak of them here. These were the cases in which he had a genuine peritonitis, so far as the pathology was concerned, without visible perforation of the appendix or any other viscus. They were not the cases in which a perforation of the duodenum or stomach had been overlooked, but cases in which streptococci migrated along the lymph channels through the appendix wall and got into the general peritoneal cavity in that way. These cases had occurred not only in his own practice, but in that of others. In looking up a series of cases which they had had at the Michael Reese Hospital in the past ten years, he found there were two of his own, and five others in the practice of Drs. McArthur, Andrews, and Greensfelder. In addition to these, there had been quite a number of cases reported in the literature. They overlooked in little girls a general peritonitis from infective salpingitis. Reidel had recently called attention to this, and had held autopsies on nine little girls who had died of general peritonitis in spite of operation. He found no perforation of the appendix, but simply a very marked and intense salpingitis.

Dr. Chas. H. Wallace of St. Joseph, Mo., said that there was a class of cases that became so septic that one got no drainage, it mattered not what was done. The wound looked like a wound in a cadaver; there was no exudation of serum.

Further Observations on Enterostomy and Its Technique.—Dr. John Prentiss Lord of Omaha, Neb., reported four fatal cases in addition to the four successive successful cases mentioned last year. In one the enterostomy was done for typhoid perforation peritonitis, death being due to the extension of the peritonitis. Numbers two and three were operated on for appendicitis and peritonitis, death resulting from ileus due to peritonitis. Number four was due to septic ileus. The drainage was practically nil, and the condition persisted. Enterostomy was recommended above the line of suture as a vent in resections of the distal half of the large bowel in order to prevent distention from gas which was responsible for the greater number of failures in the suture of this portion of the large intestine. The simple technique by three purse-string sutures about a large catheter was an easy, quick, and ready means of draining the bowel of gas and feces. It was life-saving, and might save some otherwise hopeless cases of obstruction due to peritonitis. The fatal cases reported were extreme ones, and the operation was done as the only remaining recourse.

Some Observations Concerning Intestinal Suture.—Dr. Arthur E. Benjamin of Minneapolis, Minn., in a paper on this subject, drew the following conclusions: "1. Instruments or buttons for making an intestinal anastomosis have practically all been discarded for the suture, as there was less loss of tissue thereby. 2. The purpose of these instruments in the past was to facilitate making an anastomosis and to render the operation more safe. 3. The sutures were to prevent hemorrhage and to approximate like structures until a firm union had taken place, after which they should be absorbed or passed off into the intestines. 4. The side anastomosis was chosen because of the positive blood supply, its safety and ease of performance. 5. The preparation of the patient by carefully selecting the diet, proper attention to waste product elimination, stomach washing, etc., went a long way toward bringing success in these operations. 6. Pagenstecher's thread was largely used for the outside sutures in bowel work. As it was a foreign substance, it might provoke unnecessary adhesions and call for further operative procedures. 7. The linen thread could be used with safety for the inner line of suture, and, when properly placed, prevented hemorrhage of leakage and was soon eliminated. 8. This inner suture should be so placed as to prevent pursing and narrowing of the anastomotic opening. The through-and-through back lock stitch was very suitable for this purpose. 9. The chromic catgut makes an admirable suture for the outer layer and when used as a continuous Lembert, outside of the Pagenstecher lock stitch, a safe and satisfactory union occurs. 10. Care should be observed in performing operations to avoid contamination. 11. The after treatment of the case was very important. Food should not be given too early so as to avoid undue tension upon the suture line."

The Past, Present, and Future of the Western Surgical and Gynecological Association.—Dr. Wright, in his presidential address, referred feelingly to the death of a former president and colaborer, Dr. H. D. Niles of Salt Lake City, and expressed the hope that suitable action would be taken by the members in regard to the loss the association had sustained. The conception of surgeons in the West uniting and forming an association for the sole purpose of discussing questions of interest to them only, originated with Dr. Milo B. Ward of Topeka. The object of the association was primarily the betterment of the members surgically and demanding from the public the respect and confidence their skill merited. This confidence in the ability of each other had done much to make it possible for the surgeon in the small town to relieve serious emergencies with minimum suffering and loss of life. He could not refrain from mentioning the depredating influence of the young specializing in surgery before their mental faculties had fully expanded. This injured the mind and warped the intellect of the student by depriving him of adequate medical and literary training, so essential to the thoroughly equipped surgeon.

Recent Progress in Surgery of Renal Calculi.—Dr. Daniel N. Eisendrath of Chicago stated that much of the progress in recent years in surgery of the kidney was due to the improvement in operative technique, as well as to the ability to secure better skiagraphs of the kidney and ureter. In addition to these two factors the more general employment of ureteral catheterization had added to their knowledge of surgical lesions of the kidney through its ability to enable them to differentiate the various surgical lesions of that organ. In a previous paper he had discussed the pathology and symptoms of renal calculi, so far as the diagnosis could be made from the clinical symptoms. In the present paper he included (*a*) the progress in *x*-ray diagnosis; (*b*) the frequency of bilateral calculi, and their relation to calculous anuria; (*c*) some of the newer points in surgical anatomy of the kidney, and (*d*) the choice of operation for the removal of calculi in the kidney. In regard to the *x*-ray diagnosis Kummell's dictum, "no shadow, no stone," as there were no pathognomonic signs of renal calculi except a positive *x*-ray, did not seem to him too dogmatic, if one included urie-acid calculi, which gave very faint shadows. He called attention to the fact that a long twelfth rib might hide a calculus lying behind it, hence the

necessity of having the radiographs in a diagnostic box. A good radiograph of the kidney would enable one to tell the position, number, and the outline of the shadow. Calculi lying at the pelvic orifice of the ureter had a peculiar nipple-like downward and inward projection, which was very characteristic, and if this shadow was the only one present the operator was usually able to remove the calculus through an incision into the posterior aspect of the pelvis (pyelotomy). Such shadows were placed at a level of the transverse process of the first or second lumbar vertebra, unless the kidney was in its normal position. The second portion of the paper was devoted to the subject of bilateral calculi. He quoted Kummell, who found 16 per cent. of bilateral stones in 101 cases of renal calculi. From a large number of cases of his own and others he found that bilateral calculi occurred in 30 per cent. of the cases. He showed calculi from a bilateral case which was operated upon in two sittings. It was very necessary to recognize the presence of bilateral calculi, not only on account of the anuria, but on account of the reproach incident to the discovery of calculi opposite to the side operated upon. Anuria was a very frequent complication of bilateral calculi. The third portion of the paper was devoted to some recent investigations of his own in regard to the presence of accessory renal arteries. Such a multiplicity of renal arteries, each arising separately from the aorta, occurred in about 30 per cent. of cadavers. There were either two or three separate arteries on each side. This was demonstrated in a number of specimens. The most frequent types were those of separate renal arteries which passed from the aorta to the hilum or where the main renal artery entered the hilum and the second artery entered over the upper or lower pole of the kidney. The arteries of the lower pole might arise from one of the iliac arteries. The condition of multiple arteries occurred more frequently on the right than on the left side. It was very necessary to know the presence of such multiple arteries in connection with all operations on the kidney, especially nephrotomy and nephrectomy, since severe and perhaps fatal postoperative hemorrhage might occur through such an oversight. The last portion of the paper dealt with the question of the best method of removal of calculi from the kidney. If the radiograph showed a single stone at the outlet of the pelvis, and we were certain that this was the only calculus present, the best method of removal was through an incision into the posterior surface of the pelvis, where there were very few vessels, and the extraction of the calculus under those circumstances could be quite readily done. If, however, there were a number of shadows scattered over the kidney area or one large calculus, it was best to remove it through a nephrotomy incision.

Dr. M. L. Harris of Chicago said the need of knowing the condition of both kidneys was very important. The frequency of bilateral kidney stones was a fact which was little recognized by most physicians and by only very few surgeons unfortunately, for the frequency with which some accident happened to the patient after the removal of the first kidney was very great.

Dr. Leonard Freeman of Denver, Colo., said he would like to speak on one embarrassing complication in operating on kidneys for stone, and that was secondary hemorrhage. It was an extremely unfortunate thing to have operated upon a kidney and removed successfully a stone and have the patient go on in the best of condition for a week or ten days and then begin to have a little blood in the urine, a little more the next day, and still more the next. Such hemorrhages were not infrequently fatal. The only thing they could do under these circumstances was to remove the kidney, and the sooner that was done in the presence of secondary hemorrhages the better it was for the patient.

Dr. Arthur C. Stokes of Omaha, Neb., said he had a specimen he should like to show of a stone in the kidney in which case the symptoms were almost none. Preceding the operation for removal of the kidney the patient was operated on, a diagnosis having been made of floating kidney. An incision was made going straight through the muscles of the back, and in the attempt to tie the kidney up to the back a lot of pus was found. The surgeon was not prepared to remove the kidney. The patient subsequently came under his care and the kidney was removed. This patient had practically no symptoms, yet the kidney was almost entirely destroyed.

Movable Liver and Constriction-Lobe of the Liver.—Dr. M. L. Harris of Chicago said that movable liver was found in two classes of patients, namely, those in whom the movable liver was the chief or only abnormal condition present, and those in whom it was but a part of a general visceral ptosis. In the former class the condition was probably due to congenital defects of the attachments of the liver, while in the latter class the loss of the support affected by a firm abdominal wall, together with a gradual yielding and elongation of the attachments of practically all the abdominal organs, played an important part in the condition. Constriction-lobe was a very common condition, being found according to Leue, in 19 per cent. of the male, and 25.3 per cent. of the female subjects over sixteen years of age, autopsied by him, 3,484 in number. Both movable liver and constriction-lobe might give rise to symptoms which were quite distinct and often very distressing, relieved only by properly suturing the liver in place, or by suturing the floating lobe to prevent its abnormal mobility.

Two Cases of Operative Removal of Cervical Ribs.—Dr. S. C. Plummer of Chicago said the first patient was a woman, twenty-four years old. Symptoms began eight years previously and consisted, at first, of pain extending from the axilla to the middle of the ulnar side of the forearm. Four years ago weakness of the hand and later some muscular atrophy appeared. Pain was aggravated by slight exertion. There was no anesthesia. The second patient was a woman, thirty years old, whose symptoms began twenty years ago. Pain in this case was confined to the ulnar side of the forearm. As in the first case, it was aggravated by exertion, but was also brought on by exposure to cold. She also suffered from coldness of the extremity. There was atrophy of the thenar and interossei muscles. There was no anesthesia. Both of these cases had bilateral cervical ribs, as shown by the skiagrams, but in both the symptoms were confined to the right upper extremity. In each case an incision extending obliquely upward and backward for about three inches from just above the right clavicle at the outer border of the sternocleidomastoid muscle, was employed. The first patient now had very little pain, but the strength of her hand had not improved. The second patient was almost entirely free from pain one month after the operation, but was still somewhat sensitive to cold.

Dr. James F. Percy of Galesburg, Ill., said that four years ago he saw three cases of cervical rib in one year, one of them in a girl, fourteen years of age. The second was a girl, sixteen years of age, and in this case the cervical rib was also on the left side, as in the first case. It was discovered by the dressmaker, and the patient came to him because of swelling. The third case was in a girl, twenty years of age, who had the condition on both sides. Not one of these patients had been operated on up to date.

Dr. L. L. McArthur of Chicago had seen a case of double cervical rib, which produced atrophy of the muscles of the hand and double drop-wrist, but unattended by pain. Operation was refused.

Dr. A. F. Jonas of Omaha reported a case of cervical rib in a young woman, twenty-one years of age. She had a swelling in the left side of the neck, which was tender

and hard, and had been diagnosed as sarcoma of the cervical vertebra. The rib could be seen pressing underneath the skin. He cut down upon it and found running over it what he thought was the common carotid artery, but it proved to be the subclavian artery. He reported this case to call attention to the anomalous course of the subclavian artery on the left side, in this particular case.

Dr. Harry M. Sherman of San Francisco reported the case of a woman, thirty years of age, who complained of pain in the arm. Cervical rib was suspected on account of the character of the pain. The rib could be felt, and a skiagraph showed its presence. It was removed, and the pain and disability symptoms disappeared. Later, during pregnancy, the pain had recurred. He was anxious to see whether this pain would disappear after confinement.

Hernia: What Constitutes a Predisposition.—Dr. A. F. Jonas of Omaha, Neb., in his paper, drew the following conclusions: 1. All deductions as to predisposition to hernia that were based on the direction and size of the inguinal canal, a large external ring, were untrustworthy. 2. All opinions as to predisposition based on the vague ideas of muscular weakness, reduced abdominal resistance and diminished support of connective tissue structures, were unreliable. 3. Retarded descent or undescended testicle favored a complete or partial non-obliteration of the vaginal process. 4. A partial or a completely non-obliterated vaginal process might be regarded as an anatomical predisposition to oblique inguinal hernia. 5. The non-closure of the vaginal process could not be recognized clinically. 6. It would seem that we were scarcely justified in using the term predisposition to hernia because of the lack of reliable clinical data.

The Frequency of Congenital Sacs in Oblique Inguinal Hernia.—Dr. William Hessert of Chicago drew the following conclusions: "1. Over three-fourths of all oblique inguinal hernias owed their existence to a preformed sac, the result of some form of faulty closure of the vaginal process in the infant. 2. Congenital malformation of the muscles of this region, as seen in the failure of the internal oblique and transversalis to form a conjoined tendon, was a predisposing cause of both oblique and direct hernias. 3. The lesson to be learned practically from this study was that inasmuch as the hernia owed its existence to a preformed sac, the essential and fundamental act in any hernia operation consisted in the complete ablation of the sac. Avoid the leaving of an infundibuliform process, which might be the cause of recurrence, no matter what the type of operation had been.

Some Anomalies of the Sigmoid.—Dr. L. L. McArthur of Chicago presented the histories of two cases illustrating anomalies of the sigmoid. He was in accord with Dr. Clark in not favoring the fixation by suture of such loops to either the anterior or posterior wall, as the potential dangers were almost equally as great as that of recurrence. Were a similar case to be met with, he would make a side-to-side anastomosis, between the proximal and distal end before restoriug it to the abdomen, just as he had corrected a rectal prolapse by anastomosing the drawn-up rectum to the first portion of the sigmoid.

Preparation of Patients for Prostatectomy.—Dr. E. S. Judd of Rochester, Minn., said the general tendency regarding the preparation of patients for surgical interference was to reduce the details to a minimum, although there were some classes of cases that would do better if they were especially prepared. Because of systemic conditions some patients were not good subjects for operation; on the other hand, the poorest subject would sometimes endure a difficult prostatectomy with considerable loss of blood and be in good condition in a few days. As the gland increased in size the amount of residual urine increased until the back pressure, coming gradually, became a constant factor in the function of the kidney. Continued withdrawal of the pressure would throw the kidneys into a condition of acute congestion, and if they were partially disabled the sudden change might prove very serious, resulting in acute nephritis and suppression. To overcome this difficulty he commenced by emptying the bladder with a catheter at stated intervals, gradually shortening the intervals until the bladder was emptied every hour. In his experience it had not been satisfactory to leave the catheter in the bladder. One ounce of castor oil was given 48 hours before operation. Salt solution per rectum soon after operation was an aid in elimination of the kidneys. The arteries of these patients were hard and inelastic and it was difficult to fill up the circulation; the patients were, therefore, encouraged to take great quantities of fluids for several days before operation.

Lymphangioma, with Report of a Case of Macroglossia and a Case of Macrocheilia.—Dr. A. A. Kerr of Salt Lake City, Utah, stated that where practical, the proper treatment of lymphangioma was excision. In macroglossia, if the swelling interfered with mastication, speech, or deglutition, the proper treatment was partial excision. In macrocheilia, partial or complete extirpation was indicated for cosmetic purposes, as well as a prophylactic measure against infection, or malignant degeneration. In the case reported, by means of a wedge-shaped excision parallel with the long axis of the lip, the latter was reduced to normal size.

Further Experimental Data on the Vasomotor Relations of Shock.—Dr. M. G. Seelig of St. Louis, Mo., stated that in a previous paper he had attacked the widespread doctrine that shock was due to exhaustion of the vasomotor centers, and consequent paralysis of the peripheral vascular system. He rested his case on definite experimental data to prove that the peripheral vascular system was not paralyzed. The present paper was a continuation of the work already reported. The results of his experimental work pointed against the correctness of the theory that shock was a symptom-complex due to vasomotor exhaustion.

Osteomyelitis.—Dr. James E. Moore of Minneapolis stated that inflammation of the bone was due to infection just as it was in any other tissue, the added symptoms and dangers being entirely due to the density of the structure. The virulence of bacteria was always enhanced by pressure and the denser the tissue the greater the danger of necrosis, because of the early interference with the circulation from the products of inflammation, and as soon as part of a bone became necrosed the sequestrum acted as a foreign body. That contusion of bone was the most common exciting cause of osteomyelitis was well established, but that underlying causes were back of that was evident, because all contusions of bone were not followed by infection, and many so-called idiopathic cases occurred with no history of contusion whatever. The early treatment of acute osteomyelitis was just as much of a surgical emergency as the treatment of acute appendicitis. The diagnosis should be made early and followed promptly by operation. There was no medical treatment for this disease, and poultices and other local applications only led to waste of valuable time. There was but one form of treatment, and that was a free opening into the medulla. An incision through the periosteum might relieve some of the pain, but it was insufficient because it failed to stop the ravages of the disease. By a prompt opening into the center of the bone drainage was established and the life threatening poison allowed to escape. An efficient opening relieved the pressure, and when made early enough would stop the separation of the periosteum and destruction of the endosteum, thus preventing or limiting necrosis. In a very early operation no pus might be found, but the medulla was greatly congested and protruded into the wound. Under these conditions the trephine opening

need not be enlarged. Chronic osteomyelitis might be the result of an acute attack or might be subacute from the first, when it was very liable to be mistaken for tuberculosis. In those cases following an acute attack an operation should be performed for the removal of the sequestrum as soon as it was separated, which was anywhere from six weeks to four months. The cavity should be thoroughly curetted, washed, and finally disinfected by heat or 95 per cent. carbolic acid, the latter being much more convenient, and in his experience eminently satisfactory. The acid should be left in the cavity for three or five minutes, when it should be wiped out and the cavity thoroughly washed with alcohol, after which it should he dried and filled with Moorhof's bone wax in a liquid state. The wax quickly hardened at the temperature of the body, after which the periosteum and soft parts were closed in layers by means of chromicized catgut. A dry surgical dressing should then be applied, the bandage being quite snug, and finally the tourniquet should be removed. His experience with the bone wax was such that he could conscientiously recommend it, for when he had temporarily failed he was confident that the fault was in his technique and not in the method.

Extrauterine Pregnancy with Twins, Complicated with Ovarian Fibroid on the Opposite Side.—Dr. D. W. Basham of Wichita, Kansas, reviewed the literature of this subject, and reported a case.

A Deceptive Form of Appendicitis in Women.—Dr. H. S. Crossen of St. Louis, Mo., reported two cases, giving the clinical characteristics, the conditions found at operation, the treatment employed, and the final results. The points of special interest were as follows: "(1) The location of the mass in the tuboovarian region instead of in the appendix region. In the first case, palpation about McBurney's point showed no trouble there, and in the second case simply the edge of the mass extended to the appendix region. (2) The scarcity of inflammatory symptoms. Each patient was sick several months and quite a mass had formed before any acute symptoms appeared, and when they did appear they were comparatively mild. So marked was this feature that the mass, in connection with the history, gave the impression of a new growth, and it was with that diagnosis that each patient came under his care. This is accounted for in a measure by the extreme chronicity of the inflammation and also by its inclusion of the cecal wall, as explained in the next paragraph. (3) The apparent intracecal character of the mass. This was a striking feature and was due to the folding of the cecal wall about the chronically inflamed appendix. Because of the special relation of the appendix to the cecum or because of the chronicity of the low grade inflammation, or both, the infiltration and adhesions affected principally the wall of the cecum adjacent to the appendix. The affected appendix was buried in the overlapped cecal wall. This is what gave the feel of a mass within the cecum, affecting its wall, and it was this also which made it so difficult to locate and expose the appendix. This peculiarity is important from the standpoint of treatment, for, unless carefully investigated, such a condition might be treated by extirpation of the cecum under the mistaken supposition that the mass is intracecal and malignant or tuberculous. This peculiarity helps to account, also, for the dislocation of the mass. As the cecum with its mass was fairly movable it naturally dropped downward into the tuboovarian region. Later, adhesions formed, fixing it in the abnormal location. (4) The slow absorption of the infiltration in the cecal wall, after removal of the affected appendix. In the first case, absorption of the infiltration in the wall of the cecum required nearly a year. In the second case in which pus was found, the absorption of the infiltration was more quickly accomplished, requiring only about five months. Fortunately, in both women the abdominal wall was thin and permitted of deep palpation; consequently the diminution of the cecal induration could be accurately followed. The fact that the condition described is likely to lead to mistakes, is illustrated by the following incidents: In an Eastern museum a specimen labeled 'Absence of the Appendix,' showed on dissection the condition mentioned above, *i.e.* an overlapped cecal wall enfolding the inflamed appendix. Again, in a case related to the speaker, a cecum resected for supposed malignant disease, with fatal result, revealed on subsequent examination the condition above described, *i.e.* the supposed tumor consisted simply of the inflamed appendix surrounded and completely hidden by the cecal wall."

The Abuse of Hypodermic Stimulation During and After Surgical Operations.—Dr. Horace G. Wetherill of Denver, Colo., said the best results and the lowest mortality of the busiest surgeons of to-day were attained by the simplest methods. Careful diagnosis and accurate estimates of the ability of the patient to undergo the operation was made. He was prepared with great care; the anesthetic was wisely chosen and skillfully given; he was operated upon without avoidable exposure, delays, or hemorrhage; he was returned to a warm bed, placed in a favorable position, watched by a competent nurse, and let alone. If he was restless and really suffering from shock or severe pain as he emerged from the anesthetic he might be given a moderate dose of morphine or atropine, but, notwithstanding its stimulating and soothing effect, he was ordinarily better off if it could be omitted.

Surgical Treatment of Hyperthyroidism.—Dr. W. D. Haines of Cincinnati, Ohio, after reviewing the literature, embryology, and anatomy of the thyroid gland, presented evidence to show that the syndrome called goiter was due to over-activity of the adrenals induced primarily by an excess of thyroglobulin in the blood. Discrepancies of opinion in the past were due to a lack of definite knowledge of the actual changes which took place in the gland at the time of observation. Laboratory study had shown a local hyperemia with increase in colloid and diminished staining reaction, but no gross changes in the gland in the first stage. This was followed by hyperplasia, or the second stage. Imperfect alveoli lined with giant cells and great loss in colloid characterized the third stage, while fibrosis, cell atrophy, sclerotic arterial walls, hemorrhage, and cyst formation completed the final steps in the destructive process. Basing treatment upon these findings, he advised diminishing the blood supply by ligating two or more of the thyroid arteries in preference to thyroidectomy in the management of cases of hyperthyroidism, with moderately enlarged gland and active symptoms. Ligation was a lighter operation and was not followed by hypothyroidism. In the operation for the removal of adenoma, or partial thyroidectomy, he kept within the thyroid capsule, thus avoiding injury to the parathyroids and recurrent laryngeals.

Intrathoracic Goiter, with Report of Cases.—Dr. C. H. Mayo of Rochester, Minn., said the transposition of the thymus and lower poles of the thyroid when forming possibly acted as one of the causes of intrathoracic substernal goiter. These growths usually consisted of diffuse colloid or encapsulated adenoma, and when they were completely detached from the thyroid they were wandering. Most of the symptoms occurred from pressure upon the circulation, the trachea, the nerves, or the esophagus. These tumors were usually associated with an ordinary goiter, and probably one-half of them were discovered through complications arising during a thyroidectomy. As they were often enucleated with great difficulty, their removal might be followed by severe hemorrhage. Intrathoracic pressure obliterated the space; therefore, drainage should be brief. Twelve cases were reported, six being of the

diffuse adenoma, six of the encapsulated variety, with one death from collapse of the trachea, due to a hypertrophied thymus of fifty-six grams in a patient with severe hyperthyroidism.

Scopolamine and Morphine as a Preliminary to General Anesthesia; a Report Based on an Experience of Eleven Hundred Cases.—Dr. CLIFFORD U. COLLINS of Peoria, Ill., stated that many erroneous statements had been made in the literature concerning the use of this combination as a preliminary to general anesthesia, and he quoted some of them, which his experience seemed to disprove. He used a tablet containing scopolamine 1/100 grain and morphine 1/6 grain. A solution was made and the combination injected hypodermically one and one-half hours before the operation. The preliminary was given to all adult patients and all children above the age of eight years. No contraindications had been found for the combination. Its action was beneficial as a preliminary to nitrous-oxide gas as well as ether and chloroform, and other general anesthetics. Only one patient in the eleven hundred showed dangerous symptoms, and these were soon relieved. His experience seemed to show that the use of scopolamine and morphine as a preliminary to general anesthesia was a rational procedure, adding greatly to the comfort of the patient by relieving him of all nervous apprehension prior to the administration of the general anesthetic, by permitting him to sleep for some hours after the operation, and by greatly decreasing the amount of post-operative vomiting, and mitigating the dangers of the general anesthetic by lessening the amount necessary to produce the desired effect and by checking the secretion of mucus in the throat.

The following papers were also read: "Duodenal Obstruction, with Uncontrollable Vomiting, and Surgical Method of Treating It," by Dr. Arnold Schwyzer of St. Paul, Minn.; "Specimen Showing Pericolonic Membrane" was exhibited by Dr. Howard Hill of Kansas City, Mo., for Dr. Jabez N. Jackson; "Rhinoplasty with the Aid of a Finger and of Skin from the Chest," by Dr. Harry M. Sherman of San Francisco; "Poliomyelitis, Cause and Best Treatment to Prevent Deformity," by Dr. J. W. Cokenower of Des Moines, Ia.; "Report of a Spinal Cord Tumor," by Dr. William Jepson of Sioux City, Ia.; "Our Present Knowledge of the Pathology of Goiter and Some of the Sequelæ of Its Removal," by Dr. Alanson M. Pond of Dubuque, Ia.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. John P. Lord of Omaha, Neb.; *First Vice-President,* Dr. Harry M. Sherman of San Francisco; *Second Vice-President.* Dr. L. L. McArthur of Chicago, Ill.; *Secretary-Treasurer,* Dr. Arthur T. Mann of Minneapolis, Minn.

Chicago, Ill., was selected as the place for holding the next annual meeting.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

NEBRASKA STATE BOARD OF MEDICAL EXAMINERS.

Lincoln, November 10 and 11, 1909.

ANATOMY.

1. What arteries unite to form the basilar artery?
2. What arteries, muscles, and nerves would be severed in a cross section at the middle of the humerus?
3. Describe the ulnar artery.
4. Where does the abdominal aorta commence and where does it terminate?
5. Describe the trachea.
6. Name the bones that form the ankle joint, and give their relations.
7. Name the abdominal viscera (*a*) wholly covered with peritoneum; (*b*) those partially covered.
8. Name the regions of the abdomen by diagram.
9. Name five muscles of the back of the leg.
10. Give the origin and insertion and blood and nerve supply of the humeral biceps muscle.

PHYSIOLOGY.

1. What is meant by the term blood pressure?
2. What part of digestion takes place in the duodenum?
3. Describe the pneumogastric nerve, and give its functions.
4. Describe the heart cycle.
5. How is the heat of the body maintained?
6. How are nitrogenous foods digested?
7. Give brief description of special nerve of hearing.
8. Name ductless glands, and give functions of each.
9. What is a carbohydrate?
10. What ferments enter into the digestion of carbohydrate?

CHEMISTRY.

1. Give the chemical name for H_3BO_3; $CHCl_3$; C_6H_5OH; $PbC_2H_3O_2$; $KHCO_3$.
2. How is glycerin obtained, and give its chemical formula.
3. What is the chemical basis of the acidity of normal urine?
4. Describe a test for sugar in the urine. Give a test for bile pigment in urine. What is the normal amount of urea excreted by an adult in 24 hours?
5. Describe oxygen; give its symbol, valence, and atomic weight; tell how to make it.
6. Give symptoms and treatment of poisoning by acetanilide.
7. What is a gas? Laughing gas? Marsh gas? Sewer gas?
8. Name six metals and six non-metallic elements, and the symbol for each.
9. Define oxidation and combustion, and give practical examples of each.
10. Why is a salt of mercury incompatible with potassium iodide?
11. From what sources may chronic lead poisoning come? Give treatment.
12. What are ptomains? Give symptoms and treatment of ptomain poisoning.

Only 10 *to be answered.*

MATERIA MEDICA AND THERAPEUTICS.

1. Define analgesic, anesthetic, hypnotic, and give examples.
2. How does atropine affect the function of (*a*) the eye, (*b*) the heart, (*c*) the intestines, (*d*) the skin? Tell manner of action in each case.
3. What are anthelmintics? Name four, with preparation and dose.
4. Name five official bromides and gives their physiological action.
5. What drug would you use as (*a*) a mydriatic, (*b*) expectorant, (*c*) anodyne, (*d*) escharotic, (*e*) styptic?
6. Give the effect of alcohol on (*a*) the brain, (*b*) the heart, (*c*) the kidneys.
7. Name three drugs that lower temperature, and tell how each does it.
8. Give the source and therapeutic uses of ichthyol and adeps lanæ.
9. Explain the action on the bowel of (*a*) opium, (*b*) thymol, (*c*) bismuth subnitrate.
10. How do saline cathartics produce purgation?
11. What is an alkaloid, a tincture, a fluid extract? Give an example of each.
12. For what purpose and in what doses would you administer (*a*) strychnine, (*b*) calomel, (*c*) tincture of aconite, (*d*) hyoscine, (*e*) potassium iodide?

Only 10 *to be answered.*

PATHOLOGY.

1. What causes rise of temperature?
2. Define hypertrophy; atrophy; give varieties and causes.
3. Give differences between degeneration and necrosis.
4. Give pathology of trachoma.
5. Define gangrene; name the types and give conditions determining each.
6. Describe briefly the reparative process of a fracture.
7. Describe the lesions of typhoid fever, and give distribution of the typhoid bacillus.
8. What forms of appendicitis are usually considered, and describe the structural changes which take place.
9. Define cretinism.
10. Give the pathology of inflammation.

PRACTICE OF MEDICINE.

1. Differentiate between cerebrospinal meningitis and anterior poliomyelitis.
2. Give cause of rickets, diagnosis and treatment.
3. Give urinary findings in parenchymatous nephritis and interstitial nephritis.
4. Differentiate between appendicitis and typhoid fever.
5. In what diseases will the microscope aid us most in diagnosis?
6. Describe the normal heart sounds.
7. Give differential diagnosis of acute glaucoma and acute iritis, and give treatment of each.
8. Give comparative table of contents of cow's milk and woman's milk, and how would you modify cow's milk so that it would compare with mother's milk for a baby six weeks old?
9. What are the symptoms and treatment of catarrhal jaundice?
10. Give cause, symptoms, and treatment of stomatitis.

OBSTETRICS.

1. Give signs of pregnancy.
2. Describe the management of labor in breech presentation.
3. When does the foramen ovale close?
4. Name some of the diseases of pregnancy.
5. Name the varieties of ectopic pregnancy.
6. Define prolapsis uteri. Give pathology, etiology, and treatment.
7. Give some causes and treatment of pruritus vulvæ.
8. What is the difference between menorrhagia and metrorrhagia, and give treatment for both.
9. What is the difference between vaginitis and vaginismus? Give treatment for each.
10. Give etiology and treatment of subinvolution of the uterus.

SURGERY.

1. Define septicemia, and give its causes.
2. How can the danger of ankylosis be averted after injury to a joint?
3. How would you arrest epistaxis?
4. Outline the principle of treatment for a compound dislocation.
5. Give the dislocations of the knee-joint and a method of reduction of any one.
6. What are the indications for trephining in fractures of the skull?
7. How are wounds classified?
8. How would you proceed surgically to remove the fluid in a case of ascites?
9. Give the indications for the removal of the mammary gland.
10. What are the chief surgical diseases of the groin?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

NEBRASKA STATE BOARD OF MEDICAL EXAMINERS.

Lincoln, November 10 *and* 11, 1909.

ANATOMY.

1. The two vertebral arteries.
2. In a cross-section at middle of humerus, will be severed: *Muscles:* biceps, coraco-brachialis, brachialis anticus, triceps; *arteries:* brachial, superior profunda, inferior profunda; *nerves:* median, ulnar, musculo-spiral, internal cutaneous, musculo-cutaneous.
3. See Cunningham's "Anatomy" (1909), page 834; or Gray's "Anatomy" (1908), page 662.
4. The abdominal aorta *commences* at the aortic opening in the diaphragm and *terminates* on the body of the fourth vertebra, where it bifurcates into the two common iliac arteries.
5. See Cunningham's "Anatomy" (1909), page 972; or Gray's "Anatomy" (1908), page 1384.
6. The ankle joint is formed by the lower end of the tibia and its malleolus, and the external malleolus of the fibula, which together form a mortise above to receive the upper convex part of the astragalus and its two lateral facets.
7. (*a*) *Wholly covered with peritoneum:* Stomach, first part of duodenum, jejunum, ileum, cecum, transverse colon, sigmoid flexure, first part of rectum, liver.
(*b*) *Partiolly covered with peritoneum:* Second and third part of duodenum, ascending and descending colon, middle part of rectum, bladder.
8. See Cunningham's "Anatomy" (1909), page 1046; or Gray's "Anatomy" (1908), page 1246.
9. Gastrocnemius, soleus, flexor longus digitorum, tibialis posticus, and flexor longus hallucis.
10. BICEPS. *Origin:* Short head, from coracoid process of scapula; long head, from upper margin of glenoid cavity. *Insertion:* Back part of tuberosity of radius. *Blood supply:* From brachial artery. *Nerve supply:* Musculo-cutaneous.

PHYSIOLOGY.

1. By the term *blood pressure* is meant the pressure on the blood due to (1) the ventricular systole, (2) the elasticity of the walls of the arteries, and (3) the resistance in the capillaries.
2. In the *duonenum,* proteids, fats, and starches are digested.
3. *Functions of the pneumogastric nerve:* "Throughout its whole course the vagus contains both sensory and motor fibers. To summarize the many functions of this nerve . . . it may be said that it supplies (1) *motor* influence to the pharynx and œsophagus, stomach, and intestines, to the larynx, trachea, bronchi, and lungs; (2) *sensory* and, in part, (3) vasomotor influence to the same regions; (4) *inhibitory* influence to the *heart;* (5) *inhibitory* afferent impulses to the *vasomotor center;* (6) *excito-secretory* to the salivary glands; (7) *excito-motor* in coughing, vomiting, etc."—(Kirkes' *Physiology.*)
For *description,* see Cunningham's "Anatomy" (1909), page 690; or Gray's "Anatomy" (1908), page 1068.
4. The *heart cycle* includes all the changes which occur between the commencement of one heart beat and the commencement of the next; it consists of the alternate contractions (or systole) and relaxations (or diastole) of the auricles and ventricles of the heart. The contraction of the two auricles takes place simultaneously, and is followed by the simultaneous contraction of the two ventricles; then follows a period during which the whole heart is in a state of diastole. The cycle then begins again with the auricular systole.
5. The heat of the body is *maintained* by the thermotactic centers in the brain and cord keeping an equilibrium between the heat gained or produced in the body and the heat lost. *Heat is produced in the body* by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord. *Heat is given off from the body* by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and feces.
6. Nitrogenous foods are digested in the stomach by the pepsin of the gastric juice, and in the small intestine by the trypsin of the pancreatic juice.
7. See Cunningham's "Anatomy" (1909), page 688; or Gray's "Anatomy" (1908), page 1064.
8. The *ductless* glands are: The spleen, thymus, thyroid, parathyroids, suprarenals, carotid, cocygeal, pituitary, and pineal glands. The *function of the spleen:* The following theories have been held: (1) It is a source of production of the white blood corpuscles; (2) it is a source of production of the red blood corpuscles during fetal life; (3) it is a place where the red blood corpuscles are destroyed; (4) uric acid is produced in the spleen; (5) an enzyme is produced in the spleen and is carried by the blood to the pancreas, where it converts the trypsinogen into trypsin. The *function of the thymus* is not settled; it is said: (1) To be a blood forming organ; (2) to have influence on growth and nutrition; (3) in hibernating animals it is supposed to store up materials which can be utilized during the period of inactivity. The *function of the thyroid* is not definitely settled; (1) it has some trophic function; (2) it is supposed to antagonize toxic substances; (3) it produces an internal secretion. The *function of the suprarenals* is not definitely settled; they produce an internal section which is probably necessary to life; it is supposed that they are able to destroy or remove some toxic substance produced elsewhere in the body. The *function* of the *other* ductless glands is unknown. They all, or nearly all, furnish an internal secretion.
9. *Carbohydrates* were formerly defined as substances of unknown constitution, consisting of carbon, hydrogen, and oxygen; there being in the molecule six (or some multiple of six) atoms of carbon, and the hydrogen and oxygen being in the proportion to form water.
10. Ptyalin and Amylopsin.

CHEMISTRY.

1. H_3BO_3 is boric acid; $CHCl_3$ is trichlormethane (chloroform); C_6H_5OH is phenol; Pb $(C_2H_3O_2)_2$ is lead acetate; $KHCO_3$ is monopotassic carbonate.
2. Glycerin is obtained by decomposing glyceryl stearate by superheated steam. The *formula* is $C_3H_5(OH)_3$.

3. The acidity of the urine is due to acid sodium phosphate, NaH_2PO_4.

4. Test for *sugar:* Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test tubes To one test tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color. Test for *bile pigment:* Put 3 c.c. HNO_3 in a test tube, add a piece of wood, and heat until the acid is yellow; cool. When cold, float some of the urine to be tested upon the surface of the acid. A green band is formed at the junction of the liquids, which gradually rises, and is succeeded from below by blue, reddish-violet, and yellow.

The normal amount of urea excreted in 24 hours is about 500 grains.

5. Oxygen is colorless, odorless, tasteless gas; it is sparingly soluble in water; it has a strong tendency to enter into combination with other elements; it is necessary for respiration, and is both combustible and a supporter of combustion. Its *Symbol* is O; *valence,* 2; *atomic weight,* 16; it is made by heating potassium chlorate:

$$2KClO_3 + \text{heat} = 2KCl + 3O_2.$$

6. *Sympptoms of acetanilid poisoning:* Chilliness, cold sweat; nausea; pulse is soft, slow, and feeble; respirations slow and shallow. *Treatment:* Lavage, diffusible stimulants, application of heat, coffee or strychnine, inhalation of oxygen, or saline infusion.

7. A *gas* is that form of matter in which the molecules tend to get away from each other; it has neither definite shape nor volume. *Laughing gas* is nitrogen monoxide, N_2O. *Marsh gas* is methane, CH_4. *Sewer gas* is the air from sewers, of variable composition, containing emanations from sewage.

8. *Metals:* Lead, Pb; gold, Au; silver, Ag; copper, Cu; zinc, Zn; tin, Sn. *Non-metals:* Hydrogen, H; oxygen, O; nitrogen, N; fluorine, F; chlorine, Cl; iodine, I.

9. By *oxidation* we mean the act of union of oxygen with another element or compound. This process it attended by the liberation of heat, and, when it takes place rapidly, of light. The rusting of a given weight of iron is a slow oxidation, while the burning of the same in oxygen is a rapid oxidation. Only the latter produces light, while in both cases the same amount of heat is liberated.

By *combustion,* in a general sense, is meant the rapid union of the oxygen of the air with some other substance, as coal or phosphorus. In a wider sense, however, combustion may be defined as any chemical union of two substances attended by liberation of heat and light.

10. Both mercurous and mercuric salts enter into double decomposition with potassium iodide, and a soluble iodide of mercury is produced.

11. The most *common sources of lead poisoning* are the following: "The contamination of drinking water from lead pipes. Contamination of articles of food or drugs by contact with leaden vessels, or from being enclosed in tinfoil containing an excess of lead. Drinking beer, cider, etc., which has been drawn through leaden pipes or allowed to stand in pewter vessels. The ingestion or constant handling of lead or its compounds, as the acetate, nitrate, carbonate (white lead—painter's colic), Goulard's extract, etc. The use of hair dyes containing lead."—(Witthaus' *Essentials of Chemistry.*) The *treatment* is first to remove the cause; then administer a purge of jalap and calomel combined with opium; iodide of potassium should also be given to help in the elimination of the lead.

12. *Ptomains* are basic, nitrogenous compounds, produced from protein material by the bacteria which cause putrefaction. They are found in protein foods which have partly undergone decomposition. *Ptomain poisoning. Symptoms:* Chilliness, headache, vertigo, muscular twitchings, hallucinations, imperfect vision, weak and rapid pulse, nausea, vomiting, diarrhea, cyanosis, early dyspnea, often subnormal temperature, and occasionally cutaneous eruptions. The prognosis is guardedly favorable. *Treatment* consists in the use of emetics and cathartics, of lavage and rectal irrigation. Morphine may be indicated for the relief of pain, and collapse is to be combatted by atropine, strychnine, nitroglycerin, external heat, whiskey, etc. After thorough purging, salol, naphthol, or bismuth may be given.

MATERIA MEDICA AND THERAPEUTICS.

1. *Analgesic* is an agent which relieves pain by blunting sensation; as opium. *Anesthetic* is an agent which destroys sensation for a period of time; as ether. *Hypnotic* is an agent used to induce sleep somewhat resembling natural sleep: as chloral.

2. *Atropine* (*a*) dilates the pupil and causes disordered vision; it stimulates the end organ of the sympathetic, and paralyzes those of the motor oculi nerve. (*b*) It increases the rate (but not the force) of the heart by depressing the vagus. (*c*) Intestinal peristalsis is increased by its action on the splanchnic nerves. (*d*) The skin is flushed and rendered dry by its paralyzing action on the nerve endings in the sweat glands.

3. *Anthelmintics* are agents which kill or expel worms. *Examples:* Oleoresina aspidii, gr. xxx; Pelletièrine tannate, gr. x; santonin, gr. j; pumpkin (pepo) seeds, ʒj.

4. Bromide of potassium, of sodium, of lithium, of ammonium, of calcium. *Physiological action:* Depressants of circulatory and nervous systems; hypnotic, analgesic; muscular depressant; lower arterial tension and body temperature; anaphrodisiac.

5. (*a*) *Mydriatic,* Atropine; (*b*) *Expectorant,* Ipecac; (*c*) *Anodyne,* Opium; (*d*) *Escharotic,* Silver nitrate; (*e*) *Styptic,* Alum.

6. (*a*) On the *brain,* alcohol first acts as a stimulant; the nerve centers, imaginations, feelings, intellect are all exalted; the centers of speech and muscular movements are stimulated; afterwards they may be depressed. (*b*) On the *heart,* alcohol causes increase in the force and frequency, dilatation of the peripheral blood-vessels. (*c*) On the *kidneys,* alcohol acts as a diuretic.

7. (1) *Alcohal* lowers body temperature by diminishing tissue change, and also by dilating the cutaneous vessels, thus increasing heat radiation. (2) *Aconite,* by reducing the circulation. (3) *Acetanilid,* by diminishing tissue change, and also by promoting perspiration.

8. ICHTHYOL. *Source:* A quartz containing the fossilized remains of fish. *Therapeutic uses:* Skin diseases (eczema and psoriasis), to remove inflammatory processes and their products. ADEPS LANÆ. *Source:* Sheep's wool. *Therapeutic uses:* As a basis for ointments, in various skin diseases, chaps, burns, frostbites, and as a vehicle for morphine and other anodynes.

9. (*a*) *Opium* is a sedative to the intestine, secretions are dried, pain is relieved or prevented, peristalsis is slowed or arrested. (*b*) *Thymol* is an intestinal antiseptic, and an anthelminthic in ankylostomiasis. (*c*) *Bismuth subnitrate* is sedative and astringent.

10. Saline purgatives cause a great increase in the amount of fluid secreted by the intestinal glands; they also hinder the reabsorption of this fluid. The result is an accumulation of fluid in the intestine, which, by distention, excites peristalsis.

11. An *alkaloid* is an organic nitrogenized substance, alkaline in reaction, and capable of reacting with an acid in the same way that ammonia does. Example, strychnine. A *tincture* is an alcoholic solution of a non-volatile medicinal substance. Example, tincture of aconite. A *fluidextract* is a solution of vegetable drug of such strength that 1 c.c. of the fluidextract represents one gram of the drug. Example, fluidextract of belladonna.

12. (*a*) *Strychnine,* as stimulant to cardiac, respiratory, nervous, or muscular system. Dose, gr. 1/64. (*b*) *Calomel,* in glandular inflammations of throat and neck, irritable stomach, diarrhea, dysentery, gastric ulcer. Dose, gr. x; but often best given in divided doses. (*c*) *Tincture of aconite,* in coryza, tonsillitis, fevers, pleurisy, meningitis, peritonitis, pneumonia, rheumatism. Dose, ♏v of the tincture; but divided doses are often better. (*d*) *Hyoscine* in mania, insomnia, hallucinations, delirium, whooping cough, irritability of the bladder, as a hydriatic. Dose, hyoscine hydrobromide, gr. 1/150. (*e*) *Potassium iodide* in tertiary syphilis, neuralgia, paralyses, mercurial poisoning, after pneumonia, pleurisy, or pericarditis, aneurysm, hay fever, tonsillitis, asthma. Dose, gr. vijss.

PATHOLOGY.

1. *Rise of temperature* is caused by: Disturbances in the thermogenetic, thermolytic, or thermotactic centers; excessive heat; toxic substances; infectious diseases.

2. *Hypertrophy* is an increase in the size, weight, and functional activity of a part beyond the limit of health, due to an orderly enlargement or multiplication of all its normal constituents. *Varieties:* (1) Simple, when only the size of the element is increased; (2) *Numerical,* when the number also is increased. *Causes:* (1) Excessive vital energy; (2) increased work; (3) increased blood supply; (4) diminished waste; (5) removal of resistance to growth.

Atrophy is decrease in the amount of a tissue, owing to diminution in size (simple atrophy) or number (numerical atrophy) of the histological elements of which it is composed. There is also loss of weight, and impairment of function. *Varieties:* Simple and numerical (see above); also general and local. *Couses:* (1) Deficient supply of nutrition; (2) excessive waste; (3) impaired vital activity;

(4) diminished functional activity; (5) pressure; (6) sometimes excessive functional activity.

3. In *necrosis* the tissue is dead; in *degeneration* its vitality remains, but is lowered, and the function may remain in an impaired state.

4. Trachoma is infectious, but the causal germ is not identified. There are follicles on the conjunctiva, which become granular masses and spread over the surface of the entire lid. Ulceration takes place, and the necrosed membrane is replaced by scar tissue.

5. See Rose and Carless' "Surgery" (1908), pages 98 and 102; or Da Costa's "Surgery" (1908), page 168.

6. See Rose and Carless' "Surgery" (1908), pages 472 and 481; or Da Costa's "Surgery" (1908), page 457.

7. See French's "Practice" (1907), pages 70 and 69; or Osler's "Practice" (1909), pages 65 and 60.

8. See French's "Practice" (1907), page 789; or Osler's "Practice" (1909), page 513.

9. *Cretinism* is a congenital condition, marked by mental hebetude and imbecility, imperfect development, and deformity of the whole body. It is said to be due to congenital absence or functional inactivity of the thyroid gland.

10. See Rose and Carless' "Surgery" (1908), page 30; or Da Costa's "Surgery" (1908), page 73.

PRACTICE OF MEDICINE.

1. See French's "Practice" (1907), pages 146 and 1035; or Osler's "Practice" (1909), pages 163 and 916.

2. See French's "Practice" (1907), page 932; or Osler's "Practice" (1909), page 426.

3.

ACUTE PARENCHYMATOUS NEPHRITIS.	CHRONIC PARENCHYMATOUS NEPHRITIS.	CHRONIC INTERSTITIAL NEPHRITIS.
1. Urine scanty, dark or smoky color, high specific gravity, 1025 or over.	1. Urine normal or increased amount; specific gravity may fall to 1010; urine pale.	1. Urine greatly increased; specific gravity low, 1005; urine pale in color.
2. Large amount of albumin.	2. Late in attack, greatly diminished; occasionally absent.	2. Albumin greatly diminished, often absent.
3. Variety of casts, such as hyaline, blood, epithelial, and waxy casts, also free red blood globules, and epithelial cells.	3. Large and small granular casts; compound granule cells, and fatty epithelium.	3. Hyaline or finely granular casts, occasionally dark in color; infrequently blood casts and oil droplets.
4. Urea diminished.	4. Urea diminished.	4. Urea diminished.

4. Typhoid fever is distinguished from appendicitis by its (typhoid's) more gradual onset, characteristic temperature record, diarrhea, enlargement of the spleen, rose-colored rash, and boidal reaction.

5. Typhoid, malaria, cerebrospinal meningitis, diphtheria, gonorrhea, anemias, leukemias, nephritis, Hodgkin's disease, tuberculosis, empyema, filariasis, anthrax, hydrophobia, syphilis, leprosy.

6. There are two normal heart sounds which follow in quick succession, and are succeeded by a pause. The first, or systolic, sound is dull and somewhat prolonged; the second, or diastolic, sound is sharper and shorter. The sounds may be expressed by the syllables *lubb—dup*. The first sound is heard best at the apex beat in the fifth left intercostal space; the second sound is heard best over the second right costal cartilage. The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) the vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall. The *second* sound is caused by the vibration due to the closure of the semilunar valves.

7.

	GLAUCOMA.	IRITIS.
Age	Over forty.	Any.
Tension	Plus.	Normal.
Congestion	General, especially scleral.	General, especially circumcorneal.
Cornea	Cloudy and steamy surface.	Cloudy.
Anterior chamber.	Shallow.	Unchanged.
Pupil	Dilated, oval.	Contracted, synechiæ.
Pain	Severe, continuous.	Especially at night.
Vision	Much reduced.	Somewhat reduced.
Treatment	Eserine, pilocarpine, iridectomy.	Atropine.

Treatment of glaucoma: Myotics, such as eserine or pilocarpine; massage of the eyeball; mydriatics are contraindicated; operative treatment may include paracentesis, iridectomy, or sclerotomy.

Treatment of iritis: Atropine, dionine, the application of leeches to the temples, hot fomentations, absolute rest in bed, protection from the light, light diet, purgatives, abstinence from alcohol, avoidance of all use of the eyes for near work, constitutional treatment varying according to the etiology, paracentesis, and iridectomy.

8.

	WOMAN'S MILK. *Average Per Cent.*	COW'S MILK. *Average Per Cent.*
Fat	4.00	4.00
Sugar	7.00	4.50
Proteids	1.50	3.50
Salts	0.20	0.75
Water	87.30	87.25
	100.00	100.00

To make cow's milk resemble human milk: The cow's milk must be diluted and sugar of milk must be added. These modifications must be made in such proportions as to bring the percentage composition of the two milks as near alike as possible.

9. See French's "Practice" (1907), page 843; or Osler's "Practice" (1909), page 543.

10. See French's "Practice" (1907), page 707; or Osler's "Practice" (1909), page 434.

OBSTETRICS.

1. *Positive signs of pregnancy:* (1) Hearing the fetal heart sound; (2) active movement of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) the umbilical or funic souffle. *Doubtful signs of pregnancy:* (1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness. *Subjective signs of pregnancy,* in the order of their appearance, are: Cessation of menstruation, morning sickness, increased frequency of urination, active fetal movements. *Objective signs of pregnancy,* in the order of their appearance, are: Softening of the cervix, changes in the mammary glands, discoloration of the vulva and vagina, pulsation in the vaginal vault, Hegar's sign, active fetal movements, ballottement, palpation of the fetus, intermittent uterine contractions, hearing the fetal heartbeat, rate of growth of the uterine tumor.

2. See Williams' "Obstetrics" (1909), page 290; or Hirst's "Obstetrics" (1909), page 425.

3. The foramen ovale closes any time between the first week and the sixth month of extrauterine life.

4. See Williams' "Obstetrics" (1909), page 480; or Hirst's "Obstetrics" (1909), page 215.

5. *The varieties of ectopic pregnancy* are: Interstitial, tubal, ovarian, and abdominal.

6. Prolapsis uteri. *Definition:* A condition in which the uterus sinks below its normal level, but does not protrude through the vagina. *Pathology:* "Decrease in the power of uterine support. Distention and eversion of the vagina with decrease in the power of its sphincter and thickening of its epithelium. The uterus is enlarged from impairment of its circulation, its cavity is increased in size, and hyperplasia of its areolar tissue may result. The endometrium becomes thickened, congested, and inflamed. Ectropion may occur. Varicose degeneration of the vessels of the cervix may take place with consequent absorption of its proper tissue; ulceration may also occur. Pelvic congestion from compression of the hypogastric veins. Tension on the broad ligaments may produce obstruction of ureters and hydronephrosis. Occasionally, epithelioma from continued irritation of the cervix. Varicocele of the pampiniform plexus from torsion of the broad ligaments. When cystocele is present, complete evacuation of the bladder cannot be obtained, and the result is dysuria, ardor urinæ, and cystitis or retention of urine."

Etiology: Injury at childbirth, lacerated perineum, re-

laxation and elongation of the ligaments of the uterus, loss of rigidity of the abdominal walls, increase in the weight of the uterus, subinvolution, increased intraabdominal pressure. *Treatment:* "Operative, unless some contraindication to operation exists. In such a case some *mechanic device* should be tried for the support of the uterus. Pessaries are not to be recommended, as their constant use leads to irritation and excoriation of the vaginal walls. Probably the best means for supporting the uterus is by Braun's colpeurynter. This is worn only during the day, and can be introduced by the patient herself every morning. The uterus is replaced and the colpeurynter well anointed with carbolized vaseline and containing about an ounce of water, is introduced into the vagina. It is then distended with air, thus making an even pressure on the vaginal walls and not causing ulcerations. *Operative treatment* gives the most satisfactory results in prolapse. In slight cases of prolapse repair of the perineum will effect a cure. The severer grades will require, in addition, some operation on the anterior vagina. The best of these is Martin's operation for cystocele. If the cervix is hypertrophied it should be amputated. Three operations—on the perineum, for cystocele, and amputation of the cervix—are required in the usual case of prolapse. In addition, hystrorrhaphy may be advisable, since there can be no prolapse so long as the uterus maintains its normal position of anteflexion. These operations failing, hysterectomy may be performed."

7. Pruritus vulvæ may be *caused by:* Parasites; diseases of the vulva, as inflammation, edema, vegetations, congestion, irritating discharges, lack of cleanliness, diabetic urine; it may also be of nervous origin, or idiopathic. *Treatment* consists in removing the cause, if possible; cleanliness, fresh air, tonics, and general attention to hygiene; local applications of solution of bichloride of mercury, 1:2,000; or carbolic acid, 1:100; or lead and opium; dusting powders of bismuth subnitrate, calomel, or zinc oxide are also useful.

8. *Menarrhagia* is an excessive loss of blood at the menstrual periods. *Metrarrhagia* is a hemorrhage from the uterus at other than the menstrual periods. It is very often impossible to differentiate the two conditions. *Treatment:* Remove the cause, if possible; treat abnormal conditions that are present; vaginal douches, tampons, and curettage have been recommended; also ergot, hamamelis, hydrastis, and viburnum prunifolium; rest in bed is necessary. Intrauterine applications of astringents or of adrenalin have been used.

9. *Vaginitis* is a condition of inflammation of the vagina. It is characterized by redness, swelling, pain, heat, irritation, and increased secretion. There may be frequent and painful urination. *Treatment* consists in rest, cleanliness, douches, the application of soothing lotions, and removal of any cause; salines and anodynes are also indicated. *Vaginismus* is a condition of painful and spasmodic contraction of the vaginal orifice, which renders coitus either painful or altogether impossible. The slightest touch causes painful spasms, and examination may be impossible without an anesthetic. The *treatment* consists in removing the cause when possible, tonics and general constitutional treatment, dilatation of the vaginal orifice; local application of a 5 per cent. solution of cocaine will relieve the hyperesthesia and allow coitus. The condition is sometimes incurable.

10. Subinvolution. *Etiology:* Lacerations of the cervix; absorption of septic products; mismanagement of the convalescent stage of the puerperium, chiefly too early rising; tedious labors; misplacement of the uterus; retained clots or membranes; tumors of the uterus. *Treatment:* Rest in bed, hot intrauterine and vaginal douches, correction of constipation, abstention from sexual intercourse, tonics, correction of displacement, curettage. An abdominal binder may be worn.

SURGERY.

1. *Septicemia* is an acute general infection arising from the presence of pyogenic microorganisms in the blood. *Causes: Streptococcus pyogenes* or other pus-producing bacteria which spread from a primary focus through the lymphatics or by an eroded vessel into the blood current.

2. *Ankylosis may be averted* by: Limiting the effusion or inflammatory exudate; by early passive movement to prevent the union of synovial surfaces; by massage; by removal of loose cartilages and hypertrophied synovial fringes.

3. *To arrest epistaxis:* (1) Try to cauterize the bleeding point; (2) plug the nasal cavity with gauze soaked in adrenalin; (3) inject into the nares a solution of peroxide of hydrogen; (4) plugging the nares, anteriorly and posteriorly; (5) an inflating plug may be used.

4. Rose and Carless' "Surgery" (1908), page 617.

5. Rose and Carless' "Surgery" (1908), page 634; or Da Costa's "Surgery" (1908), page 604.

6. Rose and Carless' "Surgery" (1908), page 751; or Da Costa's "Surgery" (1908), page 708.

7. *Wounds are classified* as:

I. Contused and open wounds.

II. Open wounds may be: Incised, lacerated, contused, punctured, gunshot, or poisoned; also penetrating and perforating.

III. Aseptic and septic.

8. Rose and Carless' "Surgery" (1908), page 984.

9. *Indications for removal of mammary gland:* Enormous hypertrophy, Paget's disease of the nipple, epithelioma of the nipple, carcinoma, sarcoma, cystic adenoma, diffuse tubercular or septic disease if breast is riddled with sinuses.

10. *Chief surgical diseases of the groin* are: Hernia (inguinal, femoral, or obturator), aneurysms, tumors, cysts, ulcers, sinuses, abscesses, enlarged glands, undescended testicle, prolapsed ovary.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	June —
Arizona*	Ancil Martin, Phoenix	Phoenix	April 4
Arkansas	F. T. Murphy, Brinkley	Little Rock	May 10
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	April 5
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	April 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Mar. 8
Delaware	J. H. Wilson, Dover	Dover	June 21
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	April 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	April 4
Georgia	E. R. Anthony, Griffin	Atlanta	April —
Idaho*	W. F. Howard, Pocatello		April 5
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	July 12
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	F. P. Hatfield, Olathe	Topeka	June 14
Kentucky	J. N. McCormack, Bowling Green	Louisville	July —
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 17
Maine	F. W. Searle, Portland	Portland	Mar. 8
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 7
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Mar. 8
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 14
Minnesota	W. S. Fullerton, St. Paul	St. Paul	May 10
Mississippi	S. H. McLean, Jackson	Jackson	May 10
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	June 13
Montana*	Wm. C. Riddell, Helena	Helena	April 5
Nebraska	C. A. Carr, Lincoln	Lincoln	Aug. 3
Nevada	S. L. Lee, Carson City	Carson City	May 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	July 6
New Jersey	H. G. Norton, Trenton	Trenton	June 21
New Mexico	J. A. Massie, Santa Fe	Santa Fe	April 11
New York	C.F.Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	May 24
N. Carolina	B. K. Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	April 4
Ohio	Geo. H. Matson, Columbus	Columbus	June 14
Oklahoma*	F. P. Davis, Enid	Guthrie	April 12
Oregon	B. E. Miller, Portland	Portland	July 5
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	June —
Rhode Island*	G. T Swarts, Providence	Providence	April 7
S. Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown	July 13
Tennessee	C. A. Abernathy, Pulaski	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Austin	June 28
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	April 4
Vermont	W. Scott Nay, Underhill	Burlington	July 12
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	T. C. McFadden, Seattle	Spokane	July 5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	April 12
Wisconsin	J. M. Beffel, Milwaukee	Madison	July 12
Wyoming	S. B. Miller, Laramie	Cheyenne	

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Pennsylvania.—Of 71 applicants for license to practise medicine in the State of Pennsylvania examined December 28, 65 were successful. The necessary average, beginning with 1910, will be 70 per cent., instead of 60 per cent., as heretofore.

Texas.—Reciprocity with Arkansas has been arranged on the following basis: Arkansas is to accept Texas practitioners licensed by written examination since July 12, 1907; and Texas to accept those from Arkansas licensed in like manner since August 6, 1909.

Vermont.—After January 1, 1911, candidates will not be admitted to examination who have not received, as part of their medical education, instruction in simple refraction.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

RÖNTGENATLAS DER LUNGENTUBERKULOSE. Von Dr. OTTO ZIEGLER und Dr. PAUL KRAUSE. 8vo; cloth. Curt Kabitzsch (A. Stuber's Verlag), 1910.

JEJUNAL AND GASTROJEJUNAL ULCER. By HERBERT J. PATERSON, M.A., M.B., B.C. Cantab., F.R.C.S. Eng. 4to; cloth; 72 pages. John Bale, Sons & Danielson, Ltd., London, England.

SPONDYLOTHERAPY. By ALBERT ABRAMS, A.M., M.D. (Univ. of Heidelberg), F.R.M.S. 8vo; cloth; 400 pages; illustrated. The Philopolis Press, San Francisco, Cal.

EXPERIMENTAL PHYSIOLOGY. By ALCOCK and ELLISON. 8vo; cloth; 139 pages; illustrated; $1.50 net. P. Blakiston's Son & Co., Philadelphia, Pa.

MEDICAL CHEMISTRY. By ELIAS H. BARTLEY, B.S., M.D., Ph.G. 8vo; cloth; illustrated; 734 pages; $3 net. P. Blakiston's Son & Co., Philadelphia, Pa.

A COMPOUND OF HISTOLOGY. By HENRY ERDMANN RADASCH, M.S., M.D. 12mo; cloth; 350 pages; illustrated; $1 net. P. Blakiston's Son & Co., Philadelphia, Pa.

HEART DISEASE, BLOOD PRESSURE, AND THE NAUHEIM-SCHOTT TREATMENT. By LOUIS FAUGERES BISHOP, A.M., M.D. 8vo; cloth; 284 pages; illustrated; $3; E. B. Treat & Co., New York.

EXAMINATION OF THE URINE. By G. A. DE SANTOS SAXE, M.D. 12mo; cloth; 448 pages; illustrated; $1.75 net. W. B. Saunders Co., Philadelphia, Pa.

VITAL ECONOMY. By JOHN H. CLARKE, M. D. 12mo; cloth; 119 pages; 50c. net. Newold Publishing Co., New York.

A TEXTBOOK OF NERVOUS DISEASES. By TURNER and STEWART. 8vo; cloth; 607 pages; illustrated; $6.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

MAMMALIAN ANATOMY, WITH SPECIAL REFERENCE TO THE CAT. By ALVIN DAVISON, Ph.D. 8vo; cloth; 246 pages; illustrated; $1.50 net. P. Blakiston's Son & Co., Philadelphia.

MEDICAL DIAGNOSIS. By CHARLES LYMAN GREENE, M.D., St. Paul. 12mo; leather; 725 pages; illustrated; $3.50 net. P. Blakiston's Son & Co., Philadelphia.

URGENT SURGERY. By FÉLIX LEJARS. 4to; cloth; 617 pages; illustrated; cloth $7.00 net, half mor. $8.00 net. Wm. Wood & Co., New York.

ARTHRITIS DEFORMANS. By R. LLEWELLYN JONES, M.D., Lond. 8vo; 365 pages; illustrated; $4.00 net. Wm. Wood & Co., New York.

THE CAMPAIGN AGAINST MICROBES. ÉTIENNE BURNET, M.D. 8vo; cloth; 248 pages; $2.25 net. Wm. Wood & Co., New York.

CLINICAL MEMORANDA FOR GENERAL PRACTITIONERS. By BRAND and KEITH. 12mo; cloth; 207 pages; $1.50 net. Wm. Wood & Co., New York.

THE OPEN-AIR TREATMENT. By F. RUFENACHT WALTERS, M.D., B.S. Lond., M.R.C.P., M.R.C.S. 12mo; cloth; 323 pages; illustrated; $2.25 net. Wm. Wood & Co., New York.

SURGICAL ANATOMY. By JOHN A. C. MACEWEN, B.Sc., in Anatomy and Physiology with Honours, M.B., C.M., with Honours. Cloth; 8vo; 478 pages; $3.00 net. Wm. Wood & Co., New York.

JAHRESKURSE FÜR ÄRZTLICHE FORTBILDUNG, IN ZWÖLF MONATSHEFTEN. 8vo; paper; 61 pages; M. 16. J. F. Lehmann, München, Germany.

SURGICAL ANÆSTHESIA. By H. BELLAMY GARDNER, M.R.C.S., L.R.C.P. Lond. 12mo; cloth; 240 pages; illustrated; $2.25 net. Wm. Wood & Co.

THE MORPHIA HABIT. By OSCAR JENNINGS, M.D. (Paris). 12mo; cloth; 492 pages; $2 net. Wm. Wood & Co., New York.

AFTER TREATMENT OF OPERATIONS. By P. LOCKHART, F.R.C.S. Eng., B.A., M.B., B.C. Cantab. 12mo; cloth; 251 pages; illustrated; $2.25 net. Wm. Wood & Co., New York.

ZEITUNGS KATALOG DER ANNONCEN-EXPEDITION. 4to; cloth; 400 pages. Beilage zum Zeitungs-Katalog. 4to; leather; 80 pages. Rudolf Mosse, Hamburg, Germany.

STATISTICA SANITARIA DELL' ARMATA. 4to; paper; 282 pages. Tipografia Ditta Ludovico Cecchini, Rome, Italy.

LE GLOBULIN DES MAMMIFÈRES. Par Le Docteur M. AYNAUD. 8vo; paper; 232 pages; illustrated. G. Steinheil, Paris, France.

Medical Items.

The Wassermann Reaction in Different Periods of Syphilis.—P. Minassian and O. Viana, after experiments on the application of the Wassermann reaction in sixty syphilitic patients, find that the reaction is much more often positive after the primary stage, being present in from 83 to 86 per cent. of cases in the secondary and tertiary stages of the disease, while positive in only about 25 per cent. of primary cases. Its presence is a positive evidence in favor of syphilis, while its absence does not demonstrate the absence of this infection. As antiagents the extract of syphilitic liver gives the most constant results. The syphilitic antibodies are found in the milk, amniotic fluid, pemphigus bullæ, and hydrocele of syphilitic patients. Mercurial treatment has little effect on the presence of the reaction. In non-syphilitic individuals the search for antibodies is always negative.—*Folia Ginecologia,* Vol. II., Part I, 1909.

The Artificial Nursling.—V. Wallich describes a new form of breast pump, in which there is a return current of air with each stroke of the aspirating piston, thus simulating the nursing of the infant. It is of use in cases of badly shaped nipples, cracks, lymphangitis, and abscess of the breast, in debility of the new-born, in diseases such as convulsions, and in hare-lip. The author has made practical use of this pump with success. The mother may use it herself by means of a stirrup which holds the pump in place and allows her to pump with one hand and hold the reservoir against the breast with the other. It allows of mixed feeding, mother's milk and cow's milk at the same time. A considerable amount of milk may be obtained in a few minutes without pain to the mother, and may be fed to the infant with a spoon or a bottle.—*Annales de Gynécologie et d'Obstetriques,*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 18, 1910:

		CASES	DEATHS.
CHOLERA.			
India, Rangoon	Dec. 26–Jan. 1..	.	9
Russia, general	Jan. 9–15.....	4	1
Baku	Jan. 9–15.....	1	..
Don, territory	Jan. 9–15.....	3	..
Moscow	Jan. 9–15.....	..	1
Java, Batavia	Dec. 26–Jan. 1..	4	1
Straits Settlements, Singapore	Jan. 2–8.....	..	1
Sumatra, Palembang	Sept. 20–Oct. 20.	*a*936	675
YELLOW FEVER.			
Brazil, Manaos	Jan. 2–15.....	..	9
Para	Jan. 16–22.....	5	5
Ecuador, Babahoyo	Jan. 1–15.....	3	..
Guayaquil	Jan. 1–15.....	15	3
PLAGUE.			
Brazil, Bahia	Dec. 26–31.....	4	2
Pernambuco	Dec. 1–15.....	..	3
Ecuador, Guayaquil	Jan. 1–15.....	34	17
Milagro	Jan. 1–15.....	4	1
Egypt, Provinces—Assiout	Jan. 7–13.....	1	..
Beni Souef	Jan. 14–20.....	..	2
Galioobeh	Jan. 11–17.....	2	1
Fayoum	Jan. 20.....	1	..
Japan, Kobe	Jan. 2–8.....	1	1
Straits Settlements, Singapore	Dec. 25–Jan. 1..	2	2
Turkey in Asia, Jiddah	Jan. 19–23.....	1	..
SMALLPOX.			
Brazil, Bahia	Dec. 26–31.....	18	12
Pernambuco	Dec. 1–15.....	..	27
China, Canton	Dec. 26–Jan. 1..	5	..
Shanghai	Dec. 26–Jan. 1..	..	1
Ecuador, Guayaquil	Jan. 1–15.....	2	..
Egypt, general	Dec. 25–31.....	66	12
Cairo	Jan. 8–21.....	2	2
Great Britain, Nottingham	Jan. 16–22.....	1	..
India, Bombay	Jan. 5–11.....	..	8
Karachi	Jan. 2–8.....	2	..
Madras	Jan. 1–7.....	..	1
Rangoon	Dec. 26–Jan. 1..	..	3
Italy, Naples	Jan. 10–23.....	38	4
Batavia, Java	Dec. 26–Jan. 1..	4	1
Mexico, Chihuahua	Jan. 24–30.....	1	..
Russia, St. Petersburg	Jan. 2–15.....	88	12
Warsaw	Nov. 16–20.....	21	..
Spain, Barcelona	Jan. 18–24.....	..	1
Huelva	Dec. 1–31.....	..	6
Valencia	Jan. 23–29.....	1	..

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Original Articles.

SOME PHASES OF THE EVOLUTION OF MODERN PREVENTIVE MEDICINE, AS ILLUSTRATED BY THE PRESENT CAMPAIGN AGAINST TUBERCULOSIS.*

BY GERMAN SIMS WOODHEAD, M.A. (Cantab.), M.D. (Edin.), LL.D., (Toronto).

PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF CAMBRIDGE, ENGLAND.

WHAT a change has come over our conception of tuberculosis within quite recent years! During the last few days a keen controversy has been raging over a matter that some years ago appeared to be definitely settled—the amount and importance of the infection of the human subject by the tubercle bacillus of bovine origin. That tuberculosis can be transmitted from the bovine to the human subject had been very generally accepted. Following Koch in his original investigations, Baumgarten, Straus, Watson Cheyne, Klein, Bang, and others, most investigators had accepted the tubercle bacillus, whether met with in man or the lower animals, as the prime causal agent in the production of tuberculosis in these various species. Indeed, the matter appeared to be finally settled when Smith, Dinwiddie, and Frothingham first threw doubts on the unity of the virus. Their attitude in this matter was soon more than confirmed by Koch, who, working with Schutz, came to a conclusion which he announced in the following words: "Considering all these facts, I feel justified in maintaining that human tuberculosis differs from bovine, and cannot be transmitted to cattle. It seems to me very desirable, however, that these experiments should be repated elsewhere, in order that all doubt as to the correctness of my assertion may be removed," and "though the important question whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, and will not admit of absolute decision to-day or to-morrow, one is nevertheless already at liberty to say that, if such a susceptibility really exists the infection of the human being is but a very rare occurrence. I should estimate the extent of infection by the milk and flesh of tuberculous cattle, and the butter made of their milk, as hardly greater than that of hereditary transmission, and I therefore do not deem it advisable to take any measures against it."

After indicating that if it were possible to find a considerable number of cases of primary tuberculosis of the intestine which might reasonably be ascribed to infection by a bacillus of bovine origin, he gave some figures which, if corroborated by other observers, would lend very great support to his thesis that bovine tuberculosis is practically a negligible quantity as regards the infection of the human subject. He says, "but such cases"—of so-called primary tuberculosis of the intestine—"are extremely rare. Among many cases of tuberculosis examined after death, I myself remember having seen primary tuberculosis of the intestine only twice. Among the great post-mortem material of the Charité Hospital in Berlin ten cases of primary tuberculosis of the intestine occurred in five years. Among 933 cases of tuberculosis in children at the Emperor and Empress Frederick's Hospital for Children, Baginsky never found tuberculosis of the intestine without simultaneous disease of the lungs and the bronchial glands. Among 3,104 post-mortems of tuberculous children Biedert observed only sixteen cases of primary tuberculosis of the intestine."

More than twenty years ago I published the results of a series of examinations of cases of tuberculosis in children. I had the opportunity of making post-mortem examinations of 127 such cases that had died in the wards of the Royal Edinburgh Hospital for Sick Children. Among these I found 43 in which there was tuberculous ulceration of the intestine. Only one had succumbed during the first year after birth; 14 died within two and a half years after birth; 10 between three and five years; 7 between six and seven and a half years; 5 between eight and ten years, and 6 between eleven and fifteen years. Although there was such tuberculous ulceration in 43 cases only, there was distinct tuberculous affection of the mesenteric glands in no fewer than 100, or in nearly 79 per cent. of the whole. It struck me as significant that these tuberculous glands were found in a very large proportion of those who succumbed to disease after the first year of life. During the first year of life there were 4 cases only; from one to two and a half years, 33; from three to five and a half years, 29; from six to seven and a half years, 12; from eight to ten years, 13, and from eleven to fifteen years, 9. In fourteen of these cases the mesenteric glands only were affected, *i.e.* no tubercle was found in any other part of the body. Moreover, more than half of them in which no other tuberculous lesion was found were patients who had succumbed between the ages of two and five and a half years. Since these figures were published Still, Shennan, and the Royal Commissions on Tuberculosis in England and in Germany have given out similar statistics, similar in so far, at any rate, that in the main they agree with those I have given. Bearing on this point Dr. Still found that of the cases of tuberculosis that came to the post-mortem table in the Hospital for Sick Children, Great Ormond street, London, 29.1 per cent. of the cases presented evidence of primary infection having taken place through the intestine. Dr.

*The Wesley M. Carpenter lecture, delivered before The New York Academy of Medicine, October 8, 1908.

Shennan, who continued my own investigation, estimated that 28.1 per cent. of the cases of tuberculosis among children in the Royal Edinburgh Hospital for Children are due to alimentary infection.

I mention my own figures simply because they constitute the factor that influenced my early work and possibly have even biased some of my later conclusions. They afford evidence, however, collected long before (and therefore having no calculated bearing on the point then raised) Dr. Koch gave his London address, that primary tuberculosis mesenteric glands were in the years 1875-1887, in Scotland at any rate, considerably more numerous than apparently they were in Germany at a somewhat later period, when special search was made for them.

Principal McFadyean, following Dr. Koch, commenting on the figures given by Still and Shennan, held that "there does not appear to be any ground for supposing that there is a large marginal error in these statistics, as the number of cases dealt with was considerable, 547 in the two series. In face of these statistics it is not possible to assent to the statement that cases of primary tuberculosis of the alimentary canal are extremely rare. Precisely the contrary conclusion is the one that must in the meanwhile be drawn with regard to the state of affairs in this country, viz., that at least in children primary infection is by way of the alimentary canal."

Lord Lister clinched the matter from the practical point of view when he stated "that which has, perhaps, most riveted the attention of us all has been the startling thesis that bovine tuberculosis is incapable of development in man. This is a matter of the most enormous importance. On the one hand, if this conclusion is correct, our means of prevention of tuberculosis will be greatly simplified. On the other hand, it would be a very serious and very grievous matter if the endeavors that are being made to provide purity of milk supply should be relaxed, and then, after all, it should turn out that the conclusion was not altogether correct."

As bearing on the question of "specificity or modification," Lord Lister quoted the example of the extreme difficulty of inoculating smallpox in the calf. Isolated successes had been recorded, but "the failures so greatly preponderated that pathologists of the highest eminence came to the conclusion that smallpox and cowpox were totally distinct diseases. It has now been shown that this was an entire mistake." Quoting Dr. Monckton Copeman, he pointed out that, although it is impossible to inoculate smallpox from man into a calf, this can infallibly be done from man to the monkey and then from the pustule in the monkey to the calf in which a typical cowpox pustule is then invariably produced; from this a genuine cowpox vaccination for the protection and prevention of smallpox in the human subject may be carried out. A virus which is practically incapable of direct inoculation from man into a certain other species, becomes so altered in its properties by passage through a third species of animal that it will grow readily in that in which it could previously develop only with great difficulty," and when so modified can be transferred back to man with the utmost facility. Therefore this matter is one that requires its own special demonstration. It does not at all follow, because human tuberculosis will not develop in the cow, that therefore bovine tuberculosis may not develop in man."

These observations brought forward, and the discussion that followed, were deemed to be so important that men in all countries took up the matter. You in America were first in the field, but we in England and our friends in Germany pressed hard on your heels and went into the questions raised with both method and enthusiasm. Our Royal Commission was formed and from the moment that the commissioners were called together the work of inquiry has continued without a single intermission.

As you will readily understand, the members of the British Royal Commission have, without exception, always assumed that any work coming from Koch's laboratory deserves and must receive the most careful consideration and that any suggestions he may make, or indication he may throw out, must be most judicially weighed. Moreover, we accept it that as regards actual observations, he is quite as, perhaps even more, likely to be right than any single one of us. Further, we are all agreed that we must have unexceptionable evidence of the accuracy of our observations before we can be thoroughly satisfied as to their correctness should they run counter to what has been published by Koch and his pupils. We are now satisfied that Koch has materially underestimated the danger of bovine sources of tuberculous infection. A number of new problems have, however, been brought up for solution, problems which must have come to the front, even had not the discovery of the tubercle bacillus rendered them imminent.

May I now be allowed to make a very brief statement as to what has been reported by the British Royal Commission on Tuberculosis? First, it has brought out the fact that 50 milligrams of any culture of the *Bacillus tuberculosis* from bovine sources always produces a fatal generalized progressive tuberculosis and almost invariably proves fatal within ninety days (eighteen out of twenty experiments); that a dose of 10 milligrams was also fatal in the case of many of these viruses, but in one case there was merely a minimal infection. It is important to bear this one case in mind. Using an emulsion of tissue containing the type of bacillus coming from the bovine source, there was a minimal infection in one case, but in one case only, while in all the others, an acute and fatal tuberculosis resulted. Moreover, when injected into rabbits this type of bacillus produced a generalized tuberculosis in whatever dose it was exhibited. Chimpanzees proved highly susceptible to its action, whether the infection was made by inoculation or by ingestion. Other monkeys, pigs, and goats succumbed with equal certainty to the attacks of these bacilli.

The typical bacilli from human sources the commissioners divide into two groups: Group 1, containing bacilli which have the same cultural characters as the bacillus of the bovine type. This type of organism was found in, and examined from, fourteen different sources. Of these, however, it may be well to consider thirteen only as in Washington. Professor Koch objected to one of them on the ground that the sputum might have been contaminated through milk or butter taken by the patient. We know that all possible precautions were taken to prevent any contamination through

milk and that an attempt was made to eliminate the possibility of the entrance of the bacillus of bovine type along with butter. The inclusion of this case, however, is unnecessary for our argument and it may be eliminated at once from our statistics. Of these remaining thirteen cases, ten were associated with abdominal tuberculosis, and three with tuberculous cervical glands. In three of the ten abdominal cases it was found that the bacilli present in the lungs and cerebral meninges were of the same type and were as virulent as those separated from the mesenteric glands—that is, the remote lesions contained the typical "typus bovinus." These cases therefore may be said to be of the kind for which Professor Koch was searching in Germany. All the bacilli met with in this group, injected into, or ingested by, bovines, produce an acute tuberculosis. Similarly rabbits succumb when the infective material was introduced by either of the above channels and the organism is virulent for goats, pigs, monkeys, and chimpanzees. The dog is susceptible to this organism when it is introduced into the peritoneum. Rats inoculated react to it just as they do to the bacillus of bovine type, *i.e.* we have a wide distribution of the organism occurring without the production of any visible lesion. The virulence of this organism, though high, is not constant, and it, like the bacillus of the bovine type, is always found in the grades I, II, and III.*

In the second group of cases from human sources a bacillus of somewhat different character was isolated. This organism was found in forty cases examined. These forty cases were suffering from lesions varying greatly both in position and severity. in eleven of the cases there was pulmonary tuberculosis; in eight, abdominal tuberculosis; in eight others, joint tuberculosis; in six, the cervical glands were affected; in two, the bronchial glands; in one, the kidney; in another, the testicle; in another, the tuberculosis was generalized, while in two the lesions were unclassified. The bacillus from these cases differed somewhat in cultural characters from the type of bovine origin and also from the bacillus of Group I, also isolated from cases of human tuberculosis. It was more luxuriant in its growth, and, growing on potatoes, was often somewhat deeply pigmented. This bacillus, when injected in doses of 10 or even 50 milligrams, produces no general tuberculosis in calves. There is usually a lesion at the site of inoculation, very often surrounded by a firm, dense, capsule consisting of fibrous tissue and the tuberculous process seldom extends beyond the nearest lymphatic gland. In isolated cases there were a few scattered tubercles in the lungs and in the internal glands. In no case did death of a bovine animal result from the subcutaneous inoculation of cultures of this organism, and in the case of two viruses only was an emulsion productive of a progressive tuberculosis. In the rabbit the localization of the disease produced by the bacilli of this group is also usually well marked; this, however, is not constant, as in a few cases (four) an acute and generalized tuberculosis was produced in a certain proportion, about one-fourth of the rabbits injected. Although so slightly virulent for bovines and only slightly more so for rabbits, this organism, when fed or inoculated, is virulent for chimpanzees and other monkeys, and the lesions produced in these animals are in certain cases indistinguishable from those at first produced in rabbits and calves; later, however, they differ somewhat. In bovines and rabbits the lesions usually become retrogressive, while in the other animals the lesions are progressive and continue so until the death of the animal. It is interesting to notice that in dogs these viruses behave exactly as do bovine viruses. It should be observed that the organisms in each of these groups maintain a very remarkable stability as regards both morphological and cultural characters, even when passed through animals and after long and continuous cultivation.

I should here like to say a few words about Group III of the commission: A number of cases of tuberculosis of the human subject were found, the bacilli associated with which could not be fitted into either Group I or Group II, as above described. These are certainly not of the same type throughout, nor are they to be classified directly or under either one or other of above group headings, and, indeed, they have not sufficient in common to enable us to place them under one heading so that this "group" must be looked upon as simply a temporary "hold-all," into which are cast certain anomalous tubercle bacilli until we are able to study each individual more carefully. The one point of importance in connection with this "hotch-potch" is that we think we have some evidence that certain of the organisms contained therein may undergo some variation, not only in morphological characters, but in virulence, some of them appearing to be much less stable than are the bacilli classified in Groups I and II. This may come to be a matter of very considerable importance, but at present I must reserve any discussion on the matter, as the observations of the commission on this point are not yet completed.

The fact that Group I (*i.e.* the so-called typhus bovinus isolated from lesions in the human subject) has proved so large and important a group has to my mind far-reaching consequences. Dr. Eastwood has carried on certain experiments for our commission and has drawn up the classification above referred to of the various tubercle bacilli from bovine and human sources, grading the bacilli according to their growth on three media, broth, glycerin agar, and potato. These grades are by no means sharply defined; at certain points they gradually merge into each other. He insists, and, I think, insists very properly, that these grades are of service in so far that they enable him to indicate approximately the position of any particular strain by referring to it as belonging to a certain grade. Within each grade, he points out, there may be differences. The strains placed at the top of the grade growing less luxuriantly than those at the bottom.*

In the first grade are placed those tubercle bacilli which give a poor growth on the above three media. On broth the pellicle makes its appearance very slowly, is delicate, semitranslucent or slightly opaque and mottled with small, irregularly thickened areas, which are often white. The growth on glycerin agar is very slow, a thin grey haze on the surface being all that is to be seen at the end of five or six weeks. On potato the growth at the end of the same period consist usually only of a

*See Dr. Eastwood's classification given below.

*Dr. Cobbett and Dr. Stanley Griffith, two of the scientific investigators for the commission, also divide the strains they have examined into different grades, but their classification is scarcely so detailed as is that given by Dr. Eastwood.

few minute gray colonies or streaks. In this group are strains derived from seventeen cattle and from eight human beings—from the bronchial glands and spleen, from the knee-joint, and from lymphatic glands, mainly mesenteric, but some cervical. All of them are highly virulent.

In Grade II the bacilli grow better than those in Grade I, but the growth is still sparse. There is usually a thin growth, with a few thickened patches, which appears at a somewhat earlier period; it soon becomes moist and falls as a sediment to the bottom of the flask. On glycerin agar there is a small, grayish, moist, slightly raised growth, which, however, soon comes to a standstill. On potato the growth is sparse and nonpigmented, is apparent at a somewhat earlier period than in the case of Grade I and grows slightly more luxuriantly. In this group there are twelve strains of bacilli from bovine sources, three of them being the same as three of those found in Grade I. Five viruses from the mesenteric and cervical glands of the human subject were found in this group.

In Grade III the growth on all three media is somewhat more active both as regards time and amount, the pellicle is usually thicker throughout, the growth sinks and on both glycerin agar and potato there is a better growth and on the latter medium there may be slight pigmentation of the culture. Six strains of bovine origin were found in this group and eight of human origin, from the bronchial, cervical, or mesenteric glands, from the knee-joint and from the tuberculous tissue taken from cases of lupus. Cultures from strains in this grade correspond to certain cultures from the same strains found in Grades I and II.

In Grade IV the growth is still more vigorous and ultimately is much denser. It shows no tendency to become moist and to sediment in broth as do those in Grades II and III. On glycerin agar the growth becomes wrinkled, but does not become heaped up or warty. On potato the growth is certainly somewhat heaped up and is often slightly pigmented. In this group are found only two bacilli of bovine origin, while of human origin there are seventeen, some coming from the mesteric glands, some from the bronchial glands and spleen, some from the cervical glands, some from the lung, wrist and ankle-joint, the brain and its meninges.

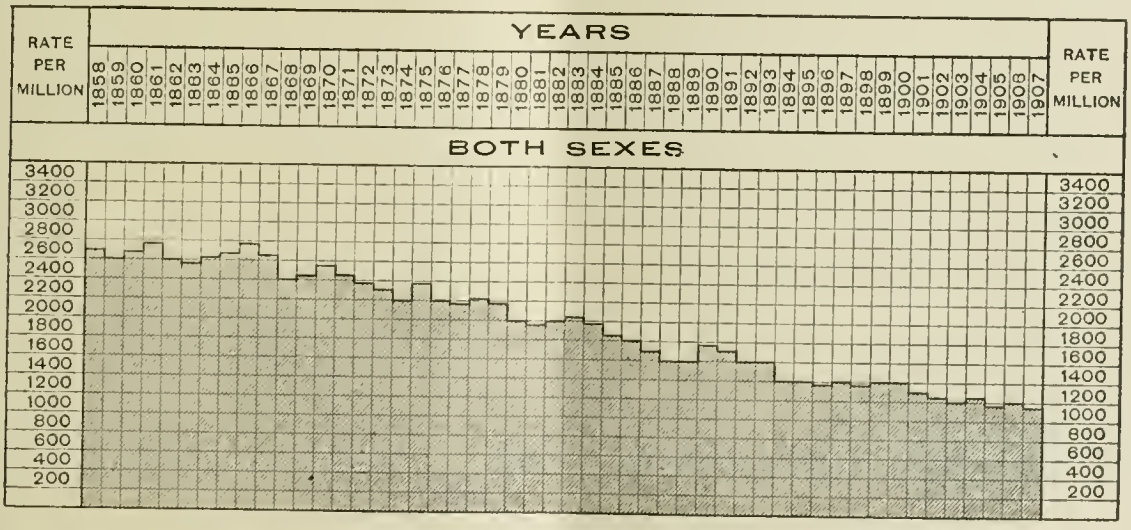
In Grade V. Dr. Eastwood puts all those growing luxuriantly on all three test media. On broth there is "rapid formation of thick, tough, wrinkled pellicle, with no tendency to sink. On glycerin agar, a layer which is usually both warty and wrinkled and denser than in Grade IV. On potato, rapid formation of a heaped-up, richly pigmented growth." In this group there are no tubercle bacilli of bovine origin, but we have twenty-five derived from human sources, from the tubercle of glands—mesenteric, cervical, axillary, and bronchial—and of joints, lung, liver, kidney, and testes.

It was found that the virulence of the strains in Grades I-III is markedly high, that of the strains in Grades IV and V very much lower and Dr. Eastwood came to the conclusion that, speaking generally, cultural character and virulence go together, the virulent bacillus, whether from bovine or from human source, growing less well on artificial media (other than serum) than those slightly virulent for cattle and rabbits. This parallelism, however, is by no means complete, as no gradation in virulence is found corresponding to the gradation which has been found in cultural characters, and many strains in Grade III have been found as highly virulent as the strains in Grade I, while going in the other direction many of the strains in Grade IV were as feebly virulent as were many of the least virulent in Grade V. Although, therefore, there is a very regular gradation as regards cultural characters, the transition in virulence is, on the whole, abrupt. The strains in Grade III vary very considerably as regards their cultural character, sometimes growing more abundantly, sometimes less, sometimes approaching Grade II, at others coming near Grade IV, and so on with other grades.

From these experiments it was gathered that, although a low vegetative activity on artificial and special test, culture media is associated with high virulence, and luxuriant growth of the bacillus on artificial media is associated with low virulence for cattle, and although many of the highly luxuriant growths coming from the human subject virulence for the bovine may be met with in all of the first four grades, but as the cultural luxuriance rises, it may be gradually, there appears to be a sudden drop in the virulence of the organism. Correlating all these facts the regular gradation of the cultural features, the general correspondence of virulence with a certain type of growth, but the marked departure from this correspondence in certain cases, and a certain amount of evidence of gradual transition as regards activity of growth and some though less evidence as to a more rapid transition of virulence, seem to point away from a division of tubercle bacilli into two hard and fast groups. I cannot here give the whole of the results obtained on this point; those who wish further information thereon might refer to Volume IV of the Appendix to the Second Interim Report of the Royal Commission on Tuberculosis.

In regard to the position taken up by Dr. Koch, a position no doubt the outcome of experience of tuberculosis in Germany, we consider then that we have obtained some evidence that mesenteric tubercle is the result of infection by tubercle bacilli contained in milk drawn from tuberculous cattle, and I, for one, am satisfied that I have seen such cases of infection which could be ascribed only to infection from bovine sources. As, however, this is a matter still under discussion it would not be advisable for me to say more than that further experiments have already been devised to test some of these points and that definite results appear to have been obtained in regard to some of them, and we hope that with the tremendous impetus that has been given to the question, in the first instance by Professor Koch, and again and again by him and those who have worked with him—and, if I may be allowed to say so, we are all working with him, even though we do not all agree with him on certain points—we may hope, from time to time, to gain fresh knowledge on this subject and ultimately base methods of prevision and treatment that may result in the stamping out of this disease. That such a hope is not extravagant and such an attainment outside the range of possibility or even probability may be gathered from a consideration of the tables given by the Registrar-General in his Seventeenth Annual Report of Births, Deaths, and Marriages in England and Wales in 1907, from which it will be seen that in England and Wales, owing to the various improvements in hygiene, in feeding, and in the general methods of life and treatment there

has been a steady and progressive fall in the death rate from the year 1858 down to the year 1907. Taking the period of forty years—1867-1906—, there has been a fall in the annual death rate per million living, at all ages, from 3,350 per million to 1,610 per million, a diminution of nearly 52 per cent. In fact were the same rate of fall to go on for another forty years, tuberculosis would have vanished from our midst, and, although this is not probable, we may hope that as a factor in the death rate of that period it may have become a comparatively unimportant, or almost negligible, quantity. In 1907 56,101 deaths were attributed to tuberculosis or "fewer, by 3,539, than the average number in the previous five years corrected for increase of population. Tuberculosis is therefore responsible for 10.7 per cent. of the mortality from all causes and for a death rate of 1,605 per million living, at all ages and of both sexes." Comparing this with the decennium, 1851-1860, we find that in that period the deaths from tuberculosis were in the proportion of 15.6 per cent. of the deaths from all causes, and corresponded to a rate of 3,457 per million of the mean population. It is interesting to note that the fall is much more marked in females than in males. In 1858, and for the next four or five years, the numbers were almost equal, about 3,300 per million, while in 1907 the rate per million had fallen to a little over 1,800 in males and a little over 1,400 in females. The phthisical cases during the same periods have fallen from about 2,620 to 1,175 in both sexes, and from 2,575 in males to 1,175 in 1907, and in females from 2,800 to about 930 in 1907 (see Chart).



Annual death-rate from phthisis, in England and Wales, per million at all ages.

What light may we throw on the subject of tuberculosis by a study of other diseases? In the case of pleuropneumonia contagiosa, we recognize at once that when we are allowed to isolate and slaughter infected animals, even those suspected to be suffering from the disease, we can make sure of stamping it out in time. Pleuropneumonia is not communicable to man, and few animals are affected by it as a "spontaneous" disease. Having a short incubation period and running a rapid course, it can be traced fairly rapidly to its source. If in the case of tuberculosis, even though the conditions are widely different in certain respects, we had only cattle to consider and the spread of tuberculosis to one another and the lower animals, we might hope, by adopting special methods of isolation, slaughtering and disinfection, to stamp out the disease though, no doubt, after a prolonged period of anxiety and suspense. We should have to remember that the disease, at first latent, might still be infective long before it becomes open and active, and that the infective material might have been disseminated all the more widely and surely because we were not able to recognize the disease with which it was associated.

Again, I understand that you in New York have been troubled, as have we, by a series of most incomprehensible outbreaks of typhoid fever. Quite recently it has been recognized that these are the result of infection by "typhoid carriers"—patients in whom the *Bacillus typhosus* has remained alive and active for years, multiplying at a great rate, and being discharged, perhaps at intervals, but over long periods—numbers of patients being infected as the result of coming into contact with these "carriers." How is it that these typhoid "carriers" have escaped detection for so long? Here we have an acute disease of which the incubation period is comparatively short, and where, therefore, the possibility of tracing infection should certainly be easy enough, but, as a matter of fact, these "carriers" have not been recognized until quite recently, though I must say that we now wonder what we have been doing with our eyes and other senses that we have not succeeded, long ere this, in tracing the connection of the "carriers" and the numerous mysterious outbreaks of typhoid fever. Now, if this holds good in the case of a disease in which cause is followed so quickly by manifest effect, is it to be wondered at that hitherto we have not been able to convince those (some of whom, perhaps, and not unnaturally, do not wish to be convinced) that tuberculosis in cattle is an infective disease, that this disease may remain latent for some time, and that even when we seem to have succeeded in getting rid of tuberculosis from a herd there may remain seeds or germs of infection in animals which, apparently healthy, may still act as "carriers." Moreover, knowing what we do of the tremendous infectivity of the typhoid bacillus for ordinary patients while on the immune patient it appears to have so little effect, who shall say that either cattle or human beings, though apparently only slightly affected may not be carriers of the infection of

tuberculosis primarily each to its own species, but perhaps, and even probably, in a lesser degree, to other species?

Let us consider the question from another point of view. In former days all cases of infective disease of whatever kind were placed indiscriminately in the general wards of the hospital. Then came a reaction, and all these cases were isolated and with most satisfactory results. Following this, however, came a second period of reaction, and we find in the medical wards of many of the hospitals of to-day that cases of enteric fever are there treated, often with the most satisfactory results. Does it follow from this that those who were isolated were overcareful? Certainly not. They were doing the best that was possible under the recognized conditions. When, however, the disease came to be better understood, the vehicles and channels of infection distinguished, and the means of prevention and disinfection determined, the trained nurse could be trusted to take adequate measures to prevent the carriage of infective material from one patient to another, and now we never have outbreaks of enteric fever in our wards. We still believe in the great infectivity of typhoid fever, and we relax none of our precautions against infection, but, having determined what precautions are necessary, we can carry them out all the more thoroughly because we are not hindered by unnecessary "top-hamper." We have determined that the great factor in the prevention of disease is the destruction of the infective material that comes from the patient, thus preventing it from gaining access to others. We have determined the channels by which this infective material leaves the primary patient. We have also traced the method of existence outside the body and, finally, have determined the channels and the vehicles by which the secondary patient is infected.

Leprosy, of all the diseases due to an infective agent (and for the present we will accept it that it is an infective disease), appears to be the most distinctly and definitely confined to the human subject. It is a disease, therefore, which should be most easily controlled by isolation. As Dr. Newsholme pointed out, the other evening, wherever segregation has been resorted to, leprosy has gradually disappeared, it being found necessary to take no other precautions in order to stamp it out. In countries in which no such measures have been adopted, leprosy continued rampant, but as soon as segregation was put into force (as in Norway), the number of cases began to diminish, and this diminution has gone on steadily down to the present time. Robin Island, off Capetown, one of the segregation camps for South Africa, has proved of enormous value to South Africa in collecting patients from centers of infection. Leprosy, no doubt, is less infective than tuberculosis, but its incubation period is probably considerably longer, tuberculosis, in this respect occupying an intermediate position between typhoid fever and leprosy. May we learn something from this as to our treatment of consumptive patients? I think we may.

Just one more example. If we study the history of rabies (hydrophobia), we find that here we have a case that may help us in planning our warfare against tuberculosis. Last year I wished to demonstrate to my class in Cambridge the Negri bodies in the central nervous system of a rabid dog. What was my astonishment but delight to find, after searching Great Britain high and low, that we hadn't a case of hydrophobia in the country. Finally I had to write to Dr. Anna Williams, asking her for some smear preparation and sections in which I might demonstrate these bodies. These she very kindly forwarded to me, and thereby laid me under a debt of gratitude, as I was thus enabled to show these organisms to my class. Some time ago, hydrophobia, or rabies, was as prevalent among the dogs of our island as it was in the United States. Mr. Walter Long, late president of our local government board—in spite of the great outcry from so-called humanitarians, and against the wishes of those who maintain that rabies in dogs was the result of high temperature, want of water, of irritation, of everything but an organism, but who maintained that to muzzle a dog was the surest way of giving hydrophobia—enforced a national muzzling order, with the result that in about three years rabies had disappeared and with it the need for any institute for the treatment of cases of hydrophobia in man, developed in Great Britain. We may safely say that had a single rabid dog been left among us it would probably have proved a center for another outbreak as soon as the conditions for the transmission and distribution of infective material again became favorable.

In the case of tuberculosis, as with rabies, we must, of course, take every possible precaution to prevent the transmission of infective material from man to man, but must we not at the same time make certain of getting rid of that comparatively small, but certainly not negligible, danger of infection of our child population having its source in tuberculosis of bovine origin. Many years ago Professor Osler demonstrated, in connection with the outbreak of smallpox in Montreal, that a small unvaccinated remnant may keep smallpox alive for a considerable time, this remnant proving a center from which the disease may spread along all favorable channels. It serves as a center of infection and necessarily, therefore, a source of danger, even to the vaccinated, of whom a small percentage may not be absolutely protected, against a large dose of the infective virus. I maintain, therefore, and in this I fancy I am now on the side of the majority of those who have investigated this subject, that tuberculosis of the bovine, even though it may account for but 5 per cent. of the cases of tuberculosis in the human subject, should be more vigorously attacked and strenuously harried. It is the more important that we should undertake this in that in some ways there are fewer obstacles to its elimination than in the case of tuberculosis transmissible from the human subject, and, in any case, if this type of the disease can be eliminated from the children of the nations there will be so many fewer centers of infection and some, at least, of these children will grow up stronger and healthier, and better able than they are at present to stand the attack of other forms of disease.

For the last week or ten days we have all heard much of different methods of fighting the white plague. We have listened to the discussion of many able papers, strong statements have been made and, if some of these statements are true, others will have to be taken with considerable reserve. We have been assured by one set of workers that all we need do to stamp out tuberculosis is to obtain careful isolation; by others that the real panaceas are fresh air, ventilation and good food. By some our public buildings, our streets, our milk, our but-

ter are placed under a ban; and who shall say that these propagandists have not right on their side as, under certain circumstances, we know that the tubercle bacillus may lurk in many or all of these. While acknowledging the importance of these details, and certainly in the long run we must attend to them, would it not be well to lay down certain general principles and then try to put these principles into practice, varying them only according to the necessity of individual cases? We are surely come to that stage of knowledge at which it is necessary to insist that tuberculosis is an infective disease and that, without the presence and aid of the tubercle bacillus there can be no tuberculosis. Has not the time come for us to lay under a ban such phrases as the "so-called infectivity of phthisis," "what some describe as the main etiological factor in tuberculosis," and the like? Whatever part the resistance of the tissues of the individual may play in warding off phthisis there can now be no doubt that we may accept with confidence the dictum, "no tubercle bacillus, no tubercle." That being accepted, I maintain that wherever we find the tubercle bacillus, whether you can prove its virulence at the time you find it or not, you must treat it as though it were then and there capable of acting as a virulent infective agent. At present there can be equally little doubt that we have tubercle bacilli, different strains of which vary enormously in their virulence. Some of us think that we have evidence of the variation of the virulence, even in the same strain when placed under artificial conditions. We are not, however, at present acquainted with the conditions under which modifications of virulence go on. These modifications may take place in the host, and, though they may extend over a very long period, there seems to be a possibility that an organism may gradually acquire increased virulence, even in the same host, as in the case of plague, and we should as soon think of failing to take steps to eliminate nonmalignant plague as we should think of placing children side by side with mild cases of scarlet fever, diphtheria, or smallpox. We know that the nonvirulent tubercle bacilli may, in the first instance, produce but a local lesion but we never know when the resistance of the tissues may be so lowered that they will allow of their general invasion even by this apparently not very virulent tubercle bacillus.

Workers in overcrowded areas where ventilation is bad and nutrition low, where crowds are packed together in squalid hovels during what should be their period of rest, will tell you that overcrowding is the main cause of tuberculosis, and that the only preventive measure is strict isolation of those most affected. For those little or not affected already they advise destruction of rookeries and opening up to the light and air of heaven of such dwellings as are allowed to remain. They are in the right. On the other hand, another investigator will tell us that the population he has studied is housed in well lighted and fairly well ventilated houses, that when they are at home the conditions of life, if not ideal, are certainly far from bad; but, during the day, while at work, they are compelled to breathe a dry, dusty atmosphere in a badly ventilated room. He will tell you that overcrowding at home has no bearing on the spread of phthisis, and that phthisis is very largely a trade disease. He also recommends isolation, ventilation of workshops, and, of course, better nutrition. He is right as far as the day conditions are concerned, but do his facts go against the conclusion of our other observer? Each man may bring forward statistics to prove his own particular case, and it is because both are right, in matters of general principle, that the statistics agree; but it is because each insists too much on certain details that they disagree as to the interpretation of their facts and figures. One man claims that we could put a stop to tuberculosis tomorrow if we could isolate in hospitals all the open and advanced cases of the disease, and he tells us that where sanatorium treatment has been tried it has done little to lower the death rate from tubrculosis and still less to diminish the case rate; and he will put forward statistics in support of his contention. Are we justified in saying that because we see no immediate improvement none has taken place? May it not be contended that every early case that has been checked, that has been prevented from becoming an advanced or open case, is one center of infection cure and must therefore, in time, have a marked influence on the statistical aspect of the question?

The aim of those interested in preventive medicine is to "corral" the tubercle bacillus, and I fancy that nowadays most of us are indifferent as to how this is effected so long as we succeed in doing it thoroughly. As in the case of typhoid carriers and lepers we have to devise some practical and practicable method of dealing with each set of cases, and even with each case as it arises, and it is for this reason that the work of the tuberculosis dispensaries has been attended with such a large measure of success. The medical men and their assistants in these dispensaries, from one case are able to trace others. They come across cases of tuberculosis in all stages of development and among all sorts and conditions of men; they weigh up the possibilities of treatment in various individual circumstances, and, having adopted the treatment that seemed best to meet the conditions and necessities of the case, they are able to provide a resting place in which the poor, wornout worker can end his days in comparative peace and comfort, without being a danger to his fellows. They are able to train the patient suffering from incipient phthisis in cleanly and in effective and safe methods of disposing of his sputa, etc. So that should all efforts at cure be unavailing the patient, even in the most infective stages of his disease, by the care he exerts, is able to reduce the danger of infection from himself to others to a minimum. From all this it is evident that we must make use of those means which come most readily to hand and which, at the same time, appear to meet most closely the exigencies of any special case.

If we could in this way banish from our midst the various strains of tuberculosis from human sources we should be doing much to diminish the death rate from tuberculosis. But should we get rid of tuberculosis so long as we allow the disease to exist in the lower animals, as, for example, in the bovine? Here, again, must we not do everything that is practicable to eliminate it as an infective disease of these animals? It must always be a source of danger, even though it be assumed, which I do not, for a moment, admit that the bovine type of tubercle bacillus is not so infective for the human subject as is the human type, and accounts for but a small number of cases.

In the case of children (and on this point observ-

ers, including those working on the German Imperial Commission, seem to agree), we have a definite and frequent affection of the alimentary canal and of these cases a certain proportion are undoubtedly of bovine origin. As my colleague, Dr. Cobbett, pointed out, of the cases of fatal tuberculosis in children, "investigated by the German and English Commissions, about one-third were found to be due to the bovine type of bacillus. The cases were largely selected as being of alimentary origin, and are all too few for the purpose of forming an estimate, but they form the only material available. Now, cases of death from tuberculosis under five years form about 20 per cent. of all fatal cases of tuberculosis, and if we may estimate that somewhere about one-third of these are bovine infections it follows that a little less than 7 per cent., or one-fourteenth of all deaths from tuberculosis are due to bovine infection. This estimate is a very rough one, but it is near enough to show that bovine infections in man are fairly common. The estimate probably errs in being too large because the cases on which it is based were mainly selected as examples of infection through the alimentary canal. On the other hand, it may possibly be too small, if modification of one type into another takes place, because phthisis being a chronic disease, it is conceivable that some cases may be caused by the bovine bacillus, which, becoming gradually modified into the human type, is no longer distinguishable from the latter when the case comes under investigation. But of this there is no evidence. The bovine bacilli found in man are, in every respect, like those found in the cow, and are just as virulent for that species."

Going a step further, we may say that every tuberculous cow is a potential or actual center of infection for other bovines, and, as we have seen, though perhaps in a lesser degree, for the young child and, quite possibly in a lesser degree still, for the young adult. How are we to get rid of these centers of infection? A counsel of perfection would be to examine and test with tuberculin all animals, whether suspect or not, to destroy all that react, place all that remain unaffected in disinfected, well ventilated and lighted sheds, and repeat the process until all tuberculous cattle are eliminated. Such a procedure is, of course, impracticable and, as Bang has pointed out, is not necessary. He has succeeded, by careful isolation of the infected animals, by the elimination of animals that are in an advanced or open condition of tuberculosis, and by sterilizing the milk fed to young animals, in gradually freeing from tuberculosis valuable herds of cattle and thereby in giving us a guide for our own work. By all means let us educate the stockbreeder and the dairy farmer to a proper appreciation of the value of tuberculin; let us look forward to the time when the tuberculin tests will be applied as a matter of course whenever there is the slightest suspicion of the presence of tuberculosis in an animal or herd, but let us not wait for this before doing something to try to rid our herds of the more dangerous cases of tuberculosis.

All medical officers of health and veterinarians will receive with open arms and welcome the recommendation of the recent congress at Washington that a beginning should be made by eliminating cows suffering from tuberculosis of the udder from all dairy supplies. The importance of this is obvious to any one who has given a moment's consideration of the question, or has examined the sediment from half a dozen specimens of milk drawn from such cases. This, however, is the first step merely, and the addition of cases of advanced or open tuberculosis to the list of cattle to be condemned would be an eminently wise and satisfactory addition. It may be that we shall have to accept this as a first installment of what we now aim at, and it appears possible that it may be advisable to confine our attention, in the first instance, to this special point. It would certainly be well worth our while to cut out these very active centers of infection, centers corresponding to the human patient who suffers from advanced phthisis, a patient whom we desire to keep under as close control as possible but whom we keep isolated in a hospital instead of pole-axing him. I believe that in time those who now resent interference with any but the manifestly diseased cattle will come to see not only the propriety but the economy of getting rid of cattle tuberculous in any degree. That, however, is not yet, and in the meantime it is well that we should aim at the attainable.

SPECIAL FEATURES IN THE SYMPTOMATOLOGY AND PATHOLOGY OF ANEMIA OF THE CENTRAL NERVOUS SYSTEM.*

By SAMUEL LEOPOLD, M.D.,

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After the excellent contributions of Minnich, Lichtheim, and Nonne in Germany, Putnam, Taylor, Burr, Lloyd, Dana, Spiller, and others in this country, Russell, Batten, and Collier in England, and Bastianelli in Italy, there seems little that can be added to the clinical and pathological picture in anemia of the spinal cord. For the most part these observers have developed the clinical and pathological changes incident to this disease. A few have endeavored to establish a distinct clinical entity, while others have concerned themselves with the disease in relation to the pseudosystemic diseases. Moreover, the rôle played by the anemia, the influence of special toxic agents, as well as the part played by the blood-vessels, have been thoroughly discussed in the last decade.

The general clinical symptoms of paresthesias, weakness, ataxia, and spasticity are too well known for me to enter into a discussion of them. The spinal changes consist in symmetrical areas of sclerosis, involving most frequently the posterior and lateral tracts. The lower cervical and upper thoracic segments show the most extensive degeneration. The blood-vessels are congested, and their walls sometimes show hyaline degeneration. The perivascular spaces contain leucocytes and granular material. Besides the neuroglia proliferation, rarefaction of the fibers and may spaces are noted. Where they have disappeared sometimes small hemorrhages are seen. The cells in the gray matter show usually pigmentation.

Certain clinical features are worthy of mention in our series, six of which were studied clinically and pathologically and two only clinically. The onset of this disease is usually gradual, occurring over many months. In Case VI the peculiar feature of sudden onset was noted, the clinical symptoms of weakness and paresthesia developed in twenty-four hours. In Case I we noted the presence of a sharp,

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almost girdle-like zone of anesthesia, reaching to the umbilicus. This symptom, according to Nonne, is uncommon. It may complicate the diagnosis as it did in one of Nonne's cases, in which a diagnosis of tumor was made. Sometimes the character of the pain is puzzling and Dr. Spiller tells me of a case in which the pain was located in the back at the level of the third thoracic vertebra, and radiated from this situation. The diagnosis of tumor of the spinal cord and anemia, the patient having 3,000,000 red blood corpuscles, was difficult.

Another striking feature in the study of these cases has been the variable character of the symptoms in the different cases. This variableness is also to be noted in the cord changes. Sometimes only the posterior columns are involved. This was observed by Lloyd in the case which he published, and the microscopical sections of which I have again studied. Sometimes the process is seen in both the posterior and lateral tracts; again it may be noted as a diffuse sclerosis of the entire cord. Thus it is quite apparent why these cases may be diagnosed as tabes, disseminated sclerosis, myelitis, and tumor. Nonne has had the opportunity of studying some of the earlier forms of the disease and reports isolated foci of sclerosis affecting various levels of the cord. These apparently have no special predilection for any one system of fibers. From these findings, together with the varying character of the clinical symptoms, in a recent contribution he concludes that this disease is not systemic but focal in character. I fully share this recent view of Nonne, as the material at my disposal (six cases) fully justifies his conclusions. It is interesting to note in passing that he formerly believed in the systemic character of this process, and that only in his last contribution to this subject he returns to the theory advanced some years ago by Leyden and others.

Sometimes, as Spiller remarks, the paresthesia and ataxia may persist for many years with little change in the cord; and, on the other hand, the intensity of the alterations may be much greater than the clinical symptoms suggest. This peculiarity has also been noted by most observers in the character and relation of the anemia to the disease process.

Two unpublished cases, one of Dr. Spiller, the other of Dr. Mills, illustrate this. In Dr. Spiller's case, S. P., female, the physical examination showed a spastic gait, ataxia, ankle clonus on the right side, Babinski's reflex distinct on each side. Sensation for touch and pain was diminished in the lower limbs, almost normal in the upper limbs. There was no involvement of the cranial nerves. The blood count showed 8,160 white blood corpuscles and 5,090,000 red blood corpuscles.

Dr. Mills' case, M. P., was a female, aged thirty-two, with a history of pain in the back and legs but with no physical symptoms except some exaggeration of the knee jerks; no disturbances of sensation, no ataxia or spacity; the blood count showed as low as 2,240,000 red blood cells, 46 per cent. of hemoglobin, and 16,000 white blood corpuscles.

While not definitely proved, the theory of a toxic agent associated with the anemic state seems to be most plausible. In this connection it is interesting to note the incidence of tuberculosis. In two out of six of our cases which came to necropsy, tuberculous lesions were found in the viscera. In a review of the cases reported I find about the proportion of one to seven.

To what extent is the brain involved? In our series of cases we note the presence of convergent strabismus, right facial palsy, inequality of the pupils, and slow response to light. Russell also reports unilateral facial paralysis, and in another case paresis and ataxia of the larynx. Bulbar symptoms have been reported by Putnam, Taylor, and others, while Weisenburg and McConnell have reported a case with double optic neuritis. This is interesting, for the question has arisen whether anemia could produce optic neuritis, some holding that it only produced optic atrophy.

The mental state has been variously pictured, most observers stating that the patient is dull and inattentive. They frequently state that physical examination is unsatisfactory, owing to the dullness of the patient. Nonne reports clouding of the mental state from somnolency to delirium. The majority of my cases showed apathy; two cases were reported as emotional and one as hysterical. Toward the end of the disease in some of the cases delirium and confusion occurred, and in others stupor, but it is questionable if these later states played a part in the anemic picture, owing to the association of a terminal infection. An interesting side light is thrown upon this subject by the clinical studies of Pickett, Grawitz, and Siemerling in various types of anemia. Pickett reported five cases in which the composite picture showed shallow confusion with impairment of the ideas of time and place, with fabrication and relating imaginary experiences, not unlike Korsakow's syndrome. Illusions as well as hallucinations and persecutory delusions were common. Grawitz emphasized the apathy, unfeelingness, and melancholia in some, while in others there were stages varying from excitement and delirium to mania. Siemerling most recently has endeavored to establish a definite clinical picture in this condition and compares it to the state arising in the course of infections and intoxications.

Our cases show that the spinal cord symptoms predominate over the cerebral, and no definite mental syndrome is seen. A review of the literature corroborates these findings, though one must not overlook the fact that this phase of the subject may not have been given sufficient attention.

From the pathological studies of the brain in anemia, the changes found in the brain might account for the train of symptoms described by Pickett and others. Recent experimental studies of Orr and Rows have shown swelling of the perivascular lymph spaces, loss of contour of the cells, chromatolysis, and congestion of the vessels. In my studies of the cortex a similar picture was noted. The pathological changes found in the spinal cord in most of our cases correspond to the usual findings. In Case III, however, we found the unusual feature of involvement of only the left crossed pyramidal tract, the posterior columns were symmetrically and widely degenerated indicating that the process was of some duration. The extent of the lesions reached in two of our cases to the medulla, and one of these could be traced by the Weigert method to its upper border. The involvement included the pyramidal and direct cerebellar tracts. Mott, Russell, Spiller, and others have found the destructive lesions as high as the mid-region of the pons, and Mott and Russell have been able to trace the degeneration by the Marchi method as far as the cortex.

Case I.—H. S., in the service of Dr. Spiller, male, aged fifty-five, had no venereal history; used alcohol moderately. The family and previous medical history was negative. About two years before ad-

mission he noticed a creepy sensation and feeling of pain in the right leg, and shortly after the left leg became affected. One year later his gait became unsteady and his feet felt numb. Four months later he could not use his lower limbs and a few months before admission he began to have dribbling after urination.

Physical examination: He could rotate inward the lower limbs very slightly at the thigh; otherwise the limbs were paralyzed. He could not even move his toes. Patellar tendon reflex was entirely absent, even on reinforcement on right side; very faint on left side. Achilles tendon reflex was nearly normal on each side; Babinski's on both sides. Plantar reflex was greatly exaggerated on each side, especially the left. Irritation of the left sole caused the left knee to be flexed three or four times, and contractions occurred in most of the muscles in the lower limb. The cremasteric reflex was preserved on each side. Sensation for touch, pain, and temperature was entirely lost in lower limbs. Sensation for touch, pain, and temperature was diminished over front of trunk below the nipple line. Sensation was lost in irregular areas over the thighs. The movements of the upper limbs were free; the grasp of each hand was normal.

Examination three weeks later showed complete motor paralysis in lower extremities. Sensation was lost to a point at the level of the umbilicus. A band of hyperesthesia was noted above this extending three inches in width. The patellar tendon reflexes were absent; Babinski's reflex present. The grasp was weaker and patient complained of numbness in hands.

Blood examination revealed 11,000 white blood corpuscles, 45 per cent. hemoglobin, 2,580,000 red blood corpuscles.

Microscopical examination: The changes in the spinal cord showed extensive and symmetrical sclerosis of the posterior and lateral tracts from the lumbar to the cervical region. In the lumbar segments the sclerosis was "V" shaped in the posterior columns. The periphery and a portion of the root entrance zone were free. The crossed pyramidal tracts were involved on both sides; only the right direct pyramidal tract was involved. In the thoracic and cervical segments the sclerosis was more extensive, but similar in distribution.

Clinical summary: There was no history of syphilis. The family and previous medical history was negative. The illness began two years before admission with paresthesia and weakness in lower extremities. There was loss of bladder and rectal control. The patellar reflexes were absent; Babinski's present. Motor paralysis was complete in the lower extremities. Sensation was lost to the level of the umbilicus. There was hyperesthesia in a band three inches in width above this area. A diagnosis of myelitis was made.

Pathological diagnosis: Combined sclerosis from anemia. The changes in the spinal cord were symmetrical and involved the posterior and lateral tracts from the lumbar to the cervical region.

Case II.—I. H., in the service of Dr. Mills, aged sixty-eight, male, colored, had a negative family and previous medical history. The present illness began two years before admission with a feeling of numbness and tingling in the legs. This trouble increased with weakness until he was unable to work. About the same time his hands and arms became weak and numb. For the past three months he had had shooting pains in the legs.

Physical examination: The pupils were equal, reacted to light and accommodation. He performed all the movements of the eyes except convergence; attempts at convergence brought inward the right eye at times, the left remaining in the median line. There was no paralysis of the fifth, seventh, or other cranial nerves. In the upper extremities the movements were equally weak on both sides. The limbs were somewhat spastic. Ataxia was shown by the finger-to-nose test. There was very marked atrophy of the shoulder and arm muscles. These muscles were the seat of fibrillary tremors. There was some wasting of the ulna and interosseus groups. The biceps and triceps reflexes present but not increased.

Lower extremities: The limbs were weak and ataxia was marked in both legs. The patellar tendon reflexes were increased on the right side and preserved on the left. Ankle clonus was absent. The muscles of the left leg and thigh were more atrophied than on the right. Fibrillary tremors were noted in the atrophied muscles.

Sensation: Response to touch, pain, and temperature were correct in all parts of the face, trunk, and upper extremities. In the lower extremities there was complete loss of tactile sensation in all portions of the thigh, legs, and feet. Hypalgesic areas were found in various portions of the thighs and legs. Thermic sense was undisturbed. Sense of position seemed completely lost in the left and greatly impaired in the right. The mental condition was apparently fair until about ten days before death when there were signs of mental confusion. Just before death he had convulsions.

Necropsy protocol: Catarrhal pneumonia with cheesy encapsulated foci of tuberculosis; brown atrophy of heart; infection of the right kidney and ureter.

Microscopical report of spinal cord: In the lumbar region the areas of degeneration were symmetrical in the posterior and lateral columns. A fair number of fibers in the periphery and continguous to the septum had escaped in the posterior columns, also the root entrance and cornu comissural zones were intact. The crossed pyramidal tracts were symmetrically involved. The direct pyramidal tracts were not involved. In the thoracic region the involvement was more extensive and still showed its symmetrical arrangement. In the cervical region the process was most extensive; only the root entrance zone and cornu commissural zones were free, and here many rarefied fibers were noted. The lateral columns were extensively degenerated. The sclerosis involved the crossed pyramidal, direct cerebellar, and Gowers' tracts. The direct pyramidal tracts were only slightly involved. The pathological changes were those of anemia. Small hemorrhages and slight round cell infiltration of the perivascular spaces were noted. Many new capillaries were seen throughout the sclerosed areas. The cells in the anterior horns showed considerable pigmentation. The medulla and pons showed no changes. Section taken from the cerebral cortex showed marked distension and congestion of the vessels in the meninges and throughout the interior. Their perivascular spaces contained considerable granular material. The ganglion cells were in some instances swollen; chromatolysis was noted, and the nuclei were misplaced.

Clinical summary: Male, aged sixty-eight, had loss of power and paresthesia in lower limbs, extending over two years; ataxia; spasticity in all four limbs. Increased patellar reflex on right side, Ba-

binski's positive. Tactile sensation was lost in lower limbs. There were marked muscular atrophy in upper limbs, and mental confusion nine days before death.

Microscopical diagnosis: Combined sclerosis. Sclerosis was symmetrical and extensive, involving the posterior and lateral columns. In the cortex the chief changes were congestion, cloudy swelling, and chromatolysis.

Case III.—J. W., in the service of Dr. Dercum, aged sixty-one, teamster, admitted specific venereal infection. The clinical examination of this patient was very meager. The present illness began two months previously with weakness and loss of control of lower limbs. Examination showed ataxia, no muscular atrophy, no disturbances of sensation; right facial weakness. The mental state was dull, and at times the patient was delirious and talkative. Death occurred three weeks later. The clinical diagnosis was specific myelitis.

Pathological report: In the lumbar region no degeneration was noted. In the thoracic segments the posterior columns were symmetrically involved; the crossed pyramidal tract was involved only on the left side, a few of the fibers of the posterolateral tract were also involved. In the cervical segments the sclerosis was most extensive, the posterior columns were symmetrically involved; the crossed pyramidal tract and a few fibers of the posterolateral tract were involved only on the left side. The medulla at the decussation and above showed no involvement of the pyramidal tract, but showed sclerosis in the lateral tract. The pathological changes present showed no evidence of specific inflammation, but the presence of the areas of sclerosis, the vacuolated areas (*Lucckenfelder*), and vascular changes resembled anemia of the spinal cord. Pathological diagnosis: Combined sclerosis.

Case IV.—J. C., in the service of Drs. Mills and Spiller, aged sixty-two, iron worker, denied syphilis. The family and previous medical history was negative. Present illness: Two years previous to his admission he had phlebitis in both legs and was ill for three months. One year later he became weak in the lower limbs. Following a fall he was unable to move his left leg and soon after lost the power in the right leg. Three weeks later he regained enough power in his legs to move about with the aid of a cane. At time of admission he was unable to walk, and complained of numbness in the hands and legs.

Physical examination: Pupils reacted to light and convergence. There was no weakness of facial muscles, nor muscular disturbance. The tongue was protruded in the median line. No muscular atrophy was noted in the upper extremities. The biceps and triceps tendon reflexes were prompt on each side. The sensation to touch and pain was normal. In the lower extremities the left knee was enlarged and a little warmer to palpation than the surrounding parts. The left leg was partially flexed on the thigh and there was resistance to passive movement. Muscular atrophy was not pronounced. Voluntary movement of the toes and ankles was about normal. The patellar tendon reflex on the left side was exaggerated, while the right was only slightly so. There was no ankle clonus. The Achilles tendon reflex was diminished on each side; Babinski's positive on each side. Tactile sensation seemed to be entirely lost in both lower limbs below the knee and was markedly impaired in the right thigh and about normal in the left. The pain sense was apparently lost in the same areas as the tactile sensation; it was diminished in the right thigh and nearly normal in the left. There was no impairment of sensation to touch or pain over the abdomen or the lower part of the back. The patient had a feeling of constriction passing directly through the umbilicus. There was decided rigidity in the lower limbs to passive motion.

Diagnosis: Lesion of the spinal cord in the lower thoracic region.

Necropsy protocol: The lungs showed tuberculous deposits at both apices. There was chronic interstitial nephritis and also present a large amount of yellowish fat which suggested pernicious anemia.

Microscopical examination: In the lumbar segment the posterior columns were symmetrically involved, but not so extensively as in the thoracic or cervical areas. A triangular area and oval area around the septum were involved as well as the root entrance zone and cornu commissural zone. The direct pyramidal tracts were not involved; the crossed pyramidal tracts were involved on both sides, but more so on the right. The lesions were those of sclerous and vacuolated areas, together with perivascular infiltration and new formation of capillaries. The thoracic segments showed a symmetrical involvement of the posterior and lateral columns more extensive than in the lumbar, but less than in the cervical. Gowers' tract and the anterolateral ground bundle showed little sclerosis but showed the vacuolated areas. The direct pyramidal tract was involved only on the right side. In the cervical segments the lesions were most extensive. The columns of Goll were entirely destroyed except for a peripheral zone. The columns of Burdach were less involved and the root entrance zone and cornu commissural zone were preserved. The scleroses, vacuolation, and perivascular infiltration showed the same characteristics as in the other segments.

Summary: Male, aged sixty-two, developed illness during a period of two years. The illness began with weakness and paresthesia in the lower limbs and girdle sense. Improvement was followed by remission; weakness and spasticity, increased patellar reflexes, Achilles reflex diminished no ankle clonus, Babinski's reflex was positive on both sides. Tactile and pain sensation was lost in both lower limbs in the same areas; there was no disturbance of cranial nerves.

Macroscopic examination showed tuberculosis of the lungs and kidneys and appearance of anemia in the other organs.

Microscopical examination: Symmetrical and extensive sclerosis and vacuolation most marked in the posterior columns and lateral columns of the cervical and thoracic segments. Direct pyramidal tract was not involved on the lumbar segment. Crossed pyramidal tracts were more involved on the right side. Changes were those of anemia. Microscopical diagnosis was combined sclerosis.

Case V.—M. S., female, in the service of Dr. Spiller, had no specific history, but was an alcoholic three years before. Family and previous medical history was negative. The present illness began after standing for the entire morning. She noticed that her legs were weak and she was able to walk only with support. She complained of numbness and tingling in the limbs.

Physical examination: The pupils reacted to light and accommodation; the former was not so prompt. The extraocular movements were normal as was

sensation in the face. She drew up the corners of the mouth well on each side, closed her eyes and wrinkled the forehead well. The tongue was protruded in the median line. Upper extremities: The grasp of the hands was poor. The upper limbs were not wasted. Biceps tendon reflexes were exaggerated on each side. There were no sensory disturbances. Voluntary movements and resistance to passive motion were normal. Lower extremities: There was marked paralysis in the lower limbs. She could flex the thigh slightly at the hip and knee. Resistance to passive movements was feeble. Patellar tendon reflexes were markedly exaggerated on each side. Patellar clonus was persistent on each side; ankle clonus on each side. Babinski's reflex was not obtainable. The muscles of each calf and each peroneal nerve were sensitive to pressure. No atrophy was noted and sensation was normal.

Diagnosis: Specific myelitis.

Microscopical examination: No evidence of specific changes was noted. In the lumbar segment the anterior and lateral columns were normal except for a few spaces where fibers had dropped out (*Lueckenfelder*). In the posterior columns the areas of sclerosis and rarefaction were small and seen as small islands surrounded by normal fibers. The fibers contiguous to the septum were intact. Normal fibers were found in the periphery, the root entrance zone, and bordering the gray commissure. In the areas of sclerosis were found small vessels with thickened walls; their lumina were distended with blood. In the thoracic segment the islands of sclerosis in the posterior columns were more numerous, the areas between them showing the *Lueckenfelder*. In this section there is also involvement of the lateral tracts and direct pyramidal tracts, characterized by *Lueckenfelder* and sclerosis. In the cervical segment the sclerosis in the posterior columns is more extensive than in the other segments and has the form of a triangle. Around the root entrance zone the *Lueckenfelder* was noted, a similar dropping out of fibers was seen in the lateral and anterior fields of white matter. The crossed pyramidal tracts are not so markedly involved as in the thoracic portion. The cells in the gray matter showed considerable pigmentation; the Nissl bodies were broken into fine granules and the nuclei were pushed to the side. In the medulla above the decussation the *Lueckenfelder* was noted in the lateral tracts. No changes were detected in the pons. In the brain the blood-vessels showed congestion, the cells were markedly pigmented, the nucleus in some had been pushed to the side, the cell bodies were swollen. With the Nissl stain some of the Betz cells showed loss of staining power.

Summary: Sudden onset with weakness and paresis in the lower limbs; patellar tendon reflexes were exaggerated on each side, also patellar and ankle clonus. Paresthesia in lower limbs. The duration of the illness was three months. Clinical diagnosis was specific myelitis. The lesions were symmetrical and most marked in the lower cervical and upper thoracic areas. The early character of the process was noted by the small areas of sclerosis, though the changes were far more extensive than one would expect to find in an illness of three months' duration. The lesions were found as low as the lumbar region and as high as the medulla. The changes in the brain cortex corresponded to the findings of other observers in their studies of anemic states; namely, congestion, pigmentation, chromatolysis, and changes in size and shape of the cells.

Pathological diagnosis: Combined sclerosis.

Case VI.—M. D., in the service of Dr. Pickett, female, aged forty-eight, weaver, was an alcoholic at times. Previous medical and family history was negative. Two years ago the patient stated that she was standing on the street waiting for a car and her feet became frosted. From that time on they felt numb. After about a year she began to have pains in the lower extremities and an increasing weakness. At present she complains of numbness, pain, and loss of power in the lower limbs. The pupils were slightly unequal, the left being a little larger than the right; they reacted to light, accommodation, and convergence. The extraocular movements were normal. Face wrinkled equally well on both sides. The tongue was protruded in the median line. The patient could not stand or walk. Upper extremities: The grip was not very strong but about equal on each side. The biceps tendon reflex responded slightly. No atrophy of any muscle was noted. Lower extremities: The patellar tendon reflexes were absent on both sides, even on reinforcement; also the Achilles tendon reflex. Babinski's sign was doubtful. The left leg was smaller than the right. Sensation to touch was diminished in the lower extremities. There were no areas of anesthesia and no loss or diminution of pain sense. The lower limbs were contracted, all voluntary power was lost and passive extension almost impossible. The mental state was emotional.

Microscopical examination: Lumbar segments: In the posterior columns the sclerosis was triangular in shape with its base at the periphery. The fibers around the gray commissure were intact as well as those forming the root entrance zone and oral field at the septum. The lateral portion of the white matter was involved, the remainder of the white matter was normal. In the thoracic region the posterior columns were extensively involved; the area was triangular in shape. The crossed and direct pyramidal and posterolateral tracts were extensively and symmetrically involved. In the cervical regions there was complete sclerosis of the posterior columns except for a few fibers of the root entrance zone. The sclerosis in the lateral and anterior white matter was marked. *Lueckenfelder* were found in the pyramidal tracts and in the lateral tract. In the medulla at its upper portion a similar involvement was found in the pyramidal and direct cerebellar tracts. No changes were found in the pons. In the cortex the cells showed pigmentation, chromatolysis, and swelling. The nuclei had migrated to the side. The blood-vessels were distended and congested and in one portion a small area of thrombus, hemorrhage, and softening was noted. In the cord and especially in the posterior columns numerous small vessels were seen with sclerosed walls and distended lumina. In a few areas small hemorrhages were noted. The cells in the gray matter showed pigmentation and some chromatolysis.

Summary: In Case VI there were weakness and paresthesia in the legs. Left pupil was larger than the right. There was no cranial nerve involvement; absence of all reflexes. Sensation to touch was diminished in the lower extremities. Duration of the illness was about two and a half years.

Microscopical examination: The areas of degeneration were extensive and symmetrical, extending from the lumbar region to the upper border of the medulla. The most extensive involvement was in the lower cervical and upper thoracic areas. The chief features were the marked degree of degenera-

tion and the extent to which the brain was affected.

Pathological diagnosis: Combined sclerosis.

I wish to take this opportunity to thank Dr. Spiller for the privilege of reporting these cases and for his kindly criticisms.

THE SPLASHING SOUND OF THE STOMACH.

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In our routine examinations of the abdominal viscera we often elicit a splashing sound over the stomach area. In most of the cases the patient is not aware of its existence. At times the patient will notice that on tapping his stomach a splashing sound is produced. He, however, is not perturbed by its existence, but comes to the doctor merely in quest of on explanation of the phenomenon. More rarely he feels the splashing with the changing of the position of his body. His stomach feels like a bag of water suspended within the abdominal cavity, which changes its position according to the laws of gravitation. The patient is greatly annoyed and even distressed by it. It is the object of this paper to discuss the meaning, the significance and the diagnostic possibilities of the splashing phenomenon.

How is the splashing sound produced? Any body of some size having yielding walls and containing fluid or semi-fluid contents and air or gas, on being tapped, causes a displacement of the relative positions of the liquid and the gas, which is necessarily accompanied by a splashing sound. The stomach fulfills all of these conditions, as it mostly contains in the state of digestion besides the semifluid food some air or gas. The origin of the air or gases of the stomach is partly derived from being swallowed from the air or being ingested with the food, partly due to fermentation within the stomach. Another part bubbles upwards into the stomach from the intestines through the patent pylorus. The stomach is, therefore, a viscus which is ideally adapted for the production of the splashing sound, and we can, therefore, elicit a splashing sound in most of stomachs, irrespective of age or sex. The writer makes this statement after having tested the splashing on every patient that came under his observation for the last few years. Children are no exception to the rule.

Why, then, can't we produce the splashing sound in all cases? Tense abdominal muscles do not transmit the tapping blow of the hand to the stomach, and hence no splashing is produced. A very thick abdominal wall will, for obvious reasons, interfere with the production of the splashing sound. A stomach in a state of distention after a heavy meal will again interfere with the production of the splashing sound. Again, the presence of mere food without any air or gases in the stomach is another hindrance to the production of the splashing sound. The presence, therefore, of the splashing sound in any stomach means merely the presence of fluid or semifluid contents plus air or gases in the stomach. I have heard some clinicians designating any stomach where splashing can be produced as one of atony. I consider it erroneous. I have noticed the splashing sound in perfectly healthy children time and again. Should it, however, be elicited at all times with the greatest ease over a fairly extensive area of the abdominal space, it may occasionally point to a loss of tone or atony of the stomach. It may point to such a diagnosis, but not necessarily mean it. And we have no right to diagnose it as such unless we have used other means of diagnosis and have established the existence of a mild degree of motor insufficiency in the stomach. It is then that the diagnosis of atony of the stomach is fixed. The best way to elicit the splashing sound is to have the patient in a recumbent position with the thighs flexed, relaxing himself as much as possible, and then suddenly to tap the stomach region. The amount of force required varies mainly with the thicknesss of the abdominal walls. In some cases the lightest stroking with the middle finger will bring it forth in a most satisfactory manner. In others again quite a forcible blow with all the fingers combined is required to get it out.

I said before that the splashing sound was a perfectly normal phenomenon. There are, however, two other factors to be taken into consideration in order to make this rule universal, namely, the time and the place, *i. e.* it is a normal phenomenon, provided it is produced at the proper time and at the proper place, and it is here where the diagnostic possibilities come in.

Suppose a patient presents himself in the morning with a stomach history. He happens to have an empty stomach, not having ingested anything that morning. We put him down on a couch and splash his stomach. A splashing sound is obtained. Here it is pathological, for any stomach should be empty seven hours after a full meal. It is evident that the stomach of this patient contains something, while it should be empty. What are the substances that are likely to be present in a jejune stomach? It must be either food or gastric juice, more rarely some regurgitated duodenal contents, some swallowed saliva and mucus. We next proceed to introduce a stomach tube and siphon out the contents. If the contents prove to be food, it will signify to have been left from the previous supper, and that the stomach did not succeed to empty itself in the lapse of time during night. Whenever a stomach cannot empty itself after a full-sized meal in seven hours, it is a case where the motor powers of the stomach are impaired or motor insufficiency. Should the contents prove to be pure gastric juice without any admixture of food at all, it will mean that the stomach is secreting gastric juice all the time, even when no food is introduced into the stomach. A condition like this is known in gastrology as continuous gastric flow, gastrosuccorrhæ, or Reichmann's disease.

Regurgitated duodenal contents is recognized by its yellow-greenish color. It is never profuse. A few drachms at the utmost. The characteristics of saliva are so well known that nobody need have any difficulty in recognizing it. It is not often present in the jejune stomach, and at best is present only in very small quantity. I wish, however, to add right here that the smallest quantity of liquid contents in the stomach, say one-half drachm, is likely to give a splashing sound, and it is absolutely impossible even for the most experienced to judge from the splashing sound as to the quantity of contents in the stomach. The stomach tube alone, with painstaking removal of all the material, can settle this.

The utilization of the splashing sound of the stomach, when produced at a time that the stomach ought to be empty, becomes apparent. It has served in my hands time and again to the greatest advantage. On the very day of writing these lines it has cleared up for me a case of pyloric obstruction, and I do not think it to be amiss to illustrate how I did it.

A patient came to the Vanderbilt Clinic giving an ordinary dyspeptic history with vomiting. The patient had been sick for about six weeks. In going over the abdomen I noticed a marked splashing sound over the stomach region. This was at 4 P. M. I questioned the patient as to the time of his last meal, and he assured me that he had not had anything since 6 A. M. that day. This made an interval of ten hours. Any stomach with a normal motility must be empty after a full-sized meal in seven hours. It became, therefore, evident to me that this patient was suffering with motor insufficiency. I introduced a stomach tube and secured, without any difficulty, about 1½ quarts of a very fluid substance, of a very acid odor, containing all kinds of foodstuffs in fine subdivision. A stomach containing 1½ quarts of contents ten hours after a meal, with a history of stomach trouble for six weeks, means a pyloric obstruction. I could not feel any pylorus; nor were peristaltic movements visible.

I cannot refrain from citing another case even at the risk of being too cumbersome. I was called to see F. S., female, aged 20, in July, 1908. Chief complaint was palpitation of the heart. The patient had been confined to bed for four weeks without any improvement. I learned at the bedside that the patient had been treated for the past five to six years by a variety of doctors, among whom numbered some of the best clinicians in the city. The patient informed me that the diagnosis of most of the men was heart disease. Others thought it was nervousness and anemia. The chief complaint was palpitation of the heart. Her heart action was not very regular and rather tumultuous. I could not hear any murmur, and I concluded that it was either a case of cardiac lesion without a murmur or a cardiac neurosis. The patient improved somewhat, and I sent her away to the country, where she stayed for five weeks. She came back somewhat improved, but by no means well. One evening about 7 P. M. the patient came into my office complaining of the same old symptoms, and telling me that she felt very ill. On making the routine examination I noticed a marked splashing over the stomach area. I questioned the patient as to the time of her last meal, and was informed that she had had nothing the whole day except a cup of milk in the morning. My attention was drawn at once to her stomach. After a couple of test meals, I arrived at a positive diagnosis of atony of the stomach. I instituted treatment for this condition, and her improvement was almost phenomenal. The patient has been in the best of health ever since without having any recourse to any medical treatment.

Having disposed of the diagnostic features of the splashing sound as to the time of its production, I will now proceed to another phase of its diagnostic possibilities, namely, the space over which a splashing sound may be produced. By making out the area over which it is produced we are enabled to determine the size and position of the stomach. The percussion here must be light with one finger only, and is adapted for favorable cases only, such as have thin abdominal walls. We can thus make out by splashing the upper border and also the lower border of the stomach. I do not mean that the whole outline of the stomach can be made out by splashing, since the stomach, when full of food, is almost vertical in its position, with a slight slanting from left to right, the greater part of the fundus of the stomach being located under the left dome of the diaphragm. It is, therefore, only the lower right segment, that part that is not covered by the costal arch, that is exposed to splashing. Should the upper border of splashing prove to be near the ensiform cartilage or slightly below it, and the lower border one or more fingers above the navel, the stomach is normal in size and position. Should the upper border be again near the ensiform, which is its normal upper level, and the lower border below the navel, the stomach is dilated. Should the lower border prove to be one or more fingers below the navel and the upper border down correspondingly below its normal upper level, the case is evidently one of gastroptosis.

The splashing sound is of inestimable value after lavage, especially in those cases of atony of the stomach where we want to give the stomach a rest after the lavage, and where our object would be entirely defeated by leaving food behind. I cannot emphasize too strongly how hard a task it is to empty a stomach completely. My stomach tube in lavage is always supplied with a stiff rubber bulb having a great suction power. This bulb is employed both to stir up the contents within the stomach and as an aspirator to siphon out the contents. The stomach tube is invariably introduced at different levels and suction each time employed, and still, with all these precautions, and after all these painstaking manipulations, after using quarts of water flowing out perfectly clean, I invariably, after the operation, put the patient on a couch and try the splashing sound, and, to my chagrin, more often than not, it is easily obtained. I have the patient then roll on the stomach, change his position, shake him well up, and then on introducing the stomach tube again—a good deal of fermented food comes forth. I have on several occasions in obstinate cases of this character suspected a stomach with two chambers—the hour-glass stomach. Such did not prove to be the case, however. The great value of the splashing sound in these cases is obvious.

We will now turn our attention to that class of cases where the patient himself is conscious of the splashing sound. The stomach hangs in the abdominal cavity like a bag full of water, and changes its position according to the laws of gravitation. Any movement of the body is accompanied by splashing and very unpleasant sensations to the patient. Such stomachs are usually atonic; not in all the cases, however. A stomach is atonic in the true sense only, when its motor powers are impaired. And the real criterion of the integrity of the motor powers of the stomach is its ability to propel a good-sized meal in seven hours without leaving any residue within the stomach. I have got at present two typical cases of this order under observation, one in a young man and the other in a young woman, where the motor powers of the stomach functionate perfectly normally. The loss of tone in these cases seem to be in the attachments of the stomach. These attachments are chiefly the cardiac end, which is continuous with the esophagus and is attached to the diaphragm, and the pyloric end, which is continuous with the duodenum, and is attached to the spinal column. The peritoneal folds, such as the lesser omentum and the Ligam. phrenico-gastricum, are very frail, and offer very little fixation. The hepatoduodenal ligament, however, is a much stronger peritoneal fold. Another very important element in the fixation of the stomach is the support it receives from the juxtaposition of the neighboring viscera. A relaxed abdominal wall is, therefore, one of the

contributing factors in the class of cases under consideration.

The diagnosis of these cases is very easily made, as the splashing is very pronounced, especially when the patient changes his position on the examining table, we can distinctly hear the splash. We are enabled very easily in such cases to move the contents of the stomach from one side of the abdomen to the other with our hands. Lavage is of decided value in such cases. The in and outflow of the water seems to serve as an elegant tonic and invigorating remedy to the weakened points of fixation of the stomach. A properly fitted abdominal support is an efficient adjuvant remedy.

Sources of Error in the Splashing Sound.—The inexperienced, in making out the size and position of the stomach by means of the splashing sound, will be very prone to diagnose dilated stomachs, where none exist, the reason being that in a large number of cases a percussion blow in any part of the abdominal cavity will transmit a wave to the stomach with an accompanying splash. To safeguard against this error we must notice that the splash is produced right under the finger and not at a distance of it. It takes some experience to learn it. A second source of error is a splashing in the colon or small intestine. It is very rarely that we can elicit a splashing sound in the intestine, but we must keep it in mind. I very nearly made a mistake recently. A young woman complained of constipation and cramps with which she had been suffering for about a year. On examination strong peristaltic movements were noticed. Splashing was elicited over almost the whole abdomen. One was very much tempted to diagnose it as pyloric obstruction with marked dilatation of the stomach. The splashing seemed to be right under the finger all over. The peristaltic movements, however, seemed to be much below the normal position of the pylorus. The stomach was inflated with gas and found rather small. It was evident that the obstruction and the splashing were confined to the intestines and not the stomach.

61 East One Hundred and Seventh Street.

SUCCESSFUL TREATMENT OF A CASE OF SPECIFIC SALPINGITIS WITH GONOCOCCUS VACCINE.

By ALBERT L. TUTTLE, M.D.,

MILFORD, CONN.

On August 21, 1909, the case came under my care. Four days previously the husband consulted me for a suspicious discharge. He made stout denial as to probable cause, but I treated him according to my suspicions. When called to see the wife I found the expected sequence. I need say nothing further to suggest the etiology.

Mrs. B., aet. 20, married, mother of one child, born June 27, '09. Labor and puerperium were normal and without complication. She recovered her usual health and strength, if we consider that the pains and weakness of child-bed are a departure from health, and, true to the instincts of motherhood, she nursed her offspring. That an infection had occurred there was no doubt, as to just when I did not insist on knowing. Aug. 17 she "began to feel sick," but could assign no definite symptoms. Aug. 19, there began to be painful urination and a purulent discharge apparently from the vagina. Aug. 21 I was called, as above stated, and found patient with a temperature of 103°, and on examination evidence of urethritis and vaginitis and a thick, purulent discharge escaping from the uterus. No pain or tenderness was complained of in the region of either fallopian tube. Aug. 24 urethritis and vaginitis were subsiding under treatment, temperature normal, but still discharge from uterus. Aug. 25, temperature 102°, pain and tenderness severe in the region of the right tube and radiating down both thighs, enlargement and tenderness of the right tube, left tube not involved. There had been no chill, so I was informed. Treatment: Ferri et quinin, opiates for pain, antiphlogistine, hot antiseptic douches, etc. Aug. 26, slight relief from pain, less tenderness, temperature 100°. Aug. 27, pain much less, temperature 98.6°; free discharge from os showed good drainage. Sept. 4, much pain and increased tenderness referable to the right tube, temperature rising to 104°, probably due to obstructed drainage. Got busy with douches, poultices, etc., and good drainage was soon re-established with abatement of fever and other symptoms, and for a few days there seemed to be slight improvement, but not sufficient to disguise the perspective of a future course long drawn out, of remissions and exacerbations, destructive of every ambition that should make life worth living for the patient; destructive of the disposition, if not the health of her attendants; and, sad fate, of the reputation of the attending physician. In the hope of avoiding all of these contingencies, I expressed the opinion that desirable results could not be obtained except by an operation; and I asked for a consultation. I called Dr. J. W. Wright of Bridgeport. This was Sept. 10. After examination he expressed himself as fully in accord with my diagnosis and prognosis. Examination at this time showed the right tube much enlarged and filled with pus; neither the left tube nor the uterus showed any involvement.

He advised delay for a few days, at least, and careful observation, although an operation no doubt would ultimately be the only rational course promising success. Suggestions as to treatment in the meantime included some simple iron preparation, internally and thorough attention to use of laxatives; continue douches and flaxseed poultices, and add the use of compound ichthyol suppositories per vaginam.

Nothing worthy of note occurred during the succeeding two weeks, except gradual tendency to improvement, although there did appear a slight involvement of the left tube, and, on Sept. 19 violent pains, rise of temperature to 102°, abdominal distention, and other things suggestive of invasion of all the abdominal viscera and, peradventure, the thorax. Palpation quieted my fears, and investigation otherwise proved an intercurrent acute indigestion, due to indiscretion as to an article of diet. This condition quickly cleared up, and the temperature returned to and remained at normal. Pain and tenderness of right tube and, to a slight degree, of the left, was still present, but not very severe, the discharge continuing in considerable quantity. The patient was all this while confined to her bed, except occasionally she was able to be up for a few minutes.

At about this time my attention was directed to the use of antigonococcic serum and the results claimed. It occurred to me that this might be a good test case, and I sought information from all available sources, yet failed to find any satisfactory report of a case parallel to mine. I waxed

not strenuous, scarce sanguine of success, if even harm might not result, but being assured that the latter could not happen, I frankly laid before the family the result of my investigation, stating that to be the extent of my own knowledge. I think my frankness appealed to them, for they were more than willing to try it, in the hope, though vague, of a recovery without operation. I secured a package of four bulbs, 20,000,000 bacteria, each, of gonococcus vaccine, and on Sept. 25 at 10 A. M., made the first injection, near the lower border of the scapula, of .5 c.c., or about 5,000,000 bacteria. At 4 P. M. the same day, the patient complained of marked increase of tenderness and pain in the region of the right tube and radiating down the thigh. When I called at 8 P. M. her temperature was 99.8° (it was normal before the injection). There was also a decided increase in the discharge. This increase of the symptoms, of course, constituted the "reaction" naturally following the injection. I was informed the next day that at 11 P. M. the symptoms of reaction had passed, that the patient felt much stronger and better, and had slept all night until 8 A. M., the most natural and restful sleep since she had been sick.

On Sept. 26 there occurred another slight attack of indigestion, which having passed, at 5:30 P. M. I gave the second injection, 1 c.c. Sept. 27, reaction in evidence, but very slight, except for a much more abundant discharge. At 11 A. M. injected the whole contents of one bulb, 20,000,000 bacteria. Called again at 8 P. M. and was informed that during the afternoon there had been pains in the region of both tubes, radiating to the uterus and down the thighs, latter but slight temperature, 99.6°, pulse 100. This was the reaction, but it was passing, and she was beginning to "feel very comfortable." Sept. 28, feeling better than the preceding day, but the discharge was profuse, and urination was somewhat painful, no injection that day. Sept. 29, discharge greatly diminished, painful urination subsiding. Injection of 20,000,000 bacteria. Sept. 30, some reaction, but not severe, increase of discharge and slight pains as before. Oct. 1, reaction passed. Oct. 2, marked improvement as to all symptoms, strength and appetite much better, discharge scarcely shows on the napkins, though some was noticeable in the douches, but hardly more than a trace. Injection of 20,000,000 bacteria, fourth and last bulb of the first package. Oct. 3, considerable pain of reaction previous night and still present but less, discharge also had increased, but again diminished. Otherwise she feels much better, skin and countenance are greatly improved in appearance and expression, the color is more nearly that of health, and the skin feels softer and more natural to the touch.

Although decided improvement had apparently resulted from the injections, I was still inclined to be skeptical as to its permanency, and did not continue the injections for a time, but watched if there might be continued progress in the right direction without them. Gradual improvement did seem to continue during the succeeding two weeks. Douches, suppositories, and general treatment was kept up as also they were during the serum injections. Oct. 10 and 11 the patient was dressed and brought down stairs, the 12 she walked down. Perhaps there was overexertion, perhaps there was other cause, but on Oct. 14 there was a return of the pain and tenderness of the right tube, and, to a lesser degree, of the left, an increase of the discharge and the temperature rose to 102.5°. Thinking, perhaps, the time had come for more radical measures, I advised the Bridgeport Hospital, with a probable operation by Dr. J. W. Wright, or a further trial of the serum. I rather wished for the latter course, but was not strenuous to advise.

I went over all the evidence, *pro and con,* then told the family the responsibility would be theirs to decide which they had the most faith in. They could take until the next morning and let me know. Oct. 15, temperature normal and all the other symptoms abated, and the verdict was: "more serum." Oct. 16, there was at this time some tenderness and discharge, but not very much of either. Injected 1 c.c. of the vaccine. Each of the three bulbs of this package contained 2 c.c., number of bacteria not stated. For six consecutive days I injected half the contents of a bulb each day, observing strict aseptic precautions, both in administering the dose and in protecting that left in the bulb to be used the next day, considering the risk of contamination or deterioration of the latter so slight that I might venture to take it. Perhaps it was the kind Providence that watches over children and fools that prevented serious consequences.

During these injections there was no manifestation of reaction nor after any subsequent ones. From now on there was gradual and uninterrupted improvement each day, all tenderness disappearing, and, after Oct. 18 no discharge could be detected, either on the napkins or in the douches. The suppositories had been discontinued for several days, and there was no tenderness of the tubes on vaginal examination; only there remained a slight thickening of the right tube, this was also noticeable at the time of the last examination, which was Oct. 29.

Apparently a cure had been effected and the patient was gaining steadily in strength and general health. But, *certiorem facere,* I ordered the third package. It not occurring to me to state how many million bacteria per dose, I received four tubes, 1 c.c., 100,000,000 bacteria each.

I ventured to inject .5 c.c. the first dose, nothing whatever happened, so I used the rest of that bulb the next day, and thereafter, on alternate days, 1 c.c. of 100,000,000 bacteria each, the last one being administered on Oct. 27.

Neither at that time nor since have I been able to detect any remaining symptoms of the disease, other than the thickening of the right tube, as stated. At 5 P.M., Nov. 11, I called at her house and found Mrs. B—— just returned from a tramp in the woods, still in long coat and soft hat, and appearing, as she claimed to feel, not fatigued, but refreshed and invigorated by the exercise.

With pardonable pride she brought in her baby, who had been left outside in her carriage, for me to see how she was thriving. Also, I was informed that the first menses since Mrs. B——'s accouchement had put in an appearance the day before, and that it was normal in every respect and painless.

Early in the course of the disease the mammary secretion failed, and the baby had to be put on the bottle.

Oftentimes we can get more birds with weapons of our longest and most familiar acquaintance, if perchance they may be of rather antiquated type. I used my common sense and best judgment, such as they were, and did not avail myself of the advantages of the opsonic index. Whoever reads this will have his own conclusions, good, bad or

indifferent, so I need scarcely add any, but this much I will say: that I believe a complete and permanent cure of a typical and by no means mild case of specific pyosalpingitis has been effected by the use of three stock packages of gonococcus vaccine, the time of treatment being about one month.

A SURGICAL ACCIDENT NECESSITATING INTESTINAL RESECTION.

By EUGENE H. EISING, M.D.,

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The following case presents some unusual features from both the surgical and the medicolegal aspects of more than passing interest.

Dr. X. requested me to see with him a patient whom he had just curetted. The patient was a young woman, married one year; she had not menstruated for the past two months, and for that reason considered herself pregnant. While engaged in her household affairs she fell and soon thereafter began to have pains in the lower part of the abdomen, one hour later she began to bleed. The bleeding had continued two days, when Dr. X. was called to see her. He at first prescribed medicine, but inasmuch as the bleeding continued, after two days he arranged to empty the uterus by curettage.

The doctor told me over the 'phone in great alarm, that just as he had considered the curettage completed he found that his instrument had passed upward indefinitely, meeting no resistance, and that upon withdrawing it, to his dismay, found that with it he brought down a considerable length of intestine. He consulted for a moment with his anesthetist, who advised him to replace the intestine carefully into the abdomen. This he did as well as he could under the anxiety of the moment, packed the vagina with gauze, and hastened to the 'phone. On the strength of this history I considered any delay fatal and urged him to place his patient in a hospital where, if necessary, any surgical procedure could be undertaken under the best environment. Upon my suggestion, therefore, he brought the patient to a sanatorium in the neighborhood.

Within four hours of the accident I had examined the patient. Her condition was apparently good and in no way betrayed the serious nature of the intra-abdominal condition. The pulse was slow and regular, respirations were normal, and there was no elevation of temperature. Her color was good, she was talkative, and could not realize why she had been transported to a sanatorium. The vaginal examination revealed slight bleeding from the cervix. No instrumental examination was made. There was practically no abdominal tenderness except what one might naturally expect after a curettage. In other words, the indication for an exploratory incision was to be found in the statements of the doctor and not in the patient's condition. Realizing the importance of the next few hours and the gravity entailed in awaiting the advent of indicative symptoms I decided to explore at once.

Upon opening the abdominal cavity the condition soon revealed itself. The uterus was slightly enlarged and the fundus showed a small laceration about 1¼ inches in length. This was hastily closed and bleeding checked. Concealed by loops of normal intestine a mass of gray collapsed small intestine was discovered in the cul-de-sac of Douglas to the left side. This piece of intestine had been torn entirely free from its mesenteric moorings. It was two feet in length, empty and collapsed, and of a color that I had never seen before assumed by intestine and evidently due to ischemia. There was neither fluid nor feces in the peritoneal cavity excepting for a certain amount of blood. The intestine was ileum, its distal end being 2½ feet from the ileocecal junction.

My first thought was to implant the ends of the intestine in the wound, making an artificial anus, but the high site of such a resulting fistula determined me to do an anastomosis. This latter procedure was quickly done with the aid of the Murphy button and the wound was closed with a small drain. The patient's recovery was uneventful, the button was passed on the ninth day.

18 East Sixtieth Street.

Simplified Method of Estimation of the Fats in Milk.—A. L. Rapisarda has modified the method of estimating the fats in milk, so as to make the apparatus compact enough to be carried in a moderate sized box. He uses the method of Gaertner, eliminating centrifugation, and using milk heated to 70° C. He tested milk of goats, cows, and asses, as well as human milk. The test must be carried out for an hour and a half to be reliable. All that is necessary is a simple apparatus, consisting of a thermometer, a graduated pipette, two Gaertner tubes, and bottles containing the sulphuric acid and amylic alcohol. Having got the analysis of the fats, it is not difficult to estimate the other constituents of the milk.—*Rivista di Clinica Pediatrica.*

Has the Fat of Foods an Effect on the Mother's Milk?—Armando Malagodi finds a great difference in opinion as to the effect on the fats of human milk corresponding with changes and increase of the fats in ingested foods. After experiments made by him on patients in the obstetric clinic at Bologna, the milk having been carefully analyzed, he gives his conclusions. In only one of his cases was there any increase in the amount of fat in the milk with an increase of fats in the foods. A decrease of fat in the food produced a decrease of fats in the milk. But there was an important change in the quality of the milk, which could be noted in the color and the density of the fat in the milk. This will account for some of the attacks of dyspepsia in infants with a change in the food of the mother, or the taking of unaccustomed foods.—*Rivista di Clinica Pediatrica.*

Operations for Suppurating Sinuses.—C. A. Buklin, in studying a case in which the bone comprising the wall between the frontal and ethmoidal sinus was exfoliated into the nose, arrived at the following conclusion: (1) In this case the wall having sloughed out, owing to ethmoid inflammation, the frontal and ethmoidal sinuses become one large cavity, which completely cured the disease. (2) Successful operations have been performed on the ethmoidal and frontal sinuses in an effort to imitate their suppurative process. Hartmann's forceps were used by a method described in the article. The cures resulting from the uniting of the two sinuses are always permanent and without annoying complications. One cut usually suffices to make the opening large enough, but the latter may be enlarged to meet the requirements. Suppuration in the frontal sinus usually originates in the ethmoidal sinus. (3) Should the inflammatory thickening, or other cause, make the operation with the Hartmann forceps impossible or too dangerous, the "sphenoidal chisel" may be used: this is more rapid and certain, but more dangerous than the first-named operation. The two operations are commended as being less dangerous than the exterior operation on the ethmoidal and frontal sinuses. If the postoperative progress is not good, potassium iodide in increasing doses should be given. In discussing the operation on the sphenoidal sinus, Buklin describes the "sphenoidal chisel" and the method of using it. This procedure is an improvement on the usual sphenoidal operation in that the instrument is placed before there is any bleeding, and, after placing it, it is not necessary to look into the nose. He says that the chisel offers the best, quickest, and safest method of performing the operation of opening the sphenoidal sinus without any annoying complication. In these cases the failure of cure indicates the administration of the iodides.—*Archiv für Laryngologie.*

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THE TACTICAL MANAGEMENT OF ARMY MEDICAL RELIEF UNITS IN WAR.

THE February issue of the *Military Surgeon* contains an article by Surgeon Munson of the Army, on the utility of map problems in the education of army medical officers, which throws an interesting side light upon one of the multifarious functions of the army surgeon. While, of course, the practice of physic and surgery among the sick and wounded is a fundamental duty of the medical man in or out of the military service, the profession and public generally have come to realize that, in its actual humanitarian results among troops, preventive medicine possesses even greater importance, and that "A far greater blessing he secures who stops the coming ill, than he who cures."

The article above referred to, however,treats of the important administrative and executive duties required of army surgeons with fighting troops in time of war. The subject is one which is, and has been, curiously neglected; for while it represents a phase of purely business activity which is wholly extramedical, yet this phase is an essential antecedent in bringing about conditions through which medical and surgical relief work after battles is made efficient, and needless suffering prevented. It is clear that no amount of preparation and of resources is of any practical humanitarian value until the patient, the doctor, and the hospital equipment have been brought together. To accomplish this to best advantage in armies in the field requires a thorough knowledge of military organization, conditions, and methods; and since this duty is one which is specifically laid upon the Medical Department and its performance and the responsibility for results are thus not to be evaded, it follows that the subject is one which must be duly studied by medical officers of the army and of the militia as one of the accessory but essential branches of their medicomilitary education. It is quite true that the subject is one which does not appeal to the scientific side of the earnest professional worker, but the great humanitarian benefits which flow from its intelligent application in war are more than sufficient reason for its study and understanding in time of peace. When war comes, the patriotic but untrained medical officers can acquire this necessary medicomilitary information only through the humiliation which results from personal mistakes and with unnecessary agonies and deaths in the soldiers with whose welfare they are charged.

With the steadily increasing number of combatants in modern battles and the marvelous improvements in the instruments and appliances for human destruction, comes a greater necessity for regarding the Medical Department not as a collection of individual humanitarian units, but as a great military machine or instrument of precision, directed by the brain rather than the hands of the Chief Surgeon. Under our present army organization, the Chief Surgeon of a field army would have about 8,000 medical officers and hospital corps men under him for orders, hospitals aggregating about 8,000 beds dependent on him for equipment and supplies, and anything up to some 15,000 sick and wounded looking to him for relief. Without due preliminary training no doctor could be competent to administer a position of such vast responsibility and develop its complicated, special machinery, any more than the busy ophthalmologist or gynecologist would be competent to step from his office into that of a great transportation or manufacturing concern employing many thousand men, install its outfit, and direct the operating forces.

The picture which we have drawn for us of Field Marshal Oyama in the recent Russo-Japanese war is that of a quiet little man, himself far from the fighting, moving his almost half million soliders by telegraphic orders, like pawns along their sixty-mile battle line. With him stood his chief surgeon, fully informed and able to answer all questions as to his own department, following the tactical movements on the map and suitably altering, with the approval of his commander, the disposition of the sanitary troops in the more prompt and efficient relief of suffering and the freedom of the fighting force from the incubus of the wounded. What the chief surgeon thus did in an administrative way was of ten thousand times as much benefit to his country and to humanity as he could ever have possibly accomplished through his efforts as an individual surgeon in an operating room. The admirable results which he achieved for his department were gained only through the efficient administration of a practical business organization dependent on intimate knowledge acquired by special study.

In our next war we shall require relatively few such chief surgeons, but they must be men whose intimate military insight and forceful executive capacity are such as can be sorely tried without being found wanting. But we shall need a vast number of medical men in the less conspicuous but none the less important positions with the fighting troops, to whom a working knowledge of military and medical organization and methods is of absolutely essential importance. An abundance of the best medical talent in the country would be available for the treatment of wounded in the hospitals in the rear, and shortage would exist only in respect to trained medical officers fully conversant with the accepted methods of getting the wounded there. This duty must fall largely upon the medical officers of our national militia, who greatly outnumber the medical officers of the regular army and largely

compose the framework upon which a medical organization for war would have to be created. To such, especially, due consideration of the points raised in the suggestive article above mentioned is earnestly commended.

THE INFECTIVITY OF TYPHUS FEVER FOR MONKEYS AND ITS MODE OF TRANSMISSION.

Experiments have been carried on recently with regard to tabardillo or Mexican typhus fever by John F. Anderson, director of the Hygienic Laboratory, and Joseph Goldberger, both of the U. S. Public Health and Marine Hospital Service. The latest investigations in this direction have had as their object the discovery of the means whereby this disease is transmitted. Some of these studies were conducted in Mexico City, but on account of the illness of one of the investigators the remainder of the work was performed in Washington, whither the experimental animals, monkeys, with the exception of one animal, were transported. In the second note published by the investigators they recorded the experimental production of fever after the inoculation with blood from cases of human tabardillo in two species of monkeys, one a female *Macacus rhesus*, and the other a male *Cebus capucinus*. The researches, on account of which has been published in Public Health Reports, Feb. 18, 1910, were continued in order to determine whether the fever thus produced was tabardillo, and the endeavor was made to arrive at this result by testing the immunity of these monkeys by again inoculating them with virulent blood. These investigations were successful, but in order to prove the point absolutely further experiments were undertaken which were also successful.

As for the mode of transmission of the disease to man, the peculiarities of the epidemiology of tabardillo suggested to the authors the existence of an intermediary host, as they had previously practically convinced themselves that the malady was not contagious in the ordinary sense of the word. Accordingly, infection by insects was regarded as a solution of the transmission problem. Fleas and bedbugs were dismissed as probable infective agents for very sufficient reasons. Experiments were conducted with body lice and it was found that the lice used for the experiment could be kept alive only at a temperature of 14° to 20° C. The influence of temperature on the longevity of the louse seemed to the observer strikingly significant in relation to the apparently singular limitation of the disease to the Mexican plateau, *i.e.* to places having an altitude of not less than 1,500 to 1,800 meters, and its complete absence from lower altitudes, and in relation to its seasonal prevalence. The conclusions reached were: (1) At least two species of monkeys, *Macacus rhesus* and *Cebus capucinus*, are susceptible to direct inoculation with blood from human cases of tabardillo. (2) One attack of the disease in the monkey produced by blood inoculation directly from man induces a definite immunity to a subsequent inoculation with virulent blood. (3) The blood from human cases of tabardillo is infective on at least the eighth day of the disease. (4) The blood from the monkey, *Macacus rhesus*, is infective by passage to a second monkey of the same species on at least the fifth and sixth days of the disease. (5) Diluted blood serum from a human case, when passed through a Berkefeld filter failed when inoculated into a monkey to produce the disease. (6) The blood of a monkey of the species *Macacus rhesus* is infective, though its infectivity is somewhat attenuated, to a second monkey of the same species. (7) The disease is not conveyed by families, as such, nor is it contagious in the ordinary sense of the word. (8) The epidemiological facts of the disease point unmistakably to an insect intermediary; and the authors believe that their observations point strongly to the body louse as this insect. (9) They think the evidence is strong enough to demand that prophylactic sanitary measures directed against this disease should take into consideration that insect.

Almost every day appears to bring evidence that in the transmission of a disease of an infective nature insects are to a greater or lesser extent responsible for its conveyance. Therefore, in the attempt to stamp out such diseases, the modern motto is seek the insect, and either exterminate the species or protect the human race from its attacks.

APLASTIC PERNICIOUS ANEMIA.

The term "pernicious anemia" immediately suggests the well-known blood picture characterized by the diminution of the red blood cells with the retention of a relatively high hemoglobin content, the appearance of unripe erythrocytes, such as megaloblasts and megalocytes, normoblasts and normocytes, in the circulating blood, and finally a diminution in the number of leucocytes. Clinically, the term stands for a disease of unknown etiology, of varying duration, marked by repeated exacerbations and remissions and finally ending in a fatal outcome. Yet the creator of modern hematology, Paul Ehrlich, has clearly indicated the existence of another type of pernicious anemia, attention to which has been again called by the report of several recently observed cases. In contradistinction to the "hyperplastic" anemia described above in which the circulating blood shows evidences of active regeneration going on in the bone-marrow, this "aplastic" type of the disease is characterized by the absence of erythroblasts, that is, of unripe red cells in the circulating blood. Corresponding to the blood findings the bone-marrow shows singularly few evidence of erythrogenesis, being for the most part fatty in character, lacking almost totally in nucleated red cells and being very poor in the granular variety of leucocytes. Clinically, too, this variety of pernicious anemia differs from the usual type. Writing in Osler's Modern Medicine (Vol. IV.) Cabot thus summarises the principal data of the disease: Aplastic anemia is a disease of young persons. The number of cases occurring in women is much larger than in the ordinary type of pernicious anemia. The disease runs a rapid and progressive course. There are no remissions and the patient usually dies within a few months from the begin-

ning of the attack. Hemorrhages, subcutaneous, buccal, and elsewhere, are much more common than in the ordinary type of pernicious anemia.

The most interesting problem in connection with the existence of this separate variety of primary anemia lies in the possible light that it may throw upon the origin of pernicious anemia in general. That affection is no longer looked upon by the best authorities as a disease of the blood *per se;* rather, the phenomena observable in the study of the morphology of the blood are regarded merely as symptoms of the disease, evidences of the activity of some unknown poison which in producing hemolysis attacks in addition the internal organs such as the liver and the spleen, and the nervous system as well. The picture in the bone-marrow is simply the evidence of self-defense on the part of the organism, the attempt by overproducing to repair the damage caused by progressive hemolysis. That such an explanation is not far fetched is made evident by the brilliant researches of Schaumann who has shown that a disease that is clinically and pathologically very similar to pernicious anemia of the hyperplastic type is frequently produced by the presence in the body of a parasite, *Dibotriocephalus latus* or the fish tapeworm. Another observer, Bunting, has produced in animals bone-marrow lesions very similar to those observed in cases of pernicious anemia, by gradually poisoning them by injections of a hemolytic poison, ricin. Quite recently (Bulletin of the Johns Hopkins Hospital, February, 1910) L. Salling has reported a series of cases of purpura hæmorrhagica occurring among employees of a factory in which benzol was used. All the cases occurred in one room and all in common showed a marked degree of anemia, a purpuric eruption, and a blood picture closely akin to the one described above as typical of the aplastic type of pernicious anemia. What is more important, in the two cases that came to autopsy the bone-marrow was shown to have undergone the same degenerative changes as are found in aplastic anemia. Salling has produced similar changes in the marrow of rabbits by treating them with injections of benzol.

It seems evident, therefore, that the blood picture as well as its anatomical substratum, the changed bone-marrow, observed in cases of aplastic or hyperplastic anemia, may be produced by the action of substances which in the one case may be the products of animal metabolism or of the disintegration of animal protoplasm, in the other some chemical substance of unknown composition. The conclusion seems near that similar factors may be at work in the production of the cryptogenic pernicious anemia and the search for them should be the immediate aim of all interested in clearing up the problem of this remarkable affection.

A Simpler Typhoid Fever Test.

Though the discovery of the agglutination test for typhoid fever was unquestionably one of the greatest advances ever made in the diagnosis of this often obscure disease, it has the one disadvantage that if a positive Widal reaction is to be obtained the patient's blood must contain a fairly large proportion of immune substances, a condition not found in the early days of the disease, when the diagnostic need is greatest. For this reason many investigators have attempted to find some more delicate test for typhoid fever, or at least a test which will be of more value in the earlier days of the fever. In the *Münchener medizinische Wochenschrift* for January 25, 1910, Mandelbaum reports his researches in this direction. The basis of this work is the discovery by Pfaundler of the fact that colon bacilli, in a medium containing homologous immune serum, form a network composed of many long threads or chains of organisms, and the further finding by Kraus and Löw that typhoid bacilli, under similar conditions, first agglutinate and then some hours later grow into similar threads. Mandelbaum, thinking that possibly this thread-forming characteristic might make its appearance in the presence of serum containing a smaller number of immunity bodies than is required for the Widal test, has carried out some investigations which have resulted in his proposing the following test for typhoid fever: A citrate bouillon is made of the strength of two grams of sodium citrate to 100 c.c. of bouillon, and 5 to 8 c.c. of this is put in each test tube. Just before making the test one of these tubes is inoculated with an active but not too fresh culture of typhoid bacilli. A drop of the patient's blood is drawn into a sterile pipette, and following this about fifteen times its volume of the typhoid culture in the citrated bouillon. The pipette, after the lower end is sealed, is placed in the thermostat for four hours. The blood corpuscles sink to the bottom. With a second sterile pipette a drop of the supernatant fluid is placed upon a hanging-drop slide. If the blood is from a nontyphoid patient the bacteria are seen to be actively motile and separate, while if the reaction is positive they are in long, threadlike chains, and are not motile. Mandelbaum has used this test in a series of typhoid fever cases at various stages of the disease, and in a number of control cases, and he believes it to be as accurate as, and considerably more delicate than the Widal test, in a number of cases this reaction having been obtained some days earlier than the Widal.

Raynaud's Disease and Achylia Gastrica.

The symptom complex of symmetrical local asphyxia of the extremities, with its resultant gangrene of the fingers and toes, which is always associated with the name of Raynaud, is one of the pathological puzzles yet to be solved. Though malaria, syphilis, and other conditions are mentioned as the etiological factors in the disease, the actual knowledge goes little beyond the facts that it is associated with a marked vasoconstriction and is usually intermittent in character. An especially interesting case of this affection is reported by Friedman in the *American Journal of the Medical Sciences* for February, 1910. In this patient, besides the typical condition of local asphyxia of the fingers and toes, causing them first to appear white and dead and later of a bluish tint, there were a marked general anhidrosis and an intermittent achylia gastrica. The patient was under observation for some time, and numerous test meals were analyzed. In the periods between the attacks of local asphyxia the stomach contents showed nothing more striking than a mild grade of hypochlorhydria. At the time of the acute attacks, however, the test meal was removed practically unchanged by its sojourn in the stomach. It was very thick and dry, contained tenacious mucus,

and there was a total absence of free hydrochloric acid. This condition was observed on several occasions, always on cold days, associated with the increased cyanosis of the fingers, but giving no symptoms of indigestion. At the same time there was observed a marked contraction of the retinal arteries. The most plausible explanation of the association of these widely differing symptoms occurring in association would appear to be that the local asphyxia and cyanosis, the anhidrosis, and the achylia gastrica were all due to the same condition, vasomotor spasm in the parts affected, the underlying cause of which still remains to be demonstrated.

News of the Week.

Liability of a Hospital Interne.—A decision has recently been handed down by the United States Circuit Court of Appeals which is of considerable interest to the medical profession. Dr. A, a surgeon, operated on Mr. B and performed a nephrectomy in a Chicago hospital, Mr. B being a private patient. The wound was packed with gauze which was removed and changed by two internes, Drs. C & D and later by the family physician, Dr. E. Some months after returning to his home, the wound continuing to discharge, a second operation was performed by a local surgeon and a large piece of packing gauze was found in the wound. Mr. B sued Dr. A for malpractice and won a verdict of $4,000. This was appealed to the present court and the verdict reversed on the ground that the leaving of the gauze in the wound was due to negligence not upon the part of Dr. A but on the part of one of the two internes Dr. C or D, or the family physician, Dr. E, who had done most of the dressing, and that it would be mere guesswork to attempt to decide which of these men was legally responsible. In his opinion upon the question of responsibility of the surgeon for the mistakes of his hospital internes Justice Seaman said, as reported in the *Chicago Legal News*: "In Baker *vs.* Wentworth, 155 Mass. 338, this custom in respect of nurses is recognized, and the operating surgeon is held exempt from liability for negligence of the nurses * * *; and in Perionowski *vs.* Freeman, 4 Foster & F. 977, 980, Cockburn, C. J., remarked upon the practice (there proven) of surgeons to leave the care of their patients in various details to the hospital nurses, that such practice was 'indispensable,' and the operating surgeon was not liable for their negligence. So, these hospital attendants, known as internes (usually young physicians), are furnished at the general hospitals to attend to the ordinary work of dressing and treating the wound (left by an operation) on the way to recovery; and the mere undertaking of the surgeon to operate, under call or engagement therefor, cannot, as we believe, imply his further personal undertaking for the ordinary details of after-treatment, to make the doctrine of *respondeat superior* applicable, to charge him for fault or negligence on the part of such hospital attendants, neither known nor discoverable by the surgeon in the exercise of care and skill throughout his engagement."

A National Tuberculosis Sunday.—Announcement of a national tuberculosis Sunday to be held on April 24 in 215,000 churches of the United States has been made by the National Association for the Study and Prevention of Tuberculosis. It is planned that on April 24 tuberculosis sermons shall be preached in all the churches of the country. Literature will be distributed to members of the congregations, and in every way an effort will be made to teach that tuberculosis is a dangerous disease and that it can be prevented and cured. Clergyman who desire to obtain additional information in regard to tuberculosis will be able to secure literature from State and local antituberculosis associations and boards of health, as well as from the National Association.

The Harvey Society.—The seventh lecture of the Harvey Society will be delivered by Prof. Adolf Meyer of Johns Hopkins University, on Saturday, March 5, 1910, at the New York Academy of Medicine, at 8.30 P. M. The subject of the lecture will be "The Present Status of Aphasia and Its Relation to Psychopathology." The date of the lecture on diseases of metabolism to be given by Prof. Magnus-Levy of the University of Berlin has been changed from March 19 to April 2.

The Fourth International Sanitary Conference of the American Republics was held at San José, Costa Rica, December 25, 1909, to January 3, 1910. The following-named republics were represented at the conference by a total of 19 delegates: Chile, Colombia, Costa Rica, Cuba, Guatemala, Honduras, Mexico, Nicaragua, Panama, Salvador, United States of America, and Venezuela. In addition, the Bureau of American Republics also sent a representative. Dr. Juan J. Ulloa was president of the conference, with Dr. Luis Razette, Spanish secretary, and Dr. R. H. von Ezdorf, English secretary. The inaugural session was held at the National Theater December 25, 1909, at 3 P. M., and was attended by the President of the Republic of Costa Rica, Licenciado Don Cleto Gonzalez Viequez, his cabinet, and the Chief Justice of the Supreme Court. An address of welcome was made by the Minister of Foreign Affairs, Don Ricardo Fernandez Guardia, followed by that of the president of the convention, Dr. J. J. Ulloa. Short addresses were also made by a delegate on behalf of each republic represented. A large number of resolutions were adopted regarding sanitary conditions. The following were elected officers of the International Sanitary Bureau at Washington: *President*, Surgeon-General Walter Wyman, Public Health and Marine Hospital Service; *Secretary*, Juan J. Ulloa of Costa Rica; *Members*, Eduardo Liceaga of Mexico; Pablo Acosta Ortiz of Venezuela; Rhett Goode of United States; Juan Guiteras of Cuba; Manuel Camilo Vial of Chile. The following delegates to the Bureau from the United States were appointed: A. H. Glennan, J. W. Kerr and John W. Trask.

Antivivisection Bill.—On February 23, the usual annual hearing upon the antivivisection bill was held by the Assembly Judiciary Committee in Albany. The opposers of medical advance were represented by Mrs. Diana Belais of the New York Antivivisection Society, and Stephen Coleridge, the active head of the movement in England. The medical profession was represented in the argument by Dr. Simon Flexner of the Rockefeller Institute, Prof. Frederic S. Lee of the College of Physicians and Surgeons in New York, and Dr. James Ewing of the Cornell Medical School.

The Joseph Lawrence Free Public Hospital will soon be built in New London, Conn. The money for the building was provided by the will of the late Sebastian Duffy Lawrence in memory of his father. Two nieces of the late Mr. Lawrence, Mrs.

Pond and Mrs. Butler, have offered to furnish and equip the institution. At a recent meeting of the trustees an advisory committee was formed, consisting of the following gentlemen: Mr. F. S. Newcomb, Dr. John G. Stanton, and Dr. George S. Morgan, to procure data and estimates.

Donation to Toronto General Hospital.—The president of the Toronto General Hospital has announced that Mr. J. C. Eaton has donated $250,000 for the erection of the surgical wing of the main building of the proposed General Hospital on College street. It will be erected as a memorial to the late Timothy Eaton, father of the donor. The total number of beds to be provided for in the general surgical department is a hundred and forty-five. The trustees of the board found their resources represented by cash subscriptions of $600,000 from the University, private citizens $700,000, City of Toronto $200,000, making in all $1,500,000, with an approximate aggregate of $2,000,000 to be met.

University of Pennsylvania.—On the occasion of the celebration of University Day on Washington's birthday, Provost Harrison announced the following gifts: The Phipps' Institute for the Study, Prevention, and Treatment of Tuberculosis, with a benefaction of $500,000; the sum of $100,000 for the endowment of a chair whose occupant is to be known as the Benjamin Rush Professor of Physiologic Chemistry; a sum of money sufficient to complete the medical laboratories, in memory of the late James McManes, donated by his daughter; from Mrs. Caroline Emily Richmond, $50,000 for the endowment of ten beds in the University Hospital; from the Directors of the Pennsylvania Railroad, their exhibit worth more than $100,000, showing the development of railroad transportation from the earliest times until the present day. The announcement was made that the equipment of the University would be increased by the erection of a new zoological laboratory at a cost of $250,000. Also the Mask and Wig Club has created a fund already amounting to $5,000, the interest of which is for the time being to be used for general University purposes. A portrait of Dr. J. Wm. White was presented by Dr. Alfred Stengel on behalf of the donors.

Charitable Bequests.—By the will of the late Mrs. Ursula Kolbeck of Camden, N. J., the following charitable bequests are made: West Jersey Homeopathic Hospital, Home for the Indigent Aged and Incurable, Camden Day Nursery, West Jersey Orphanage for Destitute Colored Children, Camden Society for the Prevention of Cruelty to Animals, German Hospital of Philadelphia, German Society of Philadelphia, and the Nazarene Home for the Aged at Philadelphia, $300 each; the Camden Home for Friendless Children, the income from $1,200. By the will of the late Guilelma M. S. P. Jones of Philadelphia, the following bequests are made: Home for Aged and Infirm Colored Persons, the Home for Destitute Colored Children, the Pennsylvania Society to Protect Children from Cruelty, the William Foster Home of Tennessee, and the Ellwood Wilson Memorial Fund of the Philadelphia Lying-in-Charity, $500 each.

The Adirondack Cottage Sanatorium Laboratory has just received a gift of $25,000 from Mrs. E. H. Harriman, who donates this sum for a research and medical fund for the support of the sanatorium laboratory. The fund is to be known as the E. H. Harriman research and medical fund of the Adirondack Cottage Sanatorium. The interest is to be applied each year to the support of the sanatorium laboratory, which is distinct from the Saranac Lake laboratory at Dr. Trudeau's home in the village.

The Sacred Heart Hospital of Spokane, Washington, was opened on March 1, after three years spent in construction. The new hospital is said to be one of the best-equipped hospitals in the Northwest.

The University of North Carolina.—Following the action of the trustees of the University of North Carolina in voting to abolish the Raleigh department of the University School of Medicine, because of the lack of sufficient support from the Legislature to the University to warrant maintaining the Raleigh department of the Medical School on sufficiently creditable a scale to do justice to the State University, there comes the authoritative statement from parties close to the work in Raleigh that this will result in the establishment of a new medical college in Raleigh. The present faculty of the University department will meet within the next few days and take action, the conviction being that there is a great opportunity in Raleigh through the presence of Rex Hospital and Shaw University and St. Augustine Hospitals, and the other State hospitals, and the State and other laboratories, to which the students would have access.

An Examination for the Position of Medical Superintendent of Letchworth Village, the new State institution at Thielles, Rockland County, N. Y., for the epileptic and feeble-minded, will be held in April. Candidates must be citizens of the United States; at least thirty years of age; physicians in good and regular standing; with five years' practical experience in the care and treatment of the feeble-minded and epileptic. Salary, $4,500 per annum and maintenance for self and family. Full information and particulars regarding the nature of the examination may be obtained by addressing the State Civil Service Commission, Albany, N. Y.

The Alumni Association of Mount Sinai Hospital in New York gave a dinner on Saturday evening, February 26, to celebrate Dr. A. Jacobi's half-century of service. A gold medallion portraying the doctor, executed by Mowbray Clark, sculptor, was the gift of the Association to Dr. Jacobi. The speakers of the evening were Dr. Martin W. Ware, president of the Alumni Association; Prof. William H. Welch of Johns Hopkins University; Dr. John A. Wyeth, president of the New York Academy of Medicine, and Drs. Charles H. May and A. G. Gerster, attending surgeons to the hospital, and Philip Goodhart of the Board of Directors.

Obituary Notes.—Dr. John Gray of Bridgeport, Conn., died on February 17, 1910, aged eighty-nine years. He was a graduate of the Yale Medical School in 1843, and had practised medicine in Mystic, Conn., for over sixty years.

Dr. Charles Paine Thayer of Boston died at Atlantic City, recently, aged 67 years. He was a graduate of the University of Vermont College of Medicine in 1865. For many years Dr. Thayer was dean and professor of anatomy in Tufts Medical College. He was a member of the Suffolk County Medical Society and the Massachusetts Medical Society.

Dr. George Lucius Beardsley of Derby, Conn., died of Bright's disease at the New Haven Hospital on February 26. He was born in Milford, Conn., May 12, 1848, being a son of Dr. Lucius N. Beardsley. He received his preliminary education at the Milford high school and at the Hopkins grammar school, and was graduated from Yale with the class of 1870. He attended the Bellevue Hospital Medical College, New York, there receiving his medical degree, and subsequently was appointed surgeon in charge of the outdoor department for the surgical relief of the poor, remaining there until the fall of 1874. He opened an office in New Haven, but remained in that city only a few months, going to Derby in 1875. He was for five years assistant surgeon of the Second Regiment, C. N. G. About 1885 he was appointed medical examiner for Derby, and held that office at the time of his death. He was one of the surgeons on the staff of the Griffin Hospital, and was to have served his first term beginning with April. Dr. Beardsley is survived by his wife and by two children, Alling Prudden Beardsley and Miss Elizabeth Coley Beardsley. He also leaves a brother, Dr. William E. Beardsley, of Brooklyn, New York.

Dr. Augustus Henry Dieck of New York died at his home February 16, 1910, aged 91 years. He was a graduate of the University of Göttingen, in 1842, and had practised medicine in New York City from 1845 until ten years ago, when he retired from active work.

Dr. James Mulhern of Grand Rapids, Mich., died at his home on February 9, 1910, at the age of 66 years. He was a graduate of the Detroit Medical College in 1870, and was a member of the Kent County Medical Society, and the Michigan State Medical Society.

Dr. James E. Tuell of Augusta, Me., died on February 11, 1910, aged 55 years. He was a graduate of the Jefferson Medical College in 1884, and was a member of the Kennebec County Medical Society, the Maine Medical Association, and the American Medical Association.

Dr. Monroe Budd Long of Plainfield, N. J., died February 20, 1910, aged 60 years. He was a graduate of the College of Physicians and Surgeons in New York in 1874. Dr. Long was surgeon to the Muhlenberg Hospital and a member of the Plainfield Medical Society, the Union County Medical Society, the Medical Society of New Jersey, and the American Medical Association.

Dr. George Howard Palmer of Brooklyn died at his home on February 18, 1910, aged 47 years. He was a graduate of the New York University Medical College in 1884.

Dr. L. Barstow Irish of Brooklyn died at his home on February 17, 1910, aged 75 years. He was a graduate of the Bellevue Hospital Medical College in 1860.

Dr. William Henry Walling of Atlantic City died on February 17, 1910, aged 73 years. He was a graduate of the Medico-Chirurgical College of Philadelphia and had been on the staffs of the Medico-Chirurgical Hospital and the Wills Eye Hospital. Dr. Walling was a surgeon in the Civil War and edited the *Medical Times and Register*.

Dr. Frank Howard of San Antonio, Tex., died at his home, February 7, 1910, aged 38 years. He was a graduate of the Barnes Medical College in 1898.

Dr. Wm. B. Stanton of Philadelphia died on February 13 at the age of 38 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1898 and he served as resident physician in the Hospital of the University. He was one of the visiting physicians to St. Agnes Hospital and to the Sanatorium for Tuberculosis at White Haven, Pa. He had devised a practicable sphygmomanometer.

Dr. Charles F. Spangler of Kane, Pa., died of pulmonary tuberculosis at York, Pa., on February 13, at the age of 51 years. He was graduated from Jefferson Medical College in the class of 1881.

Dr. William Gregory Macdonald of Boston died on February 9, 1910, at the age of 51 years. He was a graduate of Boston College in 1880 and of the Harvard Medical School in 1884. Besides serving as house surgeon at Carney Hospital and admitting surgeon to the Massachusetts General Hospital, he was physician to the county jail, and the smallpox hospital, and dermatologist to the Carney, St. Elizabeth, and Mt. Sinai Hospitals. For many years Dr. Macdonald was associated with the Board of Health as medical inspector and city physician. At the time of his death he was medical examiner of Suffolk County. He was a member of the Suffolk County Medical Society, the Massachusetts Medical Society, and the American Medical Association.

Dr. Edgar Ivory Hanscom of Providence, R. I., died February 19, 1910, aged thirty-eight years. He was a graduate of Bates College in 1896 and of the Maine Medical School in 1903. At the time of his death Dr. Hanscom was assistant physician to the State Hospital for the Insane in Providence.

Dr. William King of Brunswick, Me., died at Augusta February 15, 1910, aged fifty-two years. He was a graduate of Bowdoin College in 1881, and of the Medical School of Maine in 1887.

Dr. Daniel H. Law of Dixon, Ill., died in Brownsville, Tex., on February 15, 1910, aged seventy-eight years. He was a graduate of the Keokuk Medical College in 1861, and a battalion surgeon during the Civil War. He was a member of the Lee County Medical Society, the Illinois State Medical Society, and the American Medical Association.

Dr. Augustus Richter of Williamsport, Pa., died on February 20, at the age of eighty years. He was graduated from the Pennsylvania Medical College in the Class of 1851. He was the oldest member of the Lycoming County Medical Society.

Correspondence.

A MODIFIED ESMARCH INHALER.

To the Editor of the Medical Record:

Sir:—The need of an inhaler that will fit any face accurately in using the drop method of anesthesia has long been felt. Whether we use ether, chloroform, or ethyl chloride on an open mask we want that mask to fit firmly over the nose and mouth. I think I have solved this problem. I have had a mask made along the lines of the Esmarch inhaler, but of a flexible material instead of steel. At the suggestion of Mr. Frech, of the firm of J. T. Dougherty, I used copper wire, nickel plated. I have left off the gauze and its holder and use flannel, or better still, thick stockinette, cut the proper size and turned in at the edge with a draw string of tape or thick silk suture material. The cover is put on the wire frame and the draw string tightened, thereby keeping the cover in place. Just before starting the anesthesia the mask is bent to suit. Because it fits, it is easily held on the face with one finger.

Alfred M. Hellman, M.D.,
Anesthetist to the German and Har Moriah Hospitals.
2 West Eighty-sixth Street.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

PELLAGRA—TRYPANOSOMATA—CANCER IN RATS AND MICE—COLOR-BLINDNESS—ANESTHESIA—UNIVERSITY ELECTION.

LONDON, February 11, 1910.

PELLAGRA has been a prevailing topic of the week among doctors, and many of their patients have been asking what it is. This interest has been excited by the formation of a strong committee, on which the London and Liverpool Schools of Tropical Medicine are both represented, with a view of a new investigation of the disease. It is true that it does not prevail in this country, but it does in some parts of the empire. The committee has appealed for funds and met with an encouraging response. The *Times* of Friday last had an instructive article on the subject and the other daily papers have followed suit. It is intended to send Dr. Sambon to the pellagrous areas to carry out a complete research. He is, as you know, dissatisfied with the prevailing views as to the origin of the disease. Indeed, I may say he utterly repudiates the so-called Monje theory and has propounded another hypothesis, which has met with a favorable reception from a number of continental authorities, and also, I think, from able observers on your side since some of the States have been invaded. His hypothesis is that pellagra is a protozoal disease conveyed by one of the blood-sucking insects, and he thinks that a sandfly will probably be found to be the carrier. This would bring it into relation with other parasitic infections. His first work will be directed to determine whether this theory can be established. If it cannot he will proceed to investigate all circumstances connected with the disease by the aid of all the facts and specimens he will have accumulated and carry on all kinds of research which may help to determine its true etiology and pathology.

The Royal Society's meeting on Friday last (3d inst.) was of medical and biological interest. Professor Minchin described some experiments conducted by himself and Mr. J. D. Thomson on the transmission of *Trypanosoma lewisi* by the *Cerotodus fasciatus* (rat-flea). They came to the conclusion that the flea did not act merely as an instrument or as a carrier of infection, but that it was the seat of a cycle of development in the parasite, as was the mosquito in the case of the malaria parasite. This they expressed briefly in the statement that transmission from an infected rat to a noninfected one is by the cyclical, not by the direct, method. They further determined that in the flea the incubation period was at least six days, but that it might be longer.

Dr. E. F. Bashford brought forward a paper by Dr. Medigreceanu of Bukarest on the relative sizes of the organs of rats and mice bearing malignant growths, the most important result of which was that the liver is enlarged in animals bearing carcinomata and sarcomata, whether these growths are transplanted or arise naturally. Dr. Bashford also presented a paper by himself and Dr. B. R. G. Russell on the homogeneity of the resistance to the implantation of malignant growths. It was stated by Dr. Bashford that the prevailing conceptions of what constituted immunity to cancer were simplified by experiments showing that the active immunity which followed in rats after a preliminary inoculation of mouse cancer was not an immunity against cancer but against the protein of a foreign species. Consequently hypotheses of cancer immunity based on the study of the behavior of tumors in strange species had at most only an indirect bearing on the immunity to cancer of the same species.

Another paper by Dr. M. Haaland (also presented by Dr. Bashford). In this the reactions to the implantation of cancer after the inoculation of living and of mechanically disintegrated cells were contrasted.

The subject of color blindness is sure to come up for fresh discussion whenever an accident occurs which might have been due to it. Accordingly it has again been before the public, and the profession is asked for explanations.

Dr. Edridge-Green, who has for years studied the condition in all its aspects, read a paper on it at the Society of Arts on Wednesday, in which he maintained, as he has often done before, that the wool test has proved a failure, although it is still used by the Board of Trade. He hoped a committee would be appointed soon to examine the facts, for he had proved that many dangerously color-blind men had passed that test and his experience was confirmed by others. Of those rejected by the wool test and who appealed over 53 per cent. were found to be normal-sighted. The material was not a good one, for it was difficult to obtain correctly colored wools. A further difficulty was found in obtaining duplicates of these wools. If two colors looked alike they had not necessarily the same composition; if the dyes used were different the colors would probably differ in composition. Further, when a good set of wools had been secured, the colors were liable to fade, some more rapidly than others. This would prevent the results of examinations made with that set from being uniform. Then the wools, or some of them, would very soon become soiled. The greens which it was necessary to pick out would get more soiled than the others and so afford a mark of distinction to the color-blind, who, not being confused by the striking differences of color, noticed minutiæ of this kind. In testing a number of persons the color-blind ones would try to find some distinguishing mark in wools selected by others. Color-blind people might distinguish between brown and green by the touch, but not by sight. The relative luminosity of the colors of wools was also considerable and formed a distinguishing point to the color-blind. A pure green was one of the worst possible colors to choose for a first test. If the blue-green were removed, color-blind persons might easily pass through the whole list and not be detected. Dr. Eldridge-Green held that the test was theoretical rather than practical, the main object of testing being lost sight of. Thus it had to be proved that a man who put a confusion-color with a green wool could not tell a red from a green light, and when he had done so it was still to be decided whether he had been judging more by shade than color. In fact, it was obvious the test was by no means efficient. They could not reject by it those who would be dangerous as sailors or engine drivers—and only those persons. Moreover, it was possible to instruct a red-green color-blind person so as to enable him to pass through the test with ease.

Yesterday the poll of the Universities of Edinburgh and St. Andrews was declared. Sir Robert Finlay was elected by a majority of 2,512 votes over Sir A. R. Simpson. The numbers were 5,205 against 2,693.

Yesterday the Council of the Royal College of Surgeons adopted a report brought up by their committee on the administration of anesthetics, which expressed concurrence with the conclusions of the General Medical Council, except so far as any limitation of dental practitioners to cases in their own specialty. It was felt that very often anesthesia is needed when a medical man, in addition to the operator, cannot be obtained, and in such cases it would be well for a qualified dentist to administer the anesthetic.

OUR VIENNA LETTER

(From Our Regular Correspondent.)

SPOROTRICHOSIS BEURMANNII—ATONIC GASTROPTOSIS—SUTURE OF THE HEART—CARDIAC PAIN—THERAPEUTIC ACTION OF A BULLET WOUND—PROMINENT EARS.

VIENNA, January 31, 1910.

AT the Society of Physicians Otto Krenn demonstrated a case of *Sporotrichosis Beurmannii*. The patient suffered from a disease which was first described in 1903. Up to date no case had been published from Austria. The cause of the disease is the *Sporatrichon Beurmannii* This is a thin sigmented spore-bearing thread. The skin disease caused by it appears in two forms, the syphiloid form, papules which pustulate, or the tubercular form, which resembles lupus. As a rule the disease has an afebrile course, but occasionally acute cases occur which may show the appearances of septicopyemia. Potassium iodide has a favorable action when the disease is localized to the periosteum or the bones.

After this presentation Ricard Volk demonstrated a preparation of experimental sporotrichosis. The infection was produced by an original culture obtained from Ravant. Various animals are susceptible, especially dogs, cats, and rats. Different morbid pictures are produced, according to the mode of infection and the character of the animal, some of them closely resembling the lesion seen in human skin. For example, if one inoculates an animal intraperitoneally the symptoms appear at the end of ten to fourteen days. The first signs of disease appear in the testicles in the form

of small nodules, which shine white through the tunica albuginea, closely resembling tubercles. At the same time the organ increases rapidly in size. The further course shows nodule formation in the omentum, peritoneum, lungs, and liver, so that the various organs may show disease pictures. Finally, the animals die, with the appearance of severe cachexia. The autopsy shows, besides the nodules, degenerations of the parenchymatous organs and a marked watery condition of the blood, and furthermore from the adhesion of the testicles to the skin there may be an ulceration resembling a gumma. On the position of the organism biologically the researches are not conclusive. It is a fact that the organisms in a section of human sporotrichosis appears to be very difficult or impossible to stain, whereas those found in experimental infections stain easily.

At the same society Professor van Noorden spoke on the subject of ptosis and atonia of the stomach. In the treatment of atonic gastroptosis we use above all other methods the abdominal binder and the forced feeding cure, both in the effort to raise the sunken pylorus. Even well-adjusted abdominal binders and properly applied adhesive plaster are of no value if the abdominal wall has its normal tone. However, under these circumstances much may be accomplished by a feeding cure lasting from four to six weeks. The forced feeding in cases of stomach disease is not especially easy, particularly in these cases of gastric atony. Besides the elevation of the lower border of the stomach and the entire pyloric portion, a marked shortening of the entire organ occurs and in those cases where the lower curvature bulges downwards like a pouch this bulging disappears. The filling of the peritoneal cavity with fat plays an important part in the results, but the chief factor in the cure is the increased tone of the stomach wall brought about by the improved general nutrition. Rest in bed is unnecessary during this form of treatment.

Professor Schnitzler has had a case of suture of the heart. The cardiac wound was the result of a knife stab over the precordium. The operation, carried on under anesthesia, in the course of which the fourth and fifth costal cartilages were removed, showed a wound in the pleura, a wound in the pericardium, and a cut 1.5 cm. long in the anterior wall of the right ventricle, penetrating the entire thickness of the wall. The catgut suture which was applied first tore out and very profuse hemorrhage occurred from the right ventricle, provisionally controlled with the finger. With great difficulty, owing to the turbulent action of the heart a deep wide suture was taken with silk, and by means of this the heart was drawn forward. After this it was easy to apply three superficial silk sutures, which accurately closed the opening into the ventricle. The pericardium was closed and the left pleura drained. The further course of the case included a left-sided hemopneumothorax, complicated a few days after the operation by a right-sided croupous pneumonia, with diplococci in the sputum, and herpes labialis. As a result of these, repeated punctures, counter drainage, and finally twice resection of the ribs were required, complications and sequelæ of operation not rare after cardiac suture. At present there is still a small pleural fistula, but except for this the patient may be considered as completely cured. The statistics of cardiac suture show from 30 to 40 per cent. of cures. The majority of the causes of death following cardiac suture are infectious complications on the part of the pericardium and the pleura. In the recovering cases these complications often make the convalescence slow and difficult.

In the German Medical Society at Prague, Selig of Franzensbad spoke on the subject of cardiac pain. The sensations in the cardiac region of which nearly all cardiac cases complain have various causes and characteristics. As a cause of the most common cardiac sensation, palpitation, must be considered the strong contraction of the heart in answer to the great demand of the active organs. The chief immediate cause is a psychic alteration. With a nervous foundation the smallest psychic impulse suffices to produce it. Most sufferers from heart disease have cardiac anxiety, a feeling of anguish which often stands in direct relation to the heart disease, as coronary sclerosis or myocarditis. This cardiac anguish reaches its maximum in angina pectoris a definite symptom complex. Arteriosclerosis is not always the cause of these sensations; abuse of tobacco is very often responsible and also vasomotor influences. Alterations in rhythm on occasion call forth the hypersensation. The differentiation between nervous and myocarditic arrhythmias is difficult and renders correct diagnosis and prognosis hard to make. There are cases of the most extreme arrhythmia which we are obliged to consider as nervous because the heart shows no insufficiency even with violent exercise. The occurrence of an attack often calls forth the most unpleasant symptoms in the region of the heart, stabbing pain in the heart, oppression and dizziness due to incomplete cardiac contraction. Intercostal neuralgia and vasomotor conditions frequently cause pain in the region of the heart. Hot fomentations to the pericardium, or a hot water bottle, serve well in the treatment of cardiac pain in arteriosclerosis. Women with heavy, fat, hanging breasts complain of continuous pain in the heart, which completely disappears on supporting the left breast. Constipation and flatulence press upon the heart by raising the diaphragm; certain foods or hunger cause palpitation in that they influence the gastric branch of the vagus nerve either by stimulation or inhibition. Incorrect proportions between the size of the heart and the thorax must be put in the list of causes of oppression. One of the most important causes of cardiac pain is insufficient suspension of the organ, the so-called wandering heart, which allows of the most various dislocations.

In the Society of Physicians Prof. Schnitzler showed a case in which a revolver shot acted to cure a disease. The bullet entered the abdomen. The laparotomy showed two perforations of the jejunum and hyperemia of the descending colon. The intestines were sutured and the abdomen closed. Schnitzler reported the case not on account of the indications for operation and the uneventful postoperative course, as he considered it as a matter of course that one should do a laparotomy in a fresh abdominal bullet wound, under these conditions, and it as a rule happens that such cases operated upon in the first hours recover; but because the laparotomy served to demonstrate a most interesting complication. The entire length of the small intestine examined was covered with tubercles; the walls were infiltrated, and deep ulcerations were seen. In the peritonium was a serous exudate, naturally somewhat blood tinged. The patient had shown no symptoms whatever of this extensive intestinal tuberculosis. Schnitzler naturally inquired into this carefully after she recovered. For years she had had no irregularities of the bowels, no diarrhea, no increased frequency of motions; she was not emaciated, had no fever, and no pain. In several admissions to the hospital she had shown no symptoms of disease of the intestines or peritoneum. Ten years previous the patient had had tuberculosis of the tarsus, which had healed completely after operation. She gave a very active ophthalmoreaction. It is well known that intestinal tuberculosis may run its course unrecognized and be discovered first at the autopsy table. This, however, usually happens in very ill people, in whom the tuberculosis of the lungs or other organs masks the picture, whereas in this case the advanced tuberculosis was found in a woman apparently perfectly well and only discovered as a result of the laparotomy performed for the bullet wound. It is not certain that the laparotomy had anything to do with the recovery, but at least the tuberculosis in no way interfered with the healing of the intestinal wounds.

Dr. Erich Rutlin has devised a new method of correcting prominent ears. The method is as follows: First one orients himself by pressing the ear back against the head and finds how much of the surface of the pinna and the mastoid process come in contact when the ear is in the corrected position. Then, at a point 1 cm. posterior to this marked line, a curved incision is made the length of the pinna. (For example, this cut is 4 cm. from the root of the pinna.) Then on the posterior surface of the pinna, parallel to the first cut, but half as far from the root of the pinna (that is, 2 cm.), is made a second cut. The skin lying between these two cuts is excised and the skin of the posterior surface of the pinna for a distance of 1 cm. is freed. Then the two cut edges of skin, after the necessary trimming has been done, are approximated and sutured. By this the freshly denuded surface of the pinna is brought in contact with the similar surface of the mastoid. The pinna is held in this position by a compression bandage for fourteen days, until the surfaces have united. The advantage of this method is the strong fleshy union, and further that the cartilage and pericondrium are preserved intact and that as one uses the skin for the plastic material he has the whole integument covering pinna and mastoid with which to work.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

EHRLICH'S THEORY OF CHEMOTHERAPY OF INFECTIOUS DISEASES.

BERLIN, January 30, 1910.

THE Central Committee for Medical Progress in Prussia arranges each winter a series of lectures in which the accepted authorities in Germany discuss the themes in which they are credited with especial knowledge. The course this year deals with "Infections—Their Recognition and Treatment." Of especial interest was the address by Paul Ehrlich of Frankfort, who spoke on the chemotherapy of the infectious diseases, the substance of which may well be given in brief.

Chemotherapy and immunotherapy have a general relation to each other in so far as by both, on the introduction of a material into the body, antibodies are produced. The immunotherapy or serum therapy, however, will always have the superiority over all other therapeutic measures, in that it is absolutely specific, not in the least injuring the body, but acting upon the bacteria only. In a number of diseases, however, to which belong especially those produced by protozoa, as malaria and sleeping sickness, and by pathogenic spirilla, immunotherapy seems powerless to produce an antibody with a curative power. In these cases recourse must be taken to chemotherapy. The best results of this are obtained with quinine in malaria, iodides and mercury in syphilis, and atoxyl in trypanosomiasis.

The foundation of the sphere of chemotherapy is the changing of the chemical law, *Corpora non agunt nisi liquida,* into the chemotherapeutic law, *Corpora non agunt nisi fixata*; that is, unless the drug is taken up by the parasite or is, as Ehrlich calls it, "parasitotropic." As all these drugs are also taken up by the organs of the body, or are organotropic, the organotropia and parasitotropia of any drug must exist in the proper proportion.

For the occurrence of parasitotropia the best example is given by a study of trypanosomiasis, especially of the acid-fast strains of the organism. Three groups of chemicals—arsenicals, certain azo pigments, and certain basic triphenylmethan pigments—show curative properties for animals infected with trypanosomes. In the trypanosomes a definite portion of its protoplasm must be considered to be a chemoceptor, as this portion is able to form a combination with a definite chemical: for example, trivalent arsenic.

In order to test a drug, by putting it in a test tube and allowing it to work on the bacteria the motility and agglutination of the latter may be observed, or else it may be injected into animals. When this is done there are three possibilities. 1. *In vitro,* and in the animals the drug has no action; that is, the trypanosomes have no specific chemoceptors. 2. The action *in vitro* is marked, while in the animal body it is absent. This occurs when the drug combines *in toto* with the organs and not at all with the parasites. 3. The drug is inactive *in vitro,* but very active in the animal. This may be explained in two ways. First, it may happen that in the body, from the inactive chemical substance, by the transforming power of the body an active chemical substance is produced. Second, it is possible that while both in the test tube and in the body the activity of the parasite is uninfluenced, its reproductive power on the other hand is inhibited. When dealing with short-lived parasites such an action naturally cures the disease. Furthermore, cases often occur in which the action in the test tube is much weaker than in the animal. This can be explained on the theory that a part of the parasites may be killed by the drug, just as in the test tube, the dead parasites, however, then producing antibodies in the animal which act on the living parasites.

After the discovery of acid-fast strains of trypanosomes, Ehrlich sought for a drug which would act upon these. This was found in arsenophenylglycin. After much research it was established that the activity of this could be explained only on the theory that there exists in the trypanosomes a peculiar side chain, which has a special affinity for the acetic acid radicle of the arsenophenylglycin and must, therefore, be called an "aceticoceptor." It is possible, furthermore, that the drug may combine not only with one but with more groups of the parasite protoplasm. In this case there can be proved experimentally a primary combining group, called a primary haptophor, and a secondary one, a secondary haptophor. It has been shown further that in the spirilla diseases iodine plays a great rôle. In the spirilla there is present a group which, in a preparation of arsenic iodide, first combines with the iodine-iodoceptor as primary haptophor—and only afterwards with the other portion of the drug. It may be broadly stated that for each kind of parasite there exists a characteristic side grouping of chemotherapeutic power, with the help of which a definitely highly therapeutic radicle, for example, iodine or mercury, may be found with which it is possible to attack the especial parasite.

Following out this line, a coworker of Ehrlich has succeeded in obtaining most excellent curative results with a phenyl arsenous acid preparation in various spirilla diseases, as chicken spirilosis, relapsing, fever in mice, and rabbit syphilis. By one injection it was possible completely to cure a very large chancre on the testicle of a rabbit.

In the application of these animal experiments to man there are a number of difficulties to be fought: (1) It is impossible in man to determine the maximum dose of the drug. The limits of safety must be discovered by very careful investigation from below upward. (2) The frequent appearance in man of hypersensitiveness to the drug interferes greatly with the search. The estimation of hypersensibility is the most important factor in the application of a new drug. Two methods come into consideration in the case of men—the step-ladder method of treatment, beginning with small doses regularly repeated, and the method of using massive doses for one or two days for the rapid and complete slaughter of the parasites. The latter method, which destroys the cause of infection with a single stroke, may be compared to the surgeon's knife—the more dangerous but at the same time the more effectual plan. Just as surgery has reached its present high position only by advancing with a certain boldness, so, too, a certain risk must be accepted in the paths of therapeutics in using single large doses when the superiority of the method over the other has once been established. In this case the motto should not be *primum non noceas,* but *primum ut proficeas.*

Progress of Medical Science.

Boston Medical and Surgical Journal, February 17, 1910.

The Influence of Race on the Infant Mortality of Boston in 1909.—Richard C. Cabot and Edith K. Richie have endeavored to answer the following questions: Among the races most numerous in Boston, is any one predominately affected (a) by all the causes of infant mortality, prenatal, and post-natal; (b) by certain special causes. Do the hygienic, moral, or economic traditions which govern any one of the races (Irish, Jew, Italian, or "American") result in making one disease especially afflict one race? They conclude as follows: 1. The Jewish race in Boston far exceeds any other (a) in the number of stillborn babies and (b) of digestive troubles proving fatal during the first two years of life. 2. The Italians suffered during 1909 far out of proportion as compared with the other races in the infant mortality from infectious disease outside the gastrointestinal tract. The great bulk of these deaths was due to pneumonia. On the other hand, the Italian race is more fortunate than any other race in Boston in that it loses a far smaller number of children from congenital weaknesses, prematurity, and birth accidents. 3. The Irish have the best record as regards still births, and lose a remarkably small number of babies from infectious diseases. They fare better than the Jews or Italians as regards practically every one of the causes of infant mortality, though in all these respects, except as regards prematurity, their record is somewhat worse than the "Americans." 4. As might be expected from their longer settlement in this country, the so-called "American" race loses fewer children per thousand births than any other race. This advantage holds good as regards every one of the causes of post-natal mortality with the exception of those classed under the term "prematurity." In deaths from this cause the "American" race has the worst record of all, and in the number of stillbirths the "Americans" are far more afflicted than the Irish and almost equal to Italians, though the Jews fare worse still.

An Obscure Affection of the Hip-Joint.—Arthur T. Legg relates the history of five cases, in reviewing which the following facts in a general way are observed: The age of the children was from five to eight years. In each case there was history of an injury and a limp. Thicken-

ing around the neck of the femur was observed. There was absence of pain and of constitutional symptoms. There was little or no spasm and absence of shortening. In one case there was indefinite pain and a low grade of infection in the neck of the femur. All of the cases sought advice solely on account of the limp. In two of the cases the condition of flattening of the head of the femur existed on both sides and in both there was entire absence of symptoms in one of the hips. Was this condition the result of congenital deformity or faulty development? Was it the result of constitutional disease? Was it the result of direct injury? Was it indirectly due to the injury? The histories ruled out the possibility of a deformed and poorly developed head of the femur. A possible explanation of the condition was that the injury might indirectly cause this condition by causing injury or displacement at the epiphyseal line, whereby the nutrition of the head, coming mostly through the neck, was impaired, and by the poorly nourished epiphysis bearing on the acetabulum it becomes flattened. Dr. Legg makes no claim to a definite conclusion.

A Simple and Clean Instrument for Vaccination.—This instrument, invented by Francis H. Williams, consists of a piece of stiff platinum wire, 1 mm. in diameter and 5 cm. long, fused into a piece of glass tubing which serves as handle. The other end of the wire is flattened by means of a hammer to a width of rather more than 2 mm., and has been well rounded with a file and its edge roughened by making shallow cuts in it with a knife blade. This roughening is important. The platinum wire is sterilized by heating to a red heat; it cools in a moment.

New York Medical Journal, February 19, 1910.

Thymus Gland Treatment of Certain Diseases.—Frederick Gwyer gives a report of some experimental work in goiter, arteriosclerosis, rheumatoid arthritis, cystic tumor of the breast, pulmonary tuberculosis, and cancer. He did not know of any previous use of the thymus gland in the treatment of any disease except gout, goiter, and metabolic osteoarthritis. He selected the thymus gland as theoretically possessing possibilities in the treatment of cancer, and his work during the past three or four years has been confined to the use of this gland. With but one or two exceptions, no case of cancer has been treated that could even be benefited by other means. The histories of a number of patients were given as illustrative of the action of thymus; these patients received thymus and no other medication, and in most of them the improvement was so prompt and continuous that there could be no question but that it was due to thymus. Either the dried powdered thymus was used in doses varying from 129 grains, three or four times a day, to one of the special preparations. The improvements in three cases of pulmonary tuberculosis was significant and he believed that a further trial of thymus in tuberculosis was not only justifiable, but was demanded. Most of his cancer cases are remaining stationary or showing improvement and, taking cancer for test cases, he was encouraged to believe that he was approaching that primary substance which would enable him to decide definitely the value of thymus treatment of disease. In conclusion he said that at the end of three years' work, he was more than ever fixed in his belief that in thymus will eventually be found a valuable treatment for cancer, for that class of diseases due to improper metabolism, and possibly for tuberculosis.

Piper Methysticum, or Kava, and Its Effects in Gonorrhea.—This contribution to physiological therapeutics is given by Paul Bartholow. The action of cavaine is confined to an influence over the sense of pain and to an influence perhaps not so great over the development of microorganisms. The internal effects of cavaine he divides into three groups. (1) On the alimentary tract. One or two-drop doses cause warmth and a sense of appetite, and gives to the breath a penetrating odor of pepper. It stimulates digestion and its medicinal use seldom deranges the stomach. (2) On the kidneys and urethra. Cavaine has come to be restricted almost entirely to the treatment of acute gonorrhea and cystitis. It is a gentle diuretic. It acts directly upon the ends of the nerves in the mucous membrane, causing a soothing effect. Cavaine certainly is too unchangeable to be much modified by the urine, but whatever modification is caused by cavaine in the urine brings one to an explanation of its value in gonorrhea. (3) On modes of decomposition. Upon the presence of cavaine in the urine depends the healing qualities of the urine, the absence of decomposition, thus affording nothing that could favor the growth of gonococci; its effect in relieving pain facilitates the use of injections. Cavaine retards the formation of ammonia. According to Pohl's experience, certain plants, remarkable for their odor and bitter properties, possess the power of increasing the number of leucocytes in the circulating blood; they provide alexins. Cavaine, as one of the *Piperacea*, falls under this denomination and so confers some degree of immunity. The dose of cavaine is 0.02 four or five times a day, but two doses may be taken with profit at the noonday and evening meals. In his cases its most predominant effects were sedative and antiseptic.

Journal of the American Medical Association, Feb. 19, 1910.

Luetic Lymphoma.—D. W. Montgomery and G. D. Culver describe a case of swelling of the neck, resembling a lymphosarcoma, in the classical position for such a tumor. A study of the case almost confirmed this diagnosis, as there was a negative history of lues given by the patient, which was not modified by any admissions in view of the serious nature of the operation required for lymphosarcoma. The bad prognosis of such procedures, however, induced the authors to try a vigorous antisyphilitic treatment by injections and by the mouth, which proved successful. Later information gave a suspicious history confirming the diagnosis. The diagnosis of these cases is discussed at length, and the rarity of luetic lymphomas noted. The authors suggest for such cases that the proper attitude should be to consider the possibility of syphilis and to use a very vigorous course of antisyphilitic treatment before assuming that there must necessarily be a malignant lymphosarcoma to treat, necessitating an almost hopeless surgical operation.

Early Abdominal Surgery.—H. O. Marcy contributes a paper full of interesting reminiscences of the earlier gynecologists of this country, as well as some of the noted European introducers of antiseptic surgery. The introduction of antiseptic surgery into America and the part he personally took are briefly mentioned. The buried animal suture, which in other papers he has shown to be one of the advantages due to an early generation of American surgeons, owes its practical introduction and use to the teachings of Lister. Marcy attributes the large part taken by America in contributing the important factors in the advance of surgery to the open-mindedness of her students who, without national prejudice, sought profit from all sources.

General Therapeutics and Surgery in Dentistry.—A. Dray holds that the dentist does not fulfill all his duties in the care of the teeth by restricting himself so much, as he ordinarily does, to the mechanical side of his profession. As a mechanic, the average dentist excels, but as a scientific student and follower of surgery and general medicine applicable to dentistry he fails. Much of the mechanical labor performed could be obviated by the proper use of scientific research work in the fields of preventive and curative medicine. He condemns the commercialism of the dental schools, which are but schools of mechanics under the present system. Unless the dentist is satisfied to be looked on as a mechanic, he must make a radical change in his preparation for his life's work. A thorough general medical and surgical training along special lines pertaining to general medical and surgical dentistry along with scientific research work in the same field are the crying needs of to-day.

Suppurative Perigastritis.—G. A. Friedman reports a case of suppurative perigastritis caused by gastric ulcer perforating the stomach and producing localized peritonitis. The symptoms were somewhat aberrant. The tumor did not occur in the left epigastrium but in the right. Vomiting was never a pronounced symptom, and the nutrition of the patient had not greatly suffered. The importance of recognizing latent gastric ulcer in these cases is especially emphasized. Recovery followed the removal of a mass the size of a small orange, containing areas of necrosis and small abscess cavities, which was adherent to the liver, abdominal parietes, and greater curvature of the stomach.

Calcium in Tuberculosis.—L. A. Levison has experimented with giving lactate of calcium, 0.3 gram, every 4 hours to 30 patients suffering with tuberculosis with more or less marked continuous elevation of temperature. No attempt was made to select patients in special stages of the disease, and no change made in the other methods of treatment employed. Only four were suffering from tuberculosis other than pulmonary. The period of the administration was short and the conclusion which may be reasonably drawn is that pyretic tuberculous patients in various stages show no response as far as temperature is concerned to the administration by the mouth of calcium salts.

Epidemic Poliomyelitis.—S. Flexner and P. A. Lewis take up the subject of the possible infectiousness and mode of transmission of epidemic poliomyelitis. They notice the resemblance, as regards distribution of this disease, to cerebrospinal meningitis, pointing out that the relation between group cases in a house or locality has been made out only recently by finding, in the case of meningitis, definite diplococcus carriers, and in poliomyelitis by discovering abortive cases which would seem to act in the manner of microbe carriers. It is held that the diplococcus passes into the cerebrospinal membrane by way of the lymphatics from the nasopharyngeal mucous membrane. It is difficult if not impossible to show in human beings that the diplococcus passes from the membranes by a reverse lymph current into the nasopharynx. This, however, is highly probable and would readily explain the intracellularis infection of these membranes in the disease. In the monkey it has been followed up by the microscope, and the same condition may be readily supposed to exist in man. Flexner and Lewis have studied the mucous membrane of the nasopharynx with reference to the virus of poliomyelitis. The entire mucosa of these parts in monkeys recently paralyzed has been excised, rubbed up with coarse sand pressed through a bacteria-tight Berkefeld filter, and injected in the usual way into the brain of monkeys. In this way the authors have been able to produce paralysis and thus prove that the mucous membrane contains the virus of poliomyelitis. They have also found that when the virus is injected into the spinal canal by lumbar puncture it sets up the disease with its characteristic paralysis. The cerebrospinal fluid removed from monkeys at the onset of paralysis is altered; it contains an excess of protein and lymphocytes and coagulates spontaneously. Paralysis also follows the inoculation of this fluid into the brain. These experimental results show that a path of elimination of the virus of poliomyelitis, as well as of infection, is by way of the nasopharyngeal mucosa. Hence it would seem desirable in the present state of our knowledge to deal prophylactically with epidemic poliomyelitis, as with epidemic cerebrospinal meningitis, by disinfecting and destroying the secretions of the nasal and buccal cavities. The action of disinfecting agents for this purpose is now being studied.

The Lancet, February 12, 1910.

The Variability of the Lesions in Polioencephalomyelitis.—An endeavor is made by Karl Bremer to obtain some idea of the relative frequency of the lesions produced by this disease as it occurs sporadically in and around London. During the last ten years about 400 cases were seen, and of these 48, or 12 per cent., showed some evidences of an encephalitis, and only 11 cases gave evidences of lesions both in the brain and spinal cord. Paralysis of the muscles of the back and neck was generally associated with some other lesion. The diaphragmatic paralysis was unilateral. Paralysis of the sphincters appears to be rare. Incontinence of urine was present in thirteen children over two years of age. Hyperesthesia was a common early symptom. The cases of bulbar paralysis were rare. The seventh nucleus lesion appears to be the commonest form of encephalitis inferior, and this was an important link in establishing the common etiology of polioencephalitis superior and poliomyelitis, as both have been associated with seventh nucleus lesion. The cerebellar cases with acute onset, occipital headache, ataxia and nystagmus, showed a tendency to complete recovery.

Malignant and Nonmalignant Tumors of Bilateral Origin.—W. Roger Williams says that the well-established fact of the bilateral origin of tumors certainly indicates that tumor diseases is something more than the manifestation of a solitary local aberration. There can he no doubt that the activities of the local cells are largely conditioned by the totality of the forces which determine the integration of the whole organism, and the bilateral origin of tumors points to perturbation of these latter forces. Most bilateral tumors originate in early life, many of them being obviously the outcome of gross developmental lesions of ante-natal origin. There are certain acquired morbid conditions which sometimes determine bilateral neoplasia. It is of interest to note that nonmalignant tumors of bilateral origin are even less exceptional than their malignant cogeners. Among the fibromas, striking examples are met with in the disease called "malignant fibroma of nerves," in which over two thousand tumors have been counted in a single patient. The writer reports many instances of bilateral tumors that have appeared in the literature, and states that it is evident that the bilateral outbreak of malignant and other tumors is less exceptional than is generally believed.

The Menopause, Natural and Artificial.—Arthur E. Giles says that the normal menopause is due to the gradual cessation of ovarian activity. In some cases the period may be summed up in a few months and in others may spread over a few years. The ovaries exercise a dual function; they govern the uterine changes that result in menstruation, and they exert a definite influence on the nervous and vasomotor system. Vasomotor incoordination shows itself in spontaneous flushings and heat waves. These vary in heat and intensity from two to three in a day to twenty; sometimes they are slight and transient, and in other cases give rise to discomfort. A recurring increase of the menstrual flow is not a normal sign of the menopause. Irregularity and scantiness are characteristic, but increase of hemorrhage, particularly if repeated, always means organic disease. The menopause is often considered a time of danger; this is not so. At the age of the menopause there is a predisposition to certain diseases, but the menopause in itself is not a cause of disease of any kind. Patients are sometimes told when they have fibroids that after the menopause they will be well; it has been shown by many writers that the menopause is a fallacious hope with fibroids. The one constant symptom of the menopause was heat waves and flushes, and in cases of apparent menopause due to removal of the uterus the incidence of heat waves gives an indication as to when the real menopause supervened. Dr. Giles presents data which show that after the removal of the uterus with conservation of one or both ovaries, cessation of menstruration follows the operation, but heat flushes do not come on for several years afterward. The removal of the uterus often brings about the menopause a good deal earlier than the usual time. The removal of both ovaries with or without the uterus is usually followed by heat flushes a few weeks after the operation. The lurid pictures which have been drawn of the effects of double ovariotomy in unsexing a woman have been very much exaggerated; these women do not become the sexless hypochondriacs and lunatics that they are supposed to develop into. There are manifest advantages in preserving one ovary when the primary consideration of the woman's health allows of this course. In regard to the treatment of the menopause moral treatment is not without its importance. It should be made quite plain that the menopause was not a time of special danger and that the healthy woman has nothing to fear from it. At the same time, any deviation from health should be carefully investigated and treated. A course of ammonium bromide in ten-grain doses three times a day, combined with some bitter tonic, is useful in allaying flushes and nervous irritability.

British Medical Journal, February 5 *and* 12, 1910.

Empyema Treated by Antiseptic Plugging.—In his last eight cases of resection of the ribs, P. Tytler has packed a wound tightly with iodoform gauze, the wound having been placed in the most dependent position. The plug was kept in three or four days and then withdrawn, the patient having been put in the same position to empty the pleural cavity. In the first dressing of a favorable case about a cupful of sanguinolent fluid will be discharged. The plug is renewed and in another three days if all goes well there will be about a spoonful of discharge and the wound may then be allowed to close. The object of the plug is to disinfect the fresh wound after the passage of the pus, to prevent the ingress of other germs so as to avoid a mixed infection and lastly by firmly closing the wound to prevent collapse of the lung, and if much air has entered at the operation to allow its absorption and draw the lung toward the side, thus tending to abolish the cavity. The author believes that certain clinical observations made by him go to prove the resistence of a previous lung complication as a cause, in fact the only cause, of an empyema. An old empyema is very quickly cured by the method he describes. The matter of dressing becomes much simpler. There are great advantages in having the cavity close up quickly. On account of the possibility of a perforation it is better to wait two or three weeks till the lesion of the lung is healed before emptying the pus, unless its removal is urgent when ordinary drainage should be employed.

Futility of the Official Tests for Color Blindness.—T. H. Butler calls attention to the failure of the test in five cases; these showed in order the following lesions: Congenital defect, acquired defect, partial optic atrophy, partial optic atrophy and retrobulbar neuritis, partial optic atrophy, and retrobulbar retinitis, due to alcohol

and tobacco. The author insists that while these men failed on the worsted tests, they would have all been detected by the use of the Eldredge-Green color perception lamp.

Iodine Catgut.—Frederick Edge describes his method of performing absorbable iodine catgut as follows: Catgut, defatted by lying in ether for twenty-four hours, is boiled in absolute alcohol for one hour. It is then laid in a solution made of 1 part of liquor iodi fortis (linimentum iodi) and 11 parts of water for one week. It is preserved in and used from a solution made of 1 part of liquor iodi fortis and 50 parts of rectified spirit.

Foreign Bodies in the Duodenum.—Somerville Hastings reports the case of a girl three years of age who had swallowed a short piece of pencil with a metal extremity. She was admitted to the hospital three days after the accident suffering from diarrhea and colicy pain. The *x*-ray showed a well marked shadow, evidently the metal end of the pencil, about one and one-half inches from the middle line beneath the right costal margin. The child was examined daily with the *x*-ray, but neither constipating food nor purges made any difference in the position of the pencil. At operation the pencil was felt impacted across the gut just at the bend between the descending and transverse parts of the duodenum. It was disimpacted and pushed into the stomach. It was hoped to remove the pencil by way of the esophagus, but that attempt was abandoned and an incision was made through the anterior wall of the stomach. Innumerable cases are recorded both in children and in adults in which the most varied assortment of miscellaneous articles have been successfully cared for by the alimentary tract and passed by the rectum that the rarity with which they gave rise to any serious trouble must appear striking. The screen examination in the case reported seems to indicate that the duodenum of children is more moveable than might be imagined, and it is probable that this part of the bowel is capable of considerable dilatation. The observations of Müller and Exner serve to show that a curved and pointed body will be rotated by the bowel into such a position that it will pass most easily.

The Existence of Living Creatures in the Stomach as the Cause of Chronic Dyspepsia.—W. Soltan Fenwick has collected more than 180 authenticated cases in which lizards, salamanders, frogs, slugs, caterpillars, worms, leeches, beetles, larvæ chrysalides, or maggots were harbored for a time and accompanied by an intractable form of dyspepsia. There is little difficulty in collecting 130 examples of diseases caused by insects in the stomach or intestines. In the vast majority of cases these insects belonged to three of the fifteen natural orders, the *Diptera*, or two-winged flies, the *Coleoptera* or beetles, or the *Lepidoptera*, or butterflies and moths. The eggs of these insects were usually deposited on food, and in this way reached the digestive tract. A wire screen was no protection to meat, as the flies dropped the eggs through the screen. Garden vegetables not thoroughly cleansed and drinking water might also be the means of introducing larvæ. At least twenty-four varieties of beetles and their larvæ have been identified in the vomit or evacuations of persons suffering from symptoms of gastro-intestinal irritation, and more than forty instances may be found recorded in literature. Sometimes many species of the same family or of different families were found in the same individual, mixed with dipterous larvæ, spiders, millipedes, and entozoa. The continued evacuation of these parasites through extended periods of time indicated that they continued to multiply in the gastrointestinal tract. It was quite certain that not only do the eggs of dipterous and coleopterous insects frequently hatch in the human stomach, but that the larvæ may remain alive sufficiently long to permit of their escape into the more hospitable region of the intestines. If this was true of the normal stomach it applied more forcibly when the condition of subacidity was present. In mild cases of internal myiasis a sharp purge was often sufficient to rid the intestines of larvæ and eggs, while in more troublesome forms the administration of thymol, santonine, or other anthelmintics, often appeared to be successful. Beetles were notoriously difficult to kill and require enormous doses of turpentine in order effectually to rid the patient of them. There was no reason to believe that amphibia ever enjoyed a prolonged existence in the digestive tract, however they might be vomited alive after several hours' residence in the stomach, or they might die and be evacuated by way of the rectum. Instances were on record where such creatures had been swallowed or introduced into the vomitus for purposes of deception or to excite sympathy.

Diverticula of the Alimentary Canal of Congenital or of Obscure Origin.—Arthur Keith states that abnormal diverticula of many kinds are found in connection with the alimentary tract, and he annexes a table showing to what extent the various forms are represented in the museum of the Royal College of Surgeons, and also in other museums attached to the various medical schools in London. Retrocricoid diverticula of the pharynx numbered 10; traction diverticula of the esophagus, 12; cysts apparently derived from the esophagus, 6; diverticula of the stomach, 2; pressure diverticula of the duodenum, 12; developmental diverticula of the duodenum and neighboring parts of the alimentary tract, 2; cysts connected with the intestine, 3; pressure diverticula connected with the small intestine, 7; pressure diverticula connected with the great intestine, 7; Mechel's diverticulum, 95, a total of 156.

Berliner klinische Wochenschrift, January 24 and 31, 1910.

A Case of Severe Diabetes with a Favorable Course.—Swart reports a case of a woman of twenty-nine, whom he saw first on February 20, 1908, with the symptoms of approaching diabetic coma. She had suffered from weakness, polyuria and polydipsia for three months. She excreted 495 gm. of glucose in twenty-four hours. There was marked acidosis; the room smelled of acetone, and she was very drowsy. On a strict diet with a little bread the sugar decreased, as did the ammonia. After four weeks, during part of which she received oatmeal, the sugar had completely disappeared and the acetone reaction was negative. During the following year the allowance of bread was increased to 100 gm. without the reappearance of glycosuria, and at the last report, January 12, 1910, she was still sugar free.

Arthritis Deformans Following Typhoid Fever.—Rothschild reports two cases in which following typhoid fever there developed hip joint disease, which ran a course of many years practically without pain which led to a high grade of anatomical lesions of the joints. On the basis of the clinical cause and *x*-ray pictures he made a diagnosis of post typhoid monoarticular arthritis deformans.

Influenza and the Heart.—Ruhemann says that clinical experience has shown that the influenza bacillus may have a very deleterious effect upon a heart which is injured by inflammation, atheroma, or degeneration. It may be either that the influenza bacillus acts on the heart itself, or the toxins produced by it may affect the nerves or the muscles. Healthy hearts seem to be attacked by grippe but little. The author believes that many cardiac deaths of unknown cause may be dependent upon the influenza bacillus. There are many instances of sudden death in cardiacs who are exposed to influenza, either in epidemics or in the neighborhood of sporadic cases.

Münchener medizinische Wochenschrift, January 25, 1910.

On Acute Poliomyelitis.—Beneke has had opportunity to autopsy three cases of acute anterior poliomyelitis, all of which showed the usual pathological condition of the cord. In each case the tonsils were swollen and showed slight exudation. The lumbar fluid showed nothing characteristic. Spinal cord substance was inoculated into rabbits intraperitoneally. From nine to ten days later these became ill and died, without showing any sign of paralysis. A small portion injected intradurally caused illness on the twelfth day, and weakness of the legs. The spleens of these animals showed large numbers of cells containing blood corpuscles and hemosiderin. Inoculation into a monkey produced positive results. The ganglion cells of the anterior horn in the monkey were markedly invaded with leucocytes. All stages of this were found from the invasion of a few cells to the complete destruction of the ganglia and substitution for them of small abscesses. The hematogenous origin of the disease and its minute pathology are considered at some length.

Potassium Permanganate Crystals as a Local Caustic.—Finck says that the caustic action of potassium permanganate upon tissue is due to two factors, the liberation of nascent oxygen and the formation at the same time of potassium hydroxide. The destruction products of the salt are not poisonous and its caustic action is slow and steady. The author has found that application of the dry powdered crystals in excess makes an ideal means of destroying certain pathological tissues as it eats away the abnormal tissue but does not effect the healthy. His method of application is as follows: He takes a piece of adhesive

plaster somewhat larger than the lesion to be treated. In this he makes a hole of such a size and shape that the lesion in the skin and a very small strip of healthy skin around it are visible through the opening. This plaster he applies to the skin around the lesion. On top of this he places from five to fifteen similarly cut pieces of plaster, thus making a well above the lesion. This well is filled to the top with finely powdered potassium permanganate crystals. Over the whole he applies an unperforated piece of adhesive plaster as a cover. Over this he puts a bandage. If the condition being treated is an ulcer, as for example lupus, it is completely destroyed in forty-eight hours. On removing the plaster there is found a dirty purulent detritus, which is washed away. In place of the ulcer there remains a more or less deep crater-like hole whose base is covered with a black mass of manganese dioride and a yellowish eschar. The borders of the wound are clean cut, and the surrounding tissue is neither swollen nor reddened. If the skin is normal a drop of water is added to the permanganate and the plaster is left in place from four to six days. The destructive process goes on either without pain or with but a slight burning, the latter especially when applied to the normal skin. The after-treatment is simple. The wound is dressed dry or with an ointment. The next day vigorous granulations appear, which replace the eschar and in a few days fill the hole. The scar is smooth and contracts or hypertrophies but little. The method may therefore be used on the face. It may be applied to any lesion of any size or depth. The author has used it especially for chancroids, fungus, granuloma, decubitus, ulcus cruris, angioma cavernosum, keloid, and carbuncles. It is also indicated in small tumors of the face, nevi, angiomata, lipomata, papillomata, etc. If the tumor is subcutaneous, the hole in the plaster must be made smaller than the apparent size of the tumor. Children's skin is attacked most easily; that of the extensor surfaces of adults resists most. The author also uses potassium permanganate crystals in tuberculous bone and joint fistulæ. He has a tube 6 mm. in diameter and 5 to 10 cm. long with a funnel shaped top and a plunger. This is inserted into the fistula to the bone, and with the plunger the wound is tightly packed with powdered permanganate, slowly withdrawing the tube as the packing is done. There is on occasion severe pain which lasts in the neighborhood of one hour. After one to two days the mass begins to be discharged, often with it coming bits of blackened sequestrium. This treatment often results not only in the closing of the fistula, but in the healing of the tuberculous process. If healing does not occur after one treatment the process is repeated. The method is contraindicated in fresh fistulæ with abundant secretion and in fistulæ close to large vessels and nerves.

Deutsche medizinische Wochenschrift, January 27 and February 3, 1910.

Acute Yellow Atrophy Following Resection of the Liver.—Rinne reports a case of a woman of thirty-three years of age on whom he did an exploratory laparotomy for a tumor in the right side, pain, and vomiting. The operation showed a syphilitic liver with a large lappet, extending down into the abdomen, and connected with the liver by a pedicle three fingers' breadth in diameter. This was resected by the thermocautery and the base ligated with a series of deep stitches. The patient recovered well from the operation, but on the fifth day became restless and confused and showed a slight jaundice. The next day the symptoms increased, she became unconscious, and on the eighth day she died in coma. The urine was bile stained and contained casts, but no leucin or tyrosin. The autopsy showed the characteristics of acute yellow atrophy on the basis of the old leutic lesions. The anesthetic consisted of scopolamine and morphine, with a very little ether. No chloroform was used. There was no wound infection and but slight hemorrhage. No poisonous disinfectants were used inside the abdomen, and the packing was simple sterile gauze. Cases of yellow atrophy have occurred associated with syphilis. One case of acute yellow atrophy has been reported following resection for ecchinococcus cyst. The exact cause of the condition in this case cannot be explained unless it is the result of the resection.

The Treatment of Chronic Cardiospasm.—Elsner describes the various instruments used for dilating the cardiac orifice of the stomach in cases of cardiospasm, laying especial stress on Gottstein's spindle shaped balloon. He says, however, that in certain cases the esophagus is so dilated and the spasm so tight that this does not go through into the stomach. He then describes his own modification of the Gottstein instrument which consists in inserting a metal tube down the middle of the rubber tube and balloon, projecting a short distance below the latter. The purpose of this is that by aspiration of stomach contents one is able to be sure that the balloon is in the cardiac orifice.

Tuberculin Treatment with Large Doses.—Neumann says that it may be considered as proved that in general children can stand much higher doses of tuberculin than have previously been used. In a large number of children the original sensitiveness to tuberculin was lost relatively quickly, and one had to inject larger doses in order to obtain perceptible results. In respect to the most effective method of using tuberculin more experience must be collected, and for this purpose the significance and the course of the local puncture reaction must be more thoroughly studied than appears to have been done before.

The Intramuscular and Intravenous Use of Large Doses of Diphtheria Antitoxin.—Berlin discusses his experience with antitoxin in the Augusta Hospital in Cologne. Though in recent years the mortality had sunk from 30.9 per cent. to 17.5 per cent. in diphtheria, he was not satisfied and increased the doses of antitoxin and also gave them intramuscularly and especially intravenously. For this purpose he injected serum preserved in a little carbolic acid, in quantities of 8 cc., equivalent to 4000 units. The amounts injected varied from 4,000 to 16,000 units. When the intravenous injection was given in 62 cases there was striking improvement; in 34 the temperature dropped to normal on the first day, and in 28 it sank more gradually, but was normal on the second day. An especial influence upon the local symptoms in the throat could not be determined. Of 67 cases of pharyngeal diphtheria 2 died, of 37 cases of laryngeal diphtheria 11 died, and of 16 cases of septic diphtheria 10 died. No untoward symptoms were observed as a result of the intravenous use of the serum. The point of injection showed no reaction, only once was there a small thrombosis, which quickly disappeared. No kidney lesions, which might have been expected from the carbolic acid injections were observable. In eight cases there was marked urticaria. In a few cases there was a slight rise of temperature on the seventh to the ninth day. Associated with a general glandular enlargement, Berlin draws the following conclusion: (1) The favorable influence of large doses of serum, up to 16,000 units, cannot be doubted; (2) intravenous or intramuscular injections produce a more rapid action than subcutaneous; (3) the large doses of serum, even combined with carbolic acid, are harmless.

Bronchiolitis Obliterans Following Diphtheria.—Colombino reports the case of a woman of twenty years who, as a sequence of a severe diphtheria, and paralysis during convalescence, developed a typical bronchiolitis obliterans. He is not able to state whether the bronchiolitis was caused by direct injury to the walls of the bronchioles by the diphtheria or whether it was the result of the bronchitis brought on by the paralysis of the muscles of deglutition.

The Danger of Narcosis with the Artificially Decreased Circulation.—Gräfenberg reports his experience in operations with decreased circulation produced by tightly bandaged legs. Of 75 laparotomies performed 6 were followed by thrombosis. These results led the author to discontinue the use of the method.

The Significance of the Treponema Pallidum in the Diagnosis of Syphilis.—Scholtz says that the discovery of the treponema has been a great advance in the diagnosis of syphilis. They are so regularly found and so easily seen in the eroded specific eruptions of the primary and secondary period, in primary sores, eroded papules, condylomata, and mucous patches that they are of the greatest aid in practice. There are three chief methods of demonstrating the treponema, the staining with Giemsa's stain or its modification, the dark field microscope, and the India ink method. The Giemsa stain colors the parasite so dimly that it is difficult for the untrained eye to distinguish it and differentiate it from other spirochete. The dark field microscope is a quick and accurate means of diagnosis, but it is available only to a few. The India ink method is simple and good. The fresh material for examination is mixed with India ink and the mixture is spread very thinly on the slide. The background becomes a homogeneous brown or black under the oil immersion lens, and the spirochetes shine through as colorless refractile bodies. The author has found this method as accurate as the dark-field microscope. The technique used by him consisted in taking a tiny drop of serum from the lesion, a similar drop of water, and a third one of ink. After these are mixed well they are spread with the edge of another slide.

Book Reviews.

A Textbook of Physiology: For Medical Students and Physicians. By William H. Howell, Ph.D., M.D., LL.D.; Professor of Physiology Johns Hopkins University, Baltimore. Third Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1909.

The publication in so short a time of three editions of this textbook is made necessary, according to the author, by the rapid strides which have taken place in the science of physiology. The book is written primarily for medical students, and the author confines himself in consequence to what is either proven or generally accepted as fact, keeping away as much as possible from controversies, and not allowing himself to be drawn into confusing discussions. Where several theories are advocated, the most acceptable one is usually given in full, and then in many instances the others are cited in brief and in smaller type. Two most valuable features are the frequent appearance of brief summaries, giving clearly the important and essential points of the more lengthy physiological discussions and explanations, and a fairly complete system of references, particularly to the newer literature, enabling the student to delve more deeply into any subject in which he may become especially interested. The book is of a more convenient size than many medical books, is well printed, in large, clear type, on good paper, and is profusely and excellently illustrated. The new edition of the book will maintain the reputation of the two earlier ones.

Traitement de la Syphilis. Par le Professeur Alfred Fournier. Third Edition. Paris: Vigot Frères, Éditeurs, 1909.

Fournier's classical work on the treatment of syphilis now appears in its third much augmented and revised edition. It contains everything appertaining to the subject matter chosen, from a discussion of the necessity of treating syphilis to the latest methods, preparations, and general régime of mercurial therapy. The subject is treated in such detail that no questions whatever remain in the mind of the reader after perusing the book; every method of treatment, whether supported or opposed by the author, is considered with ample discussion of the reasons brought forward by the defenders of these methods. The most important part of the book, however, is concerned not with syphilis itself, but with the host of parasyphilitic affections, the occurrence of which is considered by the author the dangerous feature *par excellence* of the disease, for the usual treatment adopted far and wide does not take into consideration the late and invidious appearance of lesions in the internal organs and in the nervous system. Complementary cures and general hygienic régime are emphasized as the only means so far available in the prophylaxis of these late sequels of syphilis; the authority of the author, and the wealth of experience drawn upon claim such attention as no other man's work in the matter can at present enjoy.

Recent Advances in Physical and Inorganic Chemistry. By A. W. Stewart, D.Sc.; Lecturer on Organic Chemistry in the University of Belfast; formerly 1851 Exhibition Research Scholar and Carnegie Research Fellow. With an introduction by Sir William Ramsay, K.C.B., F.R.S. With diagrams. New York, London, Bombay, and Calcutta: Longmans Green & Co., 1909.

This is not a textbook on chemistry, but rather a series of essays on various special topics connected with that subject; it thus constitutes a departure from the old methods of book writing. It deals, for the most part, with researches which have been made within the last twenty years, but the time limit is not rigidly adhered to. The subjects discussed are all of them important, and are as follows: Some hydroxylamine derivatives; colloids; reactions in liquid ammonia; the fixation of nitrogen; double salts; the problem of the oceanic salt deposits; the cobaltamines; absorption spectra; the elements of the rare earths; atomic weights; the inactive gases; the radioactive elements, radioactive changes, and radioactive emanations. The author presents rival theories with impartiality, but at the same time he does not hesitate to express his own views. He is always fair, and always readable. In his all too brief introduction, Sir William Ramsay compares the author to a skilful cook, who has trimmed his joint, rejected all innutritions and redundant excrescences, and has served it up to table in a palatable form. There can be no doubt of the importance of chemistry to medical men, and these eminently readable essays will do more to encourage a taste for chemistry than will many textbooks.

The Practical Medicine Series. Comprising ten volumes on the year's progress in medicine and surgery. Under the General Editorial charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume VIII. Materia Medica and Therapeutics, Preventive Medicine, Climatology. Edited by George F. Butler, Ph.G., M.D.; Henry P. Favill, A.B., M.D., and Norman Bridge, A.M., M.D. Volume IX, Skin and Venereal Diseases. Edited by W. L. Braun, M.D., and Harold N. Moyer, M.D. Chicago: The Year Book Publishers, 1909.

About two-thirds of Volume VIII is devoted to materia medica and therapeutics. In this section the drugs and other therapeutic agents are arranged alphabetically. In the section devoted to preventive medicine are discussed the prophylaxis of disease, the health laws, and police power for their enforcement, *et cetera*. The book ends with a few pages devoted to the subject of climatology.

Volume IX is divided into two sections. The first deals with skin and venereal disease, and the second with miscellaneous subjects, such as heredity, smoking, alcoholism, the physician and the press, and proprietary medicines.

The Practice of Anesthetics. By Rowland W. Collum, L.R.C.P. Lond., M.R.C.S. Eng.; Anesthetist to St. Mary's Hospital, Paddington, the Charing Cross Hospital, and the Hospital for Sick Children, Great Ormond Street; and General Surgical Technique. By H. M. W. Gray, M.B., C.M. Aberd., F.R.C.S. Edin.; Surgeon and Lecturer on Clinical Surgery Royal Infirmary, Aberdeen. Edited by James Cantlie, M.A., M.B., C.M. Aberd., F.R.C.S. Eng.; Surgeon Seaman's Hospital Society; Lecturer on Surgery, London School Tropical Medicine; Surgeon West End Hospital. New York: William Wood & Company, 1909.

The first part of this book is on anesthetics. The author first considers the chemical properties and impurities of the chief anesthetics, nitrous oxide, ether, chloroform, and ethyl chloride. He then discusses the physiology of anesthesia, and shows the effects of these anesthetics on the respiratory, circulatory, nervous, and muscular systems. The next chapter shows in detail the preparation of the patient. This is followed by a very complete discussion on the selection of the anesthetic, and procedure in special cases; the condition of the patient and the nature of the operation are both considered at some length in this connection. Then follow sections describing the administration of each anesthetic; there is a short chapter on mixtures and sequences; and this is followed by two important chapters on difficulties and dangers and their treatment, and on after effects and their treatment. The whole subject is handled in a masterly way; it is written for practical use by one who has enjoyed a very large experience as an anesthetist and who knows exactly what students require. The style is clear and forceful, and the print, illustrations, and general get-up are all attractive. The last half of the work is on general surgical technique; it, too, is of much value, and contains many details and minor points which are of importance, but which are often omitted in larger works.

Primer of Sanitation. Being a simple work on disease germs and how to fight them. By John W. Ritchie, Professor of Biology, College of William and Mary, Virginia. Illustrated by Karl Hassmann. Yonkers-on-Hudson, New York: World Book Company, 1909.

In this little volume the author has been wonderfully successful in presenting in simple language the more important facts in regard to germ diseases and their prevention. It is well adapted to serve as a textbook for the pupils in our public schools; and it would be difficult to find a book better adapted to interest the young, and at the same time to benefit the whole community.

A Book of Quatrains. Original and Translated. By Frederick Rowland Marvin. Boston: Sherman, French & Co., 1909.

Dr. Marvin, who though a physician labors in the Ministry, finds respite from professional toil in the delightful pursuit of the poetic muse. Many of these verses were written in odd moments and reflect the varying moods of one who has watched the panorama of human life with curious and observant eye. There are also a number of translations from the Persian, Arabic, Greek, and Roman anthologies, and from the more modern French and German. It is impossible to quote at length, but the following is a fair example:

Our friends, as years advance, depart,
But noble books remain;
In them the blessed dead return,
To dwell with us again.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Regular Meeting, Held February 3, 1910.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Orthopedic Surgery.

A Case of Fracture-Dislocation of the Upper Cervical Vertebra Complicating Spinal Pott's Disease.—Dr. FRED H. ALBEE presented a woman, twenty years of age, who gave a tuberculous family history, one sister dying of this disease. She stated that in December, 1906, she caught cold and had a stiff neck for two weeks; she was able, however, to continue at her work at the end of this time. While returning to her home she was run into by a man and her head, so she claimed, was hurt, so that she was compelled to support it all the way home. She was then confined to her bed for three weeks. She held her head constantly with her hands. When she was examined it was found that the cervical spine had lost its normal contour, and that the head was in a position farther forward than was normal, and the spine was fixed in that region. A plaster jacket was applied and the head supported. In November, 1907, although the pain complained of was relieved, she could not hold her head without support, and there was found a prominence of the postpharyngeal wall. The head support was continued for some time, only being taken off one year ago. During the past year the patient had been at work and without any trouble with her neck whatever. The movements of the head, including rotation, were good at the present time. The *x*-ray showed a dislocation of the upper cervical region, and now the reparative process. Later skiagraphs showed an almost complete destruction and absorption of the body of the axis and an agglutination of the upper three cervical vertebræ. There had been no signs of paralysis at any time. The knee jerks had been somewhat exaggerated.

The Differential Diagnosis Between Torticollis and Other Causes Producing Deformity of the Neck.—Dr. REGINALD H. SAYRE opened this symposium on certain surgical conditions of the neck. Torticollis was generally recognized as a deformity of the neck caused by irregular muscular contraction. There were, however, a great many causes which might cause the neck to be distorted. Although the origin of these deformities varied, in many instances there was more or less difficulty in making a diagnosis of one from the other. Torticollis might be either congenital or acquired. He believed that quite a large number of so-called acquired cases of torticollis were in truth cases of congenital torticollis with the deformity so slight at the time of birth that attention had not been called to it. But as the child grew the deformity showed itself, showing a unilateral increased growth. There were a number of causative factors in the production of torticollis. In the congenital form a lack of amniotic fluid was given as a cause by some; by others, pressure against the pelvic walls. There was evidently something in the makeup of the embryo which gave rise to a distortion of the cervical spine in quite a number of cases, as they found a fusion of the cervical vertebræ, and sometimes there were found supernumerary vertebræ, as well as other deformities of the cervical spine. A lateral curvature of the spine might take place in either the cervical, dorsal, or lumbar region; in all these cases it would be found that the spine was twisted. Some of the cases of torticollis came from some congenital defect in which there was produced a malformation of bone. In some cases there was some lesion of the central nervous system which produced an unequal bone growth on the two sides of the neck. There were many acquired cases in which the formation of a hematoma of the sternocleidomastoid muscle at the time of birth, was claimed by some as the causative factor, but Dr. Sayre believed that it was erroneous, as observations had shown that many hematomata disappeared leaving no traces and that many contracted muscles were not preceded by them. There was not a contraction of this muscle, but a failure to grow and the torticollis was caused by the muscle of one side growing when the other did not. Again torticollis was found to follow burns of a severe character; the contractions drew the head down. There were some cases that were believed to have occurred idiopathically. Why should these muscular contractions occur? There must be some central defect of the nervous system. Occasionally one met with some central paralysis in these cases. Dr. Sayre presented many pictures of patients suffering from torticollis and from cervical inflammations resembling it, as well as some *x*-ray photographs. Some of the cases resulted from metastases, some from infected tonsils, middle ear disease, fractured vertebræ and upper cervical tuberculosis, etc. These were not cases of true torticollis, however, and could be eliminated from that category by a careful questioning. Whenever a patient had pain, elevated temperature, or muscular spasm, which was similar in character to what was met with in the spasm of an inflamed joint, then one should not make any mistake in the diagnosis, as all these cases were due to bone inflammation and not true torticollis.

The Theory, Technique, and Results of Psychomotor Reeducation in Convulsive Torticollis.—Dr. RICHARD B. KRUNA read this paper. He said that the grouping of convulsive torticollis under the heading of "convulsive tic" had been agreed to by such neurologists as Landois, Dana, Brissaud, Oppenheim, Meige, and Feindel and this pathological view gave direction to the therapeutic efforts termed "Psychomotor Reeducation." The volitional centers were the seat of this disorder. The automatic impulse and its motor expression repeated themselves with or without intermissions. Sometimes they could be regulated by some psychic control still persisting, but this happened only under exceptional circumstances. A complete examination of a case of convulsive torticollis would determine what part of the automatic impulses had become abnormally free from the inhibitive and which one independent of the initiative. The loss of initiative might be partial or total and the corresponding motor-elements would be found partially or totally missing. The disorder of connection between the conscious volition and its execution through the corresponding muscles could assume different variations. The ultimate purpose of treatment had to be the strengthening of the two factors of the patient's volition, the initiative and the inhibitive. There were two methods of approach to this: First, an educative effort directed toward the patient's mind, stimulating and testing in a methodic prolonged training his stamina of character, teaching him for hundreds of days to refrain from extremes of emotion, bringing his daily life, by exhaustive planning, to the regularity of clock-work. To follow this minute plan, in itself, offered a wealth of daily tasks and tests for the patient's ability to stop and to begin, to follow his duty, not his inclination. The second method aimed at the reeducation of conscious volition by psychomotor reeducation proper. This training consisted in courses of exercises requiring the use of conscious volition and conscious motor acts. However simple these exercises appeared to the healthy they offered a vast field of difficulties and problems to the patient. The motion elements necessary in the work were: (1) Rotation of the head on the sagittal axis; (2) rotation of the chin alone on the sagittal axis; (3) rotation of the head on the vertical axis; (4) rotation of the head on the frontal axis; (5)

rotation of the chin alone on the frontal axis (elevation and depression). The starting point was to determine what motor elements were totally or partially absent and the purpose of the exercises was to restore these elements. The next step was an examination of the motion complexes in which the motion elements, which individually had been lost, were preserved. These motion complexes were the material upon which to work in the first group of exercises. At first the conscious volition would not be successful in effecting the desired muscle contraction or contractions. A repetition of this act of initiative in spite of its lack of external results in the beginning, if prolonged over the necessary period of time, varying from weeks to months, eventually resulting in fractional movements, irregular in frequency and extent at the start, but becoming increasingly regular and more extensive with exercise. After reestablishing initiative control of the automatic action of the motion elements formerly lost the attempt was made to reestablish the inhibitive control of the tic movements which were pathologically independent. This might be done by a group of exercises of immobilization. Meige and Feindel advised patients to assume attitudes and maintain them with perfect immobility. The exercises of immobilization, graded according to their difficulty were: (1) Immobilization of the head with the shoulder girdle fixed; (2) immobilization of the head with mobilization of the shoulder girdle; (3) in the same manner immobilization of the head and neck was to be combined with immobilization exercises of the trunk then with mobilization of the trunk, and finally with immobilization and mobilization of the legs. The conquest once made it had to be maintained by a continuation of the same efforts, and perseverance for a number of years ultimately made the performance of the motion element automatic. As to prognosis, two classes of patients presented themselves, one in which excessive physical and psychical had led to the deformity, the patient's constitution being previously sound, and, a second class, those in whom the torticollis was superimposed on a constitution previously faulty; the local prognosis was mostly dependent on the general one. From a few weeks or months in psychomotor reeducation as little could be expected as in any other branch of education where permanent and complete results were required.

Displacement of the Upper Two Cervical Vertebræ Without Immediate Symptoms of Cord Compression.—Dr. Robert R. Osgood of Boston read this paper. The reader of this paper and Dr. Samuel J. Mixter had undertaken a study of the traumatic lesions of the atlas and axis in the course of which many interesting displacements were discovered. The significance of certain of these lesions lay in the fact that they were commonly nonfatal in their early stages and that their successful treatment depended upon their accurate diagnosis. The extreme degree of displacement which was in certain cases consistent with life, liberty, and pursuit of happiness was most surprising. Dr. Osgood described accurately the anatomy of the upper two cervical vertebræ and exhibited lantern slide illustrations. He showed that at the atlantoid joint there was forward and backward and a little sideways motion, while at the atlo-axoid joints there were turning motions, the head rotating with the atlas. Attention was called to the fact that, in order to allow the free motions of the head, the ligaments were all lax, and that the head must be held firm by muscular action alone. If this muscular support was lacking any blow found a condition conducive to the production of a dislocation or its complicating fracture. The posterior roots of the cervical nerves, from which branches the three chief occipital nerves, were much larger than the anterior, and by their connections with the pharyngeal and cervical plexus, and through this with the brachial, explained the referred symptoms accompanying these injuries. The commoner displacements were first considered as well as their method of production. No case had been reported in which recovery took place after complete isolated dislocation of the occiput on the atlas. Rotary dislocations of the atlas on the axis were not very common and were usually bilateral, owing to the shape of the articular processes and the laxity of their capsules. Complete bilateral dislocations of the atlas on the axis occurred without immediate fatal consequences though they were, however, rare and usually associated with complicating fractures. The simplest and by far the commonest displacement was a unilateral dislocation of the axis on the third cervical vertebra. Here, owing to some traumatism or even to the sudden contraction of a muscle group alone, one of the inferior articular facets of the axis slipped upward and forward, either impinging upon the superior edge of the articular process of the third or slipping forward into the notch in front. This lesion was, of course, not confined to the axis, but might occur in any of the cervical vertebræ. There was usually no fracture and the condition might be spoken of as a subluxation. These were the cases that often were spontaneously reduced during the administration of the anesthetic and by quick unguarded movements of the patient, although they not rarely resisted all but appropriate manipulation, especially if the lesion was one of long standing. The bilateral dislocations of the axis on the third were rare and the picture was similar in many respects to the bilateral dislocations of the atlas on the axis, though more difficult of reduction, owing to the shape of the articular processes. Cases were cited illustrating these various dislocations. Fractures of these two upper vertebræ presented more difficult, though, fortunately perhaps less frequent problems. Because of the apparent rarity of these fractures the reader reported a case. Fractures of the axis were far more common, because the laminæ were more exposed and the spinous process quite prominent. Certain of the football injuries of the past season might possibly have included the second vertebra. By far the most important fracture of the axis was the fracture of the odontoid process and it was to these fractures and to the displacements which followed that attention was especially directed. Out of twelve cases of isolated fracture of the axis reported by Dr. Van Assen in nine, or 75 per cent., the odontoid alone was broken. There was evidence to show that union of the odontoid, if it occurred at all, was fibrous only. Cases in which this lesion occurred formed a most interesting group, both in their immediate and subsequent histories. The displacements due to disease in which there was an apparent solution of continuity of the odontoid and a slipping forward of the atlas and occiput on the axis were quite as remarkable as those entirely due to traumatism. The amount of departure from the normal position which was compatible with life and was productive of no paralytic symptoms was amazing. He cited a case to illustrate this and also one that illustrated that the axis could be displaced far forward without symptoms of cord pressure. The immediate symptoms which followed these lesions varied from almost instant death to an entire absence of all symptoms except neck rigidity and asymmetrical head position. The striking phenomenon was the frequency with which only comparatively slight symptoms resulted. Severe occipital neuralgias and neck rigidity with increase of pain on any attempted active or passive movement of the head were nearly always present and should lead one to suspect bony lesion. The rigidity and neuralgia usually persisted, and sudden movements or attempts at reduction were often followed by immediate fatal consequences, but the most important end result was the gradual onset of a myelitis apparently caused by the irritation of the long continued abnormal position or, in the case of fractures,

by callus formation. The accurate diagnosis of these conditions was obviously of much importance. Lateral *x*-rays of the neck presented no special technical difficulties and showed well any anteroposterior abnormality and often suggested a lateral asymmetry in a dislocation. The ordinary anteroposterior *x*-ray of the neck was valueless as far as the atlas and axis were concerned. A skiagraph taken through the open mouth often gave important information. Odontoid fractures might be seen and any lateral displacement demonstrated. When good *x*-rays were not available much might be learned by inspection and palpation. Inspection revealed the probable displacement if one reasoned out the lesion necessary to produce the individual asymmetry. In the unilateral dislocations the chin would almost without exception point to the side opposite the lesion. By palpation one might discover many things. The value of the examination of the pharynx, preferably under an anesthetic, could scarcely be overestimated. In spite of these helps it was difficult to determine positively the integrity of the odontoid. The importance of this determination was made apparent by several cases in which the penalty for what proved to be unintelligent manipulation was the life of the patient. If one could convince himself that a simple unilateral rotary dislocation of the atlas or axis had occurred intelligent manipulation offered every hope of cure. Walton's method was the only rational one. This consisted of first freeing the dislocated articular facet of the upper vertebræ from its position. Whether this upper articular process had simply caught on the apex of the process of the vertebra below or actually slipped forward into the anterior notch was a difference only of degree. It should be lifted free, then rotated into place by the manipulation of dorsal lateral flexion followed by rotation. In doubtful cases he advised support and fixation by means of apparatus until a definite diagnosis had been made. None of the authors that he had consulted considered operative procedures possible, so it was with much modesty that he ventured to describe an operation at which he had assisted Dr. S. J. Mixter. The case was a boy of fifteen whom they had treated for some time before a fracture of the odontoid was suspected. The boy was put to bed with head extension. A leather cuirass in two pieces was made from an accurate cast taken by laying the patient in a bed of soft plaster and then making the anterior half by pouring over the chest and neck thin plaster cream. When this accurately fitting apparatus was ready the following operation was performed: The boy was placed in the ventral position, the head being supported manually over the end of the table. A linear, four-inch incision was made in the median line of the neck and carried down until the hooked spine of the axis was defined. The posterior arch of the atlas forwardly displaced was sought and exposed. With an aneurism needle a stout braided silk soaked in compound tincture of benzoin was passed about this posterior arch between it and the spinal cord. While forward pressure on the anterior arch was exerted through the pharynx traction was made on the posterior arch. There was firm resistance to replacement and only a slight amount of reposition was accomplished. This was maintained and the atlas firmly anchored by tying the silk band about the hooked spinous process of the axis. The wound was closed with deep silk worm gut sutures, and the leather cuirass applied and strapped tight. The wound was dressed through a posterior window. The boy made an uneventful recovery with no paralytic symptoms and an absence of pain and up to the present had remained well and led an active life. It was now two and one-half years since the operation.

Dr. Virgil P. Gibney said that most of us looked upon the congenital cases of torticollis as due to a hematoma of the sternocleidomastoid muscle occasioned during the delivery of the child, and that the physician in attendance should see that this hematoma was disposed of promptly as the slow process of resolution left connective tissue in the body of the muscle. Later when the child grew older the muscles failed to develop symmetrically and torticollis resulted. Dr. Osgood's paper was full of practical suggestions and thanks were due him for demonstrating so graphically these distressing fractures and subluxations in the upper cervical vertebræ. The most distressing forms of torticollis occurred in hysterical women when there was the rotatory spasm along with it.

Dr. Leonard W. Ely said that Dr. Osgood's paper was particularly valuable because it contained an account of a fractured spine cured by operation. In reading up the writings of others on the subject one could not but be impressed by the hopelessness of operation. Even those who advocated operation published results that could deter one from operating. During the past year he had seen two cases of subluxation of the axis on the atlas, one being complicated with paralysis, the other not. One of these cases, a boy, had fallen and showed the typical picture of such an injury; he was completely paralyzed and had to be lifted from his bed and swung up to have a Calot jacket applied. In the course of a few weeks his condition improved so that he could get about the wards of the hospital. Two months after its application the jacket was removed and then the paralysis came on and was worse than it had been before. The jacket was then again applied, and he again improved so that power in legs and arms was almost normal. He was now at his home. Dr. Ely believed that if the jacket was now removed, he would go back to his condition of paralysis. In this case the paralysis could not be due to callus formation, for it disappeared almost immediately both times the jacket was applied.

Dr. William M. Leszynsky said that malposition of the head simulating torticollis, and due to an affection of the eyes as mentioned by Dr. Sayre, was usually caused by defects in the ocular muscles and not from a refractive error. In such cases, the deformity resulted from the patient's efforts to obtain binocular single vision. He had seen several cases of this character. In one there was a congenital defect involving the action of one external rectus muscle. The type of torticollis cases referred to by Dr. Sayre, and so commonly seen by orthopedists, differed essentially from those seen by the neurologist. In the former, there was a tonic form of spasm secondary to vertebral disease, while in the latter the spasm was usually of the clonic variety and of neurotic origin. This was most frequently classified to-day as a localized convulsive tic. In its initiatory stage it was merely an exaggerated volitional movement, and ultimately these movements become automatic and uncontrollable. This was the type which under ordinary conditions proved so persistent and intractable. The longer its duration the more resistent it was to treatment. Absolute rest in bed for a time was essential in many cases. The hypodermic injection of atropine in increasing dose into the affected muscles had in some instances effected a cure. Some years ago Dr. Leszynsky reported several successful results, and enthusiastically advocated this plan. Since then, with longer experience, he had concluded that while the atropine treatment proved exceedingly beneficial, nay, even curative in some cases, it was unsatisfactory in many others, and should be considered only as an adjuvant to absolute rest and general management. A light head-brace might be worn with comfort as a supplement to other treatment, but the majority of patients could not tolerate it. Surgical measures such as division of muscles and nerve resection had been disappointing. Dr. Leszynsky had reported in 1900 two successful cases treated by exhaustive massage of the affected muscles in conjunction with methodical active and passive movements of the head. Psychomotor

reeducation was the ideal method of to-day, and Dr. Kruna was to be highly commended for having brought this matter to your attention in such a lucid manner. This plan required the intelligent cooperation and perseverance of the patient. Hence, it is necessarily limited in its application. However, if it could be satisfactorily followed, the outlook for these sufferers was most encouraging.

Dr. Charles Dwight Napier reported a case of fracture of the odontoid process seen in a patient eighteen years of age. The boy fell from a tree one year before the doctor saw him. He was told that after the fall he got up and walked to his home; he suffered from rigidity and pain in the head and a lateral bending, but he had no other symptoms. He was untreated until about five months after the accident; then there ensued a paralysis. One year after the injury he came under observation with paralysis, a syringomyelia, probably due to interference with the lymphatic circulation of the cord because of the pressure. In the arms and legs he had but little power. After a time he improved under head extension and today, having been in bed for six months, he had complete power. The *x*-ray plates showed that he had a fracture of the odontoid process. Dr. Napier thought that this was a case that might have been benefited by the operation described by Dr. Osgood.

Dr. Sayre said that he had tried to control the convulsive movements by the administration of gelsemium and conium; he had quieted these patients, but only by giving such doses of these drugs as nearly quieted the circulation. The tics ceased while they were administered in these doses: when he omitted the giving of these agents, the symptoms all returned. His operative experience in these cases had not been at all favorable; the division of the posterior cervical nerves had not resulted in benefit.

SECTION ON MEDICINE.

Stated Meeting, Held January 18, 1910.

Dr. C. N. B. Camac in the Chair.

Pernicious Anemia; Marked Improvement Following Large Doses of Hydrochloric Acid.—Dr. Julius Rudisch reported this case. The past history of the case presented a few points of special significance. The patient was a woman, forty-six years old, a Roumanian. Since her menopause three years ago she had gradually lost weight; there was also a marked anorexia. Five days before her admission to the hospital, October 30, 1909, she fell upon the pavement and sustained a fracture of the left leg. Besides the fracture it was noticed during the physical examination that she was markedly anemic, emaciated, with a waxy pallor of the skin. A short systolic murmur was present over all the cardiac orifices, which was regarded as functional. An examination of the other thoracic organs, as well as the abdominal, gave negative results. The blood examination at the time of her admission showed 1,880,000 red blood cells, 11,400 leucocytes, hemoglobin 30 per cent. The differential count showed 44 per cent. polymorphonuclears, 41 per cent. small lymphocytes, 6 per cent. large lymphocytes and 9 per cent. large mononuclears. There were also noted a marked poikilo- and anisocytosis, many macrocytes, and a few normo- and megaloblasts. The picture was, therefore, one of typical pernicious anemia. A test meal revealed a total acidity of six, with no free hydrochloric acid. The subsequent test meals, the last only the day before this report, gave practically the same results. The urine had from time to time contained a faint trace of albumin and a few hyaline casts. An examination of the feces showed no parasites or ova. Ten days after admission the hemoglobin fell to 20 per cent. following a severe epistaxis with bleeding from the gums. The blood findings remained otherwise unchanged. One week later a marked granular degeneration of the red cells was noted, and from this time on the hemoglobin gradually rose during a period of three weeks to 45 per cent., although the macrocytes and nucleated red cells did not disappear. A subsequent examination of the blood, however, showed a gradual disappearance of these abnormal cell varieties, with a progressive increase in the number of erythrocytes, and in the amount of hemoglobin. Dr. Rudisch said he would omit all the examinations made of the blood count except the one made two days ago. At this time the red cells numbered about 3,250,000 and the leucocytes 5,000. The percentage of hemoglobin had risen to 61. The differential count had not been notably altered. Poikilocytosis was still present, but in other respects the blood cells were normal. The increase in the weight had been about nine pounds. The great majority of the cases of pernicious anemia suffered from an absence of hydrochloric acid and pepsin in the gastric secretion, but it was further harmful in that the essential element for pancreatic secretion, the secretin, was produced only under the stimulus of the acid chyme passing over the duodenal mucosa. To cause an artificial digestion, pancreatic as well as gastric, Dr. Rudisch therefore administered hydrochloric acid and pepsin in much larger doses than were usually considered permissible. The patient had received 30 grains of pepsin and 105 minims of dilute hydrochloric acid three times a day, the latter being given in 15 minim doses every ten minutes in albumin water to disguise the taste. The fact that the acid was given combined instead of free did not affect its action. The further treatment consisted in daily irrigations of the colon and a liberal mixed diet. It would be seen that, from the blood examination, the treatment had been followed by most satisfactory results.

Dr. Beebe said he was very much interested in the report made by Dr. Rudisch, because he had used a method almost identical with it during the past two years. The report of his work was read before the American Medical Association in Atlantic City last year. In that report he gave the findings and reviewed the treatment employed in nine cases. He thought it was yet open to debate as to whether the administration of the hydrochloric acid was such an important factor in the improvement of these cases. It is well known that the gastric secretion in cases of pernicious anemia was often entirely lacking in hydrochloric acid. The recent advances in the knowledge of the physiology of digestion had demonstrated the very great importance of hydrochloric acid, both in the stomach digestion and likewise as a factor in setting into action a train of mechanisms which were mostly of purely chemical nature, and which facilitated the physiological action of the remaining portions of the digestive tube. It had long been believed that a considerable part of the pathological factors in cases of pernicious anemia might be caused by a toxemia, and if the digestive functions were not under proper control the possibility of an intestinal toxemia would appear to be much greater than under normal conditions. He recalled a case similar to the one cited by Dr. Rudisch, the patient being at the Mt. Sinai Hospital about a year ago, under the immediate care of Dr. Strauss. Large quantities of hydrochloric acid were given to this patient over a considerable period of time, but as far as could be determined it had no beneficial effect whatsoever. Since the report at Atlantic City Dr. Beebe had had four more cases, making thirteen in all which he had treated by this method, and he thought that it was possible in every instance to state that these patients were somewhat better off when the acid treatment was begun. The amount of acid used varied somewhat with the different cases, but in most of them fifteen minims of the 10 per cent. acid was diluted to one ounce, and from four to twelve ounces of acid of that concentration was given to the patient after each meal, the acid being taken gradually over from one-half to one hour. In three of the cases a trial was made to see whether, after

they had begun to improve under the use of hydrochloric acid, the patient would relapse when the acid was stopped. In these three cases he was able to state positively that when the acid was interrupted the patients changed for the worse; but when the patient had reached a state of improvement so that his blood showed from 50 to 60 per cent. hemoglobulin and histologically a marked improvement, interruption of the acid treatment was not followed by an immediate change for the worse. He believed the treatment to have some physiological basis, but regarded the administration of large quantities of hydrochloric acid as symptomatic treatment only, and its value was as yet undetermined, but from the results obtained in these thirteen cases it would seem to be an advisable procedure to use.

The Therapeutic Significance of Pilocarpine Glycosuria in Sugar-Free Diabetes.—Dr. Rudisch said that in introducing atropine salts in the treatment of diabetes he had assumed, as a working hypothesis, that in the majority of the cases of so-called pure or neurogenous sugar excretion this was not due to a diminution, but to an increase in pancreatic secretion as the result of nervous influences. It was possible at this time to enumerate the grounds on which this deduction was based. Instances of hypersecretion in other secretory organs in conditions of nerve hyperexcitability were commonly met with in the form of polyuria, diarrhea, hyperchlorhydria, etc. In this hypersecretion atropine was designed to counteract. The results had fully justified his expectations, and it remained to be seen whether an antagonist of atropine, *i.e.* a drug known to produce hypersecretion in the pancreas, would produce opposite effects and thus verify his assumption. In the cases in which pilocarpine was first tried the results were quite inconstant. These earlier failures might be explained as follows: The drug was administered to patients with sugar-free urine who were on so strict a protein diet that the increase in pancreatic secretion following the administration of the pilocarpine was insufficient to cause sugar excretion. For his later experiments Dr. Rudisch selected patients who were on a diet representing the limit of their carbohydrate tolerance. The histories of these cases, apart from the sugar excretion, contained no points of interest. The first patient, forty-eight years old, excreted small amounts of sugar from the date of admission, November 27, when the urine became sugar-free and remained so for one week. She then received one ounce of bread, and this was followed by a prompt reappearance of sugar in the urine; the sugar again disappeared when a strict protein diet was given. After two weeks, during which time the urine remained free from sugar, two doses of pilocarpine, one-sixth of a grain each, were given during twenty-four hours, with one similar dose on the following day. As was to be expected, since the patient was on a strict protein diet, no sugar appeared in the urine during the next few days. One ounce of bread daily was now added to the diet, and the urine was carefully observed over a period of a week, during which time no sugar could be detected in any of the specimens examined. At the end of this time, January 4, pilocarpine, one-sixth of a grain, was given by mouth at 8 A.M., and the urine examined at intervals of two hours throughout the day. At 10 A. M. one-quarter per cent. of sugar was found to be present, the quantity gradually diminishing through the day. On the following day the experiment was repeated with practically the same results, making a detailed account superfluous. For eleven days small amounts of sugar continued to be present in the urine. Attempts to suppress the sugar excretion through atropine were interrupted on account of the unusual susceptibility of the patient to this drug. For the past four days the urine had again been sugar-free. The second case was that of a woman who was admitted on December 16, 1909, with 2.8 of sugar; under a strict protein diet and atropia, the urine became sugar-free within three days. On January 1 milk was added to her diet without resulting in the appearance of sugar in the urine. On January 5, pilocarpine, one-sixth of a grain, was given by mouth. During the following ten days the urine constantly showed more or less marked traces of sugar, at one time reaching 1.2 per cent., the reaction with Fehling's solution finally disappearing on the evening of January 15. Atropine, grain one-sixtieth, was ordered on the fourth day after the pilocarpine was given, and was continued for three days. For the last four days a large dose of sodium bicarbonate was administered every hour, a drug that was known to inhibit secretion also. It was of interest to note that the glycosuria following the pilocarpine, though not intense, was quite obstinate, persisting for ten days in each of the above cases. This was in accord with the common clinical experience that a single dietary indiscretion was often followed by glycosuria lasting over a week or more. And so opium, sodium bicarbonate, and atropine diminished pancreatic secretion; whereas pilocarpine and amylacaceæ increased pancreatic secretion, and consequently sugar production. Dr. Rudisch thought they were entitled to say that the treatment of neurogenous diabetes was put on a physiological basis and was no longer a matter of empiricism.

Dr. Graham Lusk said that Dr. Rudisch came to the laboratory of the Cornell University Medical College last winter and spoke of administering atropine and pilocarpine to dogs with phlorizin diabetes. Dr. Ringer had made this investigation and found that both atropine and pilocarpine were without influence on the nitrogen elimination in phlorizinized dogs. Of course, this simply showed that these drugs had no influence either upon the excretion of sugar through the kidney, or upon the sugar production in the body. Whether these drugs had an influence upon the pancreas, as stated by Dr. Rudisch, was another matter. It might be that atropine, which acted to diminish the secretion of pancreatic juice, might act to conserve the internal secretion of the gland; whereas pilocarpine, which, on the other hand, produced an increase in the secretion of pancreatic juice, might thereby act to diminish the activity of the internal secretion.

A Case of Myelogenous Leukemia with Diabetes.—Dr. Alfred Meyer reported this case. The patient was a woman, forty-eight years old, who was at the menopause. She did not appear to be particularly sick, although she had been ill with diabetes for four years. She weighed 155 pounds, and did not seem to be anemic. The symptomatology of diabetes was very plain, but the other condition, myelogenous leukemia, had not been recognized before her admission to the hospital. When she was first examined at the hospital there was noted a large splenic tumor. The liver was enlarged and easily palpable. The urine contained from 1 to 2 per cent. sugar, the highest daily excretion being 44 grams. The blood count showed 75 per cent. hemoglobin, about 240,000 leucocytes, 50 per cent. polymorphonuclears, and 40 per cent. large and small lymphocytes; there were from 9 to 12 per cent. myelocytes, and the erythrocytes numbered about 4,250,000. There was tenderness over the sternum. One small hematoma was found, and some ecchymotic spots over the body. Retinal hemorrhages were found in the eye. This patient died one month after admission. Within one week of her death she was seized with hemorrhages from the bowel. She then began to run a septic temperature curve, ranging as high as 106°. Dr. Meyer called attention to the work of Dr. Cabot and his careful study of leukemia which was published in Dr. Osler's book; he there stated that in his experience with sixty or seventy cases hemorrhage was a very common symptom in four-fifths of them, but that a fatal hemorrhage from the bowel in myelogenous leukemia was rare, and that even the bleeding did not appear to come from any large blood vessels, but was a general oozing. What was of particular interest in the report of this case was the

relationship between the two diseases in point of time. One observer had reported three cases, two quoted from the literature and one observed by himself, in all of which the diabetes appeared first and the myelogenous leukemia later. In Dr. Meyer's case the diabetes probably antedated the leukemia, because he had evidence that the diabetes had been discovered four years previous, and very likely exceeded that period; it was exceptional for even a myelogenous leukemia to last four years. With regard to the etiology, there did not appear to be any relationship between the development of the leukemia and the diabetes; the frequency of diabetes and the variety of the complication was alone sufficient to discountenance such a view. Dr. Meyer then referred to the occasional difficulty in differentiating splenic tumors from left renal and retroperitoneal tumors, and, although this did not apply in his case, he had inflated the colon from the rectum in order to test the correctness of the view. If the tumor was a splenic one, no effect would be noticed, as proven by the case he reported; whereas if it was a renal tumor, or one starting from the retroperitoneal space, the colon could be percussed in front of the tumor. The patient died four weeks after admission, and the postmortem revealed small hepatic abscesses, in addition to the other expected lesions. Dr. Cabot reported that three times in his experience cases of myelogenous leukemia had been mistaken for hepatic abscesses. Dr. Meyer wondered whether it was not possible that these were cases of leukemia complicated with hepatic abscesses. As to the treatment, sixteen or seventeen years ago he said that he had a patient with myelogenous leukemia, and used hypodermically freshly prepared carbolic glycerine extract of thyroid gland. The leucocytes were one in three; there were many large hematomata, and hemorrhages from the nose, rectum, and uterus. His colleagues were astounded at the marvelous improvement which followed this plan of treatment, plus inhalations of nascent ozone and the rectal injections of artificial serum. However, the patient went to Tennessee, where she subsequently died. Dr. Meyer did not know whether it was the thyroid, the carbolic acid, or the glycerine that caused an improvement in her condition Dr. Meyer said that in at least one or two cases of leukemia that had been under his charge, the *x*-ray had been used with marvelous results in reducing the size of the spleen, but at the same time the patient's downward course appeared accelerated. He did not look upon the spleen as being the primary source of the trouble. He thought that possibly the rapid reduction in the size of the spleen caused the absorption of the products of decomposition, and injured the patient. The condition might be a species of toxemia. The *x*-ray, if at all used, might more safely be used in small doses and at long intervals. The extra precaution would be additionally justified when there was a coexisting diabetes.

A Case of Melanosarcoma.—Dr. Henry W. Berg reported this case. The patient was a woman, thirty-two years old, and married; she had had four living children; three children had died and she had had one miscarriage. Up to about four years ago she had been perfectly healthy, when a pigmented mole appeared on her back near the left scapular angle, which took on an extraordinarily growing activity. It projected from the skin and began to ulcerate; her family physician removed it. Six months after the operation she began to have pain in her abdomen; she vomited frequently and had dizzy spells. She then noticed the appearance of enlarged glands in the neck and axilla; also small elevated spots, the size of millet seeds. In July of this year she complained of pain in the scar where the original pigmented mole had been. On examination the skin showed the following: Scattered over the chest, back, and extremities were numerous tumors, varying in size up to three millimeters. Some of them were merely pigmented spots; others were distinctly elevated a millimeter above the surface. They were smooth, glistening, and brownish-black in color. There were several such lesions on the lower jaw and two on the dorsum of the left foot. Just inside the left scapula was a scar; at the upper end was a flat, black, rough circular tumor the size of a watermelon pit. Over the right iliac region there was a pedunculated, hard, brownish tumor, slightly ulcerated. There was a similar tumor within the left axilla. There were a few small inguinal glands; no epitrochlear glands were found to be enlarged. The posterior cervical glands on the right side, however, were markedly enlarged, hard, somewhat matted together, but not tender. There was a somewhat small, black, soft, somewhat movable tumor growing from the gum of the left side of the mouth. The liver, somewhat rough and nodular, projected two fingers below the free border of the ribs. Projecting from the lower border was a mass in the region of the gall-bladder which was the size of a large egg, and which could be traced as attached to the liver. The spleen was felt two fingers below the free border of the ribs, and was firm and rough. In the abdominal wall, three fingers above and inside the anterior superior spine on the left side, was a distinct nodule, not tender, hard, or movable, and about the size of a hazelnut. There was an occasional rise of temperature. The blood showed no abnormality except an anemia, and this, together with the enlarged glands in the neck and axilla, led one to think of Hodgkin's disease. It was not until a month or so ago that an exquisite skin lesion appeared, and immediately a diagnosis of melanosarcoma was made. The primary lesion was in the pigmented mole; the metastases in the abdomen, glands in the neck and axillæ were extremely interesting. A portion of one of the growths was excised, and the pathologist reported that it was a melanosarcoma or carcinoma. The urine showed the melanin pigment. The patient was very anemic, and had occasional rises in temperature. At first she was treated with arsenic injections. She was now receiving Coley's fluid.

A Case of Acromegaly with Mediastinal Tumor.—Dr. Morris Manges reported this case. The patient was a laborer, forty-five years old, admitted to Mt. Sinai Hospital November 25, 1909. He entered the hospital because of hemoptysis, cough, and a profuse expectoration. The acromegaly began at the age of 15 years and gradually increased. Two months prior to admission he began to have a cough, a mucopurulent expectoration, and pain in the upper right chest, particularly on deep inspiration. There was slight dyspnea on exertion. The sputum had a very foul odor. About one week after the onset of his trouble he had difficulty in swallowing. The pain in the chest became more and more severe. He had lost twenty pounds in weight. The patient was a very large, muscular man, although very emaciated. The facial appearance was that of acromegaly. He coughed and expectorated a bloody sputum. His voice was somewhat hoarse. There were numerous large and small glands in the left axilla. There was marked asymmetry of the chest, with marked bulging of the lower right quadrant. About one hand's breadth below the left nipple was noted a small, soft subcutaneous mass, freely movable over the deeper tissues. At the angle of the right scapula was another soft mass, the size of a fist and freely movable. A similar mass was found lower down. Just inside the spine of the right scapula another mass was found. There was no tenderness over any of these lipomatous tumors. There was marked board-like flatness over the upper right lobe of the lung, extending down to the second rib. There was an emphysematous note over the left apex. The breathing was rough over the entire right apex. The voice signs were diminished. No râles were heard anteriorly. There was marked dullness in both interscapular regions. Numerous fine dry râles were heard at the base of the right axilla. There

was a marked arteriosclerosis of the vessels. The liver extended to two fingers below the free border of the ribs. The hands and feet were very large. The great toe was especially large. There was no thyroid gland. Sugar was absent, and none was found even after giving 100 grams of sugar. On November 28 a rough, diastolic murmur was heard over the pulmonic orifice which was transmitted toward the apex. On December 1 there was a slight adductor paralysis of the larynx. The *x*-ray plate showed a large mass in the upper part of the chest, most of it being on the right side. Its maximum breadth was at the seventh rib, where it measured about seven inches. On December 6 marked dysphagia was noted and a stomach tube could be passed twelve and a half inches from the teeth. On December 11 there was a very severe dyspnea, laryngeal spasm, and bilateral adductor paralysis. The patient was unable to cough or swallow. He suddenly had a sensation of choking and expired. No tubercle bacilli were found in the sputum, and the v. Pirquet test was negative. The white blood cells numbered 7,500 and the hemoglobin was 85 per cent. The differential count showed polymorphonuclears to be 76 per cent., the large lymphocytes 6 per cent., and the small lymphocytes 18 per cent. At autopsy the skull could not be examined. No thymus gland was found. The esophagus showed no abnormalities, but it might have been compressed. At both apices were found old adhesions. There was no fluid in the chest. There was found a large posterior mediastinal tumor, 13 cm. in diameter, adherent to the right lung above the hilus; this tumor compressed the azygos vein and the right vagus nerve and left recurrent laryngeal nerve. The right innominate vein passed through the middle of the tumor and could be followed to a point where it was occluded. There was a complete concretio pericardii. Both ventricles were hypertrophied. The right ventricle was markedly infiltrated with fat. The muscle was brown in color. The trabeculæ of the left ventricle were flattened. There were no abnormalities of the valves. The liver weighed over five pounds. It was markedly congested and at the periphery there was fatty degeneration. There was an hyperplasia of the lymphatic apparatus of the spleen. The kidneys showed no chronic lesion. The diagnosis made was mediastinal tumor and polymorphocellular sarcoma (lymphosarcoma).

Recurrent Laryngeal Paralysis Due to Hypertrophied Heart.—Dr. Morris Manges reported the case of a boy, fifteen years old, who, during the past two years, had had repeated attacks of failing compensation. The examination revealed an enlarged heart, with the apex in the posterior axillary line and the sixth interspace. It was a huge heart. There was pulsation in the episternal notch. There was a double aortic murmur, a mitral regurgitant murmur, a Corrigan pulse, and an accentuated second pulmonic sound. There were no signs of a pericarditis. There was a large and pulsating liver. There was a left recurrent laryngeal nerve palsy due to compression of the nerve between the aorta and the dilated left auricle. This case showed how such a condition might simulate an aneurysm, especially when there was pulsation at the second and third left spaces, as there was in this case. Dr. Osler had reported three cases in which he stated that the compression might also occur between the dilated pulmonic veins or the left pulmonary artery and the dilated left auricle. Osler's three cases were of double mitral disease, two with autopsy, where the nerve was found to be compressed between the left auricle and the aorta. The condition was first described by Ortner; in his case aneurysm had been suspected, but the autopsy showed the compression of the left recurrent laryngeal nerve between the aorta and the enlarged left auricle. Dr. Manges exhibited an *x*-ray plate showing an enormous enlargement of the heart, especially the left heart. The aorta was not enlarged.

Dr. Forbes R. McCreery reported the case of a servant girl with paralysis of the left recurrent laryngeal nerve; there was a complete paralysis of both the true and false cords. She had a hypertrophied heart, arteriosclerosis, and the arterial tension was about 170. There were no evidences of aneurysm. He could not find anything to account for this paralysis except the hypertrophied condition of the heart. There developed later edema of the feet and she became very much emaciated. At the present time her condition was practically the same, except that under treatment the edema had disappeared and her general condition had somewhat improved. The condition in the larynx remained the same. The only explanation he could give was that the greatly hypertrophied heart pressed upon the recurrent laryngeal nerve and so caused the paralysis.

A Case of Typhoid Fever, with Multiple Thromboses, and Infarcts of the Lung, and Embolism of Pulmonary Artery.—Dr. Morris Manges reported this case. This was a very long protracted case and showed the value of hospital care, careful stimulation, and proper feeding. Infarctions occurred in the left apex on the forty-ninth day of the typhoid and in the right lung on the fifty-fifth day. Embolism of pulmonary artery occurred. The left external jugular became thrombosed and later the right. Many small hemoptyses occurred with the infarctions and the patient suffered from bed sores. There was edema of the left upper extremity. Phlebitis of the upper extremity was very rare, Curschman reporting only two cases in the axillary and subclavian veins. Keen found it in only four cases of 128 cases of thrombosis in typhoid fever. In the case reported there was absolutely nothing noted in the veins of the lower extremities. Dr. Whiting had examined this patient to discover if there was any possible relationship between sinus thrombosis and the jugular thrombosis. With regard to the source of the emboli, they did not come from the intestinal lesions; they probably came from the thrombosed veins, or possibly from thrombi in the right heart. There were no ill effects from the infarcts, although cases had been reported where they had led to gangrene. Dr. Manges thought that in this case the lung infarcts were the result of the thromboses. Embolism of the pulmonary artery was usually a fatal condition. The symptoms in this case resembled those in Eichhorst's case. A recovery followed a very long and tedious illness of 130 days.

Qualitative Test for B-Oxybutyric Acid in the Urine.—Dr. Julius Rudisch, working upon Black's basic idea of the demonstration of β-oxybutyric acid through its oxidation into diacetic acid, had devised methods which he wished to present. Ten to 15 c.c. of urine, which should be acid or, if necessary, slightly acidified with very weak acetic acid, were brought to the boiling point, and a small quantity of lead peroxide added to the hot solution, after which the mixture was again brought to the boiling point. It was then allowed to cool for ten to twenty minutes. A small portion was then filtered into a test tube containing dilute liquor ferri chloridi. The latter he made by adding five to ten drops of the iron solution to three to five c.c. of a saturated salt solution. In the presence of β-oxybutyric acid a red ring formed at the junction of the two fluids. Dr. Rudisch had obtained equally good results by adding about two c.c. of Fehling's solution of copper to the boiling urine, together with a small quantity of zinc dust, and proceedings as with the peroxide of lead. The following precautions should be observed in carrying out the above tests: (1) If diacetic acid was present in the urine, it should first be removed by boiling. (2) Salicylates invalidated the test, as in themselves they gave a violet color on the addition of iron. (3) An excess of acetic acid should be avoided, as this would also give a red ring due to the formation of acetate of iron. The latter would de-

compose on boiling, yielding a precipitate of basic iron acetate.

Pseudotyphoid Fever; a Clinical Study.—Dr. Nathan E. Brill read this paper. What he termed "pseudotyphoid fever," which name was only tentative, was an acute infectious disease of unknown origin and unknown pathology. It was characterized by a short incubation period of four or five days, then a period of continuous fever accompanied by an intense headache, more or less apathy and prostration, a profuse and extensive maculopapular eruption, all of about two weeks' duration; then the temperature would abruptly fall, either by crisis in a few hours, or by a rapid lysis within two days, and the symptoms then would all disappear. The total number of cases that he had records of was 221. His paper was based, however, on the last 50 cases seen in the wards of Mt. Sinai Hospital. There were 34 males and 16 females. There were 30 Russians, 12 Austrians, two each of this country and of Ireland, one German, and three whose nationality was not noted. The month of appearance of this disease showed the following: January, 1; February, 3; March, 3; April, 10; May, 3; June, 8; July, 8; August, 2; September, 6; October, 11; November, 3; December, 2. The disease was most commonly met with between the ages of 20 and 40, 33 being seen during this period. Between the ages of 10 and 20 there were 9 cases; between the ages of 20 and 30, 19 cases; between the ages of 30 and 40, 14 cases; between the ages of 40 and 50, 4 cases; between the ages of 50 and 60, 2 cases; between the ages of 60 and 70, 2 cases. The youngest patient was 17 years old and the oldest 65 years old. The incubation period varied in duration from a sudden onset, without prodromal symptoms, to fourteen days. During this time the patient suffered from headache, general malaise, anorexia, and constipation. The average duration of the incubation period in this series of 50 cases was 4.8 days. In 15 cases it could not be ascertained; in 35 it varied from a few hours to 14 days. The onset might be gradual or sudden, and was accompanied by a chill, or chilly sensations, nausea, vomiting, and severe headache; occasionally there were general body pains. In 19 cases the onset was sudden; in 31, gradual. Epistaxis was uncommon, being noted but three times in this series of cases. Among the symptoms noted, headache was invariably present and was of an agonizing character, more severe than in typhoid fever, and dispapeared with the fall in the temperature. Apathy was marked in the majority of the cases. In six cases it was extreme, in 17 it was marked, in 12 it was absent, and in 15 it was not noted. In the cases with rigidity of the neck spinal puncture was done and an examination of the fluid cytologically and bacteriologically showed no evidences of a meningitis and no organism was isolated from the cerebrospinal fluid. The pulse in these cases was rather slow and did not rise markedly with the temperature elevations. It was full, soft, and of low tension. The temperature, as a rule, began to rise between the third and fourth day of the disease. It reached its height in two or three days and average between 103.6° and 104.2°; it was slightly higher in the evenings, the remissions between morning and evening not varying more than one to one and a half degrees. With the exception of these remissions, the temperature was uniform. Until the day before the beginning fall, a precritical rise was noted in four cases to over 105°; the precritical rise, however, was not the rule. On the twelfth to the fourteenth day, the temperature began to fall. The fall was quick and abrupt and, in some of the cases, within ten hours from over 105° to normal. The fall by crisis was observed in 16 cases, rapid lysis (thirty-six hours) in 17, and in 17 the decline occurred within sixty hours. The conjunctivæ were suffused and congested in 28; not affected in 18; not noted in four. The face showed an expression of pain; the skin of the forehead was wrinkled and the brows were contracted. Any attempts at moving the patient induced a more marked expression of pain which was referred to the head. The tongue was coated; it was usually moist, only occasionally being dry and furred. The eruption was petechial in three cases. The date of its appearance could not be definitely stated, but it appeared about the sixth day. Herpes labialis was noted in four cases of this series. Constipation was a marked feature, being present in 42 cases; in six the bowels were regular and in two the diarrhea followed a previous constipation. Tympanites was not a feature of the disease. A slight distention of the abdomen was noted in nine patients. The sensorium was dulled; the patients resented being disturbed and were quite irritable. The spleen was not infrequently enlarged so as to be palpable. It was distinctly felt below the costal margin in 17 cases of this series. The average white blood count was higher than in typhoid fever. There was no tendency to leukopenia, the average count being between 8,000 and 11,000; when bronchopneumonia existed as a complication, the count was much higher; in one case it was 23,600. Taking the average of the series, only one of which no count was taken, the count was 9,394, the lowest being 4,200. The polymorphonuclears were about 70 per cent. and the lymphocytes 30 per cent. as the average in their series. A faint trace of albumin was noted in many of the cases. The diazo reaction was present in nine cases, absent in 30, and was not noted in 11 cases. Among the complications bronchitis was the most common, occurring in 24 of this series. Bronchopneumonia was noted occasionally, but was only present in four of the cases. The disease lasted about two weeks. In their series of cases the average duration was 133 days. In one case it lasted but five days and in another 22 days, these being the minimum and maximum limits. Ten of these patients had had typhoid fever previously; 37 had not had typhoid previously; three could not give any data as to a previous typhoid. Agglutination with the typhoid bacillus reaction was absent in all of the 221 cases. The test was made daily in almost all of the cases up to the time of their discharge from the hospital. In only the last 19 of the series was the daily test discontinued owing to the fact that a positive reaction had never been found. In the last 19 patients the test was made every third day. Agglutination tests of the patients' serum were made against the paratyphoid and intermediate para-colon group, including all the available group strains that the Mt. Sinai Hospital laboratory could obtain. No positive reaction in any of these had ever been obtained. These reactions were made in a large number of the cases, the details of which the laboratory could report. Blood cultures were made in most of the cases, averaging two cultures in the number, *i.e.* in some patients only one was taken and in others as many as four. No organism had ever been discovered or isolated in any of these. The blood obtained from puncture of the spleen in a number of these patients likewise proved culturally negative. Feces and urine were examined culturally and from neither could an organism be obtained which could be regarded as the causative factor in this disease. Many of the spots were subjected to cultural and microscopical examination with negative results. There had not been one fatality among all these patients. No relapse from the disease had ever occurred. Dr. Brill insisted that this disease was a distinct clinical entity and was entitled to a definite place in medical nosology. It had absolutely no relationship to typhoid fever, from which it was distinguished in every clinical feature, particularly in the temperature curve, in the eruption, the absence of the Widal reaction, and the total lack of evidence from blood cultures. The eruption was wider spread, covering the trunk and extremities even to the palms and soles in some of the cases. The spots were irregular in outline, not circumscribed or lenticular and did not, as a

rule, disappear on pressure; they were larger and not as high as the typhoid fever spot and dull red in color. The eruption was more like the typhus fever eruption than the typhoid, and, in his opinion, was one of the characteristic features of the disease under discussion. The disease was apparently not communicable; no case had ever developed in the general wards where these cases were, in which respect it was entirely unlike typhus fever.

Dr. Warren Coleman said that Dr. Brill's paper was too important to be passed over with the usual polite encomiums. If Dr. Brill had discovered a new disease, full credit should be given to him; if, on the contrary, he had failed to eliminate other possible diagnoses, this fact should also be made known. Here was a disease which was so like typhoid fever that Dr. Brill had called it "pseudo-typhoid." In his opinion it lacked no essential symptom of mild typhoid fever. The patients suffered from headache, fever, an increasing malaise, which ultimately drove them to bed; there was also enlargement of the spleen; sometimes there was a dicrotic pulse, constipation, and an eruption. The cases were usually of short duration and some had ended by crisis. Dr. Brill believed that the eruption was characteristic, and that it was not like the typhoid eruption. He had been kind enough to invite him to see within the last few days two cases in the Mt. Sinai Hospital. Defervescence had occurred in one case and, though he found a few spots on this patient, it would not be fair to draw conclusions from them. The other case was acutely ill. She had an extensive eruption over the back, chest, arms, and thighs, but as Dr. Brill thought the rash was not typical, no opinion would be expressed about it. The impression Dr. Coleman received from these cases was that they were like mild typhoid fever. He said that in Bellevue Hospital he had proved cases, which appeared to be similar, to be cases of mild typhoid fever. Dr. Brill was also kind enough to show some case-histories and these too resembled the typhoid cases he had seen at his service at Bellevue Hospital. The fact that in none of Dr. Brill's cases were positive bacteriological examinations of the blood, or positive serum reactions obtained, demanded consideration. No one who was familiar with the work of the pathological department of Mt. Sinai Hospital questioned for an instant the results of the examinations made there. It was the interpretation of the results which Dr. Coleman believed to be at fault. A single or even several negative bacteriological examinations of the blood in a given case did not prove that the patient was not suffering from typhoid fever. Dr. Buxton and he had failed to discover the typhoid bacillus in typical cases of typhoid fever until the third or even the fourth examination, the same method being employed each time. There were so few data concerning the results of the bacteriological examinations of the blood in cases of mild typhoid fever that it would be unwise to attempt to draw conclusions. They simply did not know how often they might expect to recover the bacillus. Before taking up the discussion of the serum reactions, he said he wished to state that he included in the term typhoid fever all typhoid-like cases of infection by whatever member of the typhoid-colon group of bacilli they might be caused. In the majority of Dr. Brill's cases, the serum had been tested against the typhoid bacillus only; likewise in the majority of cases, serum tests had not been made daily. If the results which Dr. Hastings and he had obtained might be depended upon, these examinations were not sufficient for diagnostic purposes. They found that a positive reaction might be present for only a day or two in mild typhoids and, therefore, daily examinations were required to prove a negative. Furthermore, to exclude infections by other members of the typhoid-colon group, daily examinations must be made. Dr. Coleman did not believe that Dr. Brill had proved that he had found a new disease.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of February 26, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	731	167
Diphtheria	391	44
Measles	1,246	22
Scarlet Fever	655	40
Smallpox	—	—
Varicella	201	—
Typhoid Fever	34	7
Whooping Cough	22	3
Cerebrospinal Meningitis	3	3
Malarial Fever	—	—
Totals	3,283	286

The Wassermann Reaction in Leprosy.—Alberto Serra gives the results of his experiments on the Wassermann reaction, as applied to leprosy. He made the tests in seventen lepers, eight of mixed type, six of tubercular leprosy, and three of leprosy of the nerves. The test was positive in all cases except in nerve leprosy pure and simple. He believes that the serum of lepers has a marked affinity for the extract of the lepromas, which speaks for the specific nature of the test. The completeness of the test varies with the greater or less florid condition of the disease. As the disease declines in acuteness, as in syphilis of the nerves and late tubercular leprosy, the test is less evident.—*Il Policlinico.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 25, 1910:

			CASES	DEATHS
CHOLERA				
India, Bombay	Jan.	12–18	..	2
Calcutta	Jan.	2–8	..	15
Rangoon	Jan.	2–8	..	1
Java, Batavia	Jan.	2–8	2	..
Persia, Astara	Dec.	10–15	1	..
Philippine Islands, Manila	Dec.	19–Jan. 1	38	32
Provinces—				
Bataan	Dec.	19–Jan. 1	19	15
Bohol	Dec.	19–Jan. 1	2	2
Bulacan	Dec.	19–Jan. 1	8	8
Cavite	Dec.	19–Jan. 1	19	17
Cebu	Dec.	19–Jan. 1	66	51
Laguna	Dec.	19–25	4	4
Pampagna	Dec.	19–Jan. 1	81	73
Rizal	Dec.	19–Jan. 1	4	2
Russia, Moscow	Jan.	16–22	1	1
Siam, Bangkok	Nov.	28–Dec. 25	3	3
YELLOW FEVER				
Brazil, Manaos	Jan.	16–22	..	4
Para	Jan.	23–29	6	5
PLAGUE				
Brazil, Bahia	Jan.	1–21	8	4
Egypt—Provinces:				
Assiout	Jan.	19–26	2	..
Beni Souel	Jan.	19–26	5	1
Fayoum	Jan.	16–22	1	1
Indo-China, Saigon	Dec.	19–25	1	1
Japan, Kobe	Jan.	16–22	1	1
Peru, Callao	Jan.	28–31	2	..
Russia, Astrakhan	Jan.	24–31	16	13
SMALLPOX				
Brazil, Bahia	Jan.	1–21	58	47
China, Amoy	Jan.	2–8	..	2
Hankow	Dec.	26–Jan. 2	..	1
Germany, general	Jan.	22–29	4	..
Great Britain, Liverpool	Jan.	30–Feb. 5	2	..
London	Jan.	23–29	2	..
Greece, Athens	Dec.	26–Jan. 29	4	..
India, Bombay	Jan.	12–18	..	17
Kurrachee	Jan.	9–15	3	..
Rangoon	Jan.	2–8	..	4
Italy, general	Jan.	24–30	32	..
Genoa	Jan.	15–31	3	..
Naples	Jan.	24–30	15	5
Java, Batavia	Jan.	2–8	2	..
Malta, Valetta	Jan.	9–15	1	..
Mexico, Aguascalientes	Jan.	31–Feb. 6	..	6
Chihuahua	Jan.	31–Feb. 13	2	1
Guadalajara	Jan.	29–Feb. 4	..	2
Persia, Arabistan	Dec.	6–31	..	Present
Hamadan	Dec.	6–31	..	Present
Kurdistan	Dec.	6–31	..	Present
Philippine Islands, Manila	Dec.	19–25	1	..
Portugal, Lisbon	Jan.	22–29	16	..
Russia, Batoum	Dec.	1–31	5	..
Libau	Jan.	24–30	5	..
Moscow	Jan.	9–22	29	5
Odessa	Dec.	26–Jan. 22	69	18
St. Petersburg	Jan.	16–22	62	9
Siam, Bangkok	Nov.	28–Dec. 25	1	1
Spain, Barcelona	Jan.	25–31	..	8
Vigo	Jan.	23–29	..	1
Turkey, Smyrna	Dec.	2–31	..	11

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Original Articles.

TUBERCULOSIS OF THE KIDNEY WITH REPORT OF CASES.*

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TUBERCULOSIS of the kidneys is a disease of young persons occurring almost always between the ages of twenty and thirty. In point of frequency men and women are similarly affected. In the great majority of cases the tuberculosis is apparently a primary infection of one kidney, and it is not possible to demonstrate active foci of tuberculosis in the body, although they may exist latent and unsuspected. This is a most important clinical fact, for upon it is based the modern treatment of tuberculosis of the kidney, for an early nephrectomy removes the tangible focus of tuberculosis from the body. After the kidney is removed, further development of the infection does not occur, and the patient's life is saved.

The kidney may be infected in two ways, either from a focus of tuberculosis, from which the bacilli are carried through the blood in the form of emboli and deposited in the capillaries of the kidney, or the bacilli are taken into the blood through the stomach or lungs and are carried to the kidney, developing foci of tuberculosis at the point of weakened resistance. This is the so-called hematogenous infection and is by far the most common mode. One kidney alone is attacked at first, and after several months the other becomes infected. This is shown by postmortem examinations, which demonstrate that after long standing tuberculous disease, both kidneys are affected. The fact that in the early months only one kidney is infected is proven by catheterizing the ureters and examining the urine from the right and left sides. The necessity of early diagnosis is an important suggestion for treatment, for if the diseased kidney is promptly removed before infection of the other one, nephrectomy prevents further trouble and is a life-saving operation.

This applies only to those cases of what might properly be called primary tuberculosis of the kidney, in which foci cannot be demonstrated elsewhere in the body.

In a few cases the tuberculosis apparently begins in the prostate or epididymis and both kidneys are affected secondarily by an extension of the process, either by metastasis through the lymph vessels and periureteral tissues, through the blood current, or by a direct ascent of the bacilli through the ureters to the pelvis of the kidney. The extension of the process is slow, and the kidneys are only attacked shortly before the death of the patient, which occurs from ulcerative perforation of the bladder and urethra into the rectum.

It was formerly supposed that the kidneys were usually infected by a direct ascent of the tubercle bacilli from the bladder through the ureters, and while this is the mode of infection in pyelitis, occasioned by stagnating urine in a bladder which cannot empty itself, as a result of stone, stricture, or enlarged prostate, it is known to-day that an ascending infection of the kidneys is a rare event in tuberculosis. An exception to this general rule takes place when the tuberculous process begins in the vas deferens or seminal vesicles. In these cases the process extends to the ureter, causing a stricture with stagnating urine. At night, with the patient in a recumbent position, the bacilli readily make their way through the ureter into the pelvis of the kidney and cause pyelitis.

The pathological anatomy of tuberculosis of the kidney consists in the deposit of isolated foci of tuberculosis in its parenchyma, which become cheesy, break down, and the pus is discharged into the pelvis of the kidney. After a time the foci coalesce and form large cavities, often communicating and filled with pus; or large abscesses may form at one pole and a good deal of the secreting parenchyma remains. Finally, if the patient lives long enough, the parenchyma is entirely destroyed and the kidney is converted into a mere shell, surrounded by a thickened capsule and containing cyst-like cavities filled with cheesy pus. The ureter sometimes becomes occluded and the pus has no exit, or the ureter remains patulous and the kidney becomes converted into a small hard mass of fibrous connective tissue. Interstitial nephritis always ensues after a time and is caused either by the tubercle bacilli themselves or their toxins. Perinephritic abscess often follows as a complication and is formed by an ulceration from the tuberculous deposit extending through the parenchyma and perforating into the fatty capsule of the kidney. The pus is discharged through the sinus thus formed and retained within the fatty capsule. Where one kidney is the seat of a tuberculous deposit, the second kidney remains healthy for a time, but ultimately becomes infected through the blood. The fatty capsule of the diseased kidney becomes very much thickened and is converted into dense fibrous connective tissue, closely adherent to the kidney. This adds greatly to the difficulty of nephrectomy, so that subcapsular enucleation of the kidney may have to be performed in order to remove it.

The symptoms of tuberculous kidney are slight at first; a little impairment of the appetite is noted, with perhaps some feverishness at night. Later, loss of weight is noticeable, and there is an evening rise of temperature of 101° to 102°. If pyone-

*Read before Kings County Medical Society, November 16, 1909.

phrosis or perinephritic abscesses develop, marked septic symptoms follow. If nephritis becomes marked, symptoms of uremia occur; and if the ureter becomes occluded, pains in the loin radiating along the course of the ureter resembling renal colic. The symptoms are not constant, but remissions, with

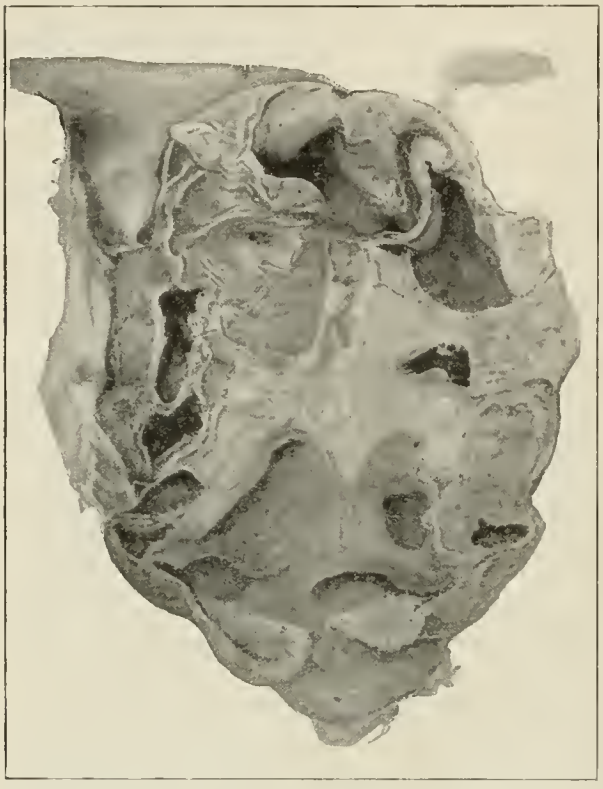


Fig. 1.—Case 3. J. L. M. Tuberculosis of the kidney; isolated foci have broken down and formed cavities, filled with pus, several of which communicate.

repeated occurrences, are rather characteristic of the disease. In the early stages, frequency of urination, particularly at night, is observed; but later, when the bladder has become involved with the formation of typical tuberculous ulcers, urination may occur every ten to fifteen minutes. The pain and tenesmus are intense, the urine is foul, containing quantities of pus and more or less blood. The urinary examination shows pus in the urine, unless the focus of tuberculosis does not communicate with the pelvis of the kidney, in which case there is none. When the abscesses break they discharge into the pelvis of the kidney, and pus again appears in the urine. In the early stages a moderate amount of pus is observed in the urine, which is remittent in character, but later large quantities are poured forth. Hematuria may occur, but not necessarily. A free hematuria usually denotes ulcerations at the apices of the pyramids. The urinary examination shows, in addition to the pus cells, polyuria of low specific gravity and acid reaction. Albumin in slight quantities is present and accounted for by pus or blood. If nephritis occurs, considerable quantities of albumin are found, together with granular and hyaline casts. The tubercle bacilli are often difficult to find. Many slides may be examined and none discovered. Pain is not a marked feature of tuberculosis of the kidney, unless the ureter is blocked, preventing the urine from flowing out and damming it back on the kidney. Tumor is difficult to feel, as the kidney is not much enlarged unless pyonephrosis or perinephritic abscess develops. If this occurs, a tumor of considerable size may be easily palpated

In making the diagnosis, the practitioner should suspect tuberculosis of the kidney in every case of cystitis, especially in young persons, which is not due to stone or stricture and which does not clear up under bladder washing. Another point which should increase the suspicion of tuberculosis is the fact that a tuberculous cystitis is always made worse by bladder washing with nitrate of silver solution. The failure to fine the tubercle bacilli on examining the urine from the bladder does not exclude tuberculosis of the kidney. If the bacillus is found, it is positive evidence of the presence of the tuberculosis; but it is like the proverbial needle in the haystack and many slides may be examined without discovering one. If the microscopic examination of the urine in a case of cystitis or pyelitis shows pus cells alone, without the presence of microorganisms of any kind, the absence of any bacteria is strongly indicative that the inflammation is tuberculous in origin. If the tubercle bacilli are found, however, it is a positive evidence and the diagnosis is established. Care should be taken not to mistake the smegma bacillus for the bacillus of Koch, which it closely resembles.

A valuable method of determining the presence of tuberculosis in the body is an injection of tuberculin: 1 cc of a 1 to 1000 solution in 1/2 per cent. carbolic acid, of old tuberculin Koch, is injected hypodermically. If reaction follows within a few hours, and the temperature goes above 102°, it denotes tuberculosis in the body somewhere. The writer has found this to be invariably the case, except in the presence of active syphilis. When syphilis is present, a rise of temperature above 102° occurs following the injection, even when no tuberculosis is present in the body. A simpler method of applying the tuberculosis test consists in the vaccination of the patient with old tuberculin, full strength (von Pirquet's test), or the use of an

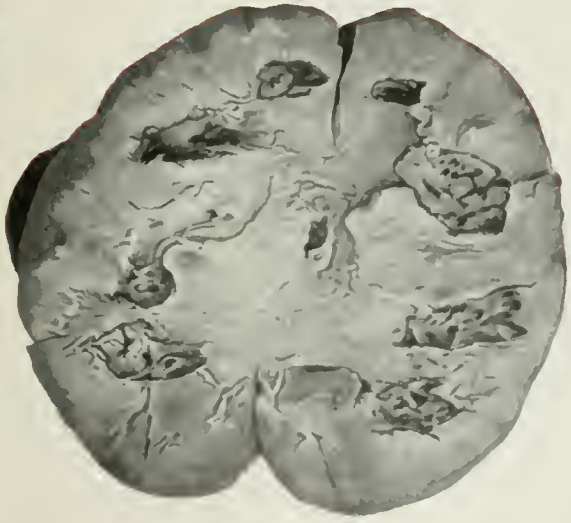
Fig. 2.—Case 5. E. C. D. Tuberculosis of the kidney; the ureter is occluded, the secreting parenchyma of the kidney is destroyed, and the kidney is converted into a mere shell filled with thin pus.

inunction of 50 per cent. tuberculin ointment (Morris test). The writer has made use of these tests a few times and coincides with the general feeling of those who have had larger experience with them, that they are as reliable, easier of application and lack the severe constitutional disturbance when positive, as compared with the tuberculin injection.

CASE 9

CASE 12

CASE 11



CASE 1

TUBERCULOSIS OF THE KIDNEY—MORTON

CASE 9

A large abcess cavity formed at upper pole of kidney. A good deal of secreting parenchyma remains.

CASE 11

Ulceration extending through wall of kidney and perforating into fatty peri-nephritic capsule.

CASE 12

Entire destruction of parenchyma. Kidney converted into a shell surrounded by thickened capsule and containing cyst-like cavities filled with cheesy pus.

CASE 1

Isolated foci of tuberculosis in parenchyma, which are beginning to break down.

The greatest aid to diagnosis is effected by cystoscopy and catheterization of the ureters. In the early stages the bladder is not affected and catheterization of the ureters is not difficult for the surgeon who has familiarized himself with the technique of this operation. In the latter stages, after the bladder has become involved in the tuberculous process, catheterization is always difficult and sometimes impossible. The bladder is contracted, containing only 2 or 3 ounces of fluid, and the ulcers bleed freely, completely obscuring the view.

It has always been supposed that ulcerations seen with the cystoscope around the mouth of one ureter, denoted an affection of the kidney on the same side, but Rovsing (*Zeitschrift für Urologie* Band 3-Heft, 4, 1909) has tabulated one hundred cases of tuberculous kidney, and shows that there is no uniformity about the localization of the ulceration, the ulcers being often located around the healthy ureter or about both ureters, even though one kidney may be healthy.

The use of the Luys' segregator has been advised in the cases where it is impossible to catheterize both ureters, but unless the bladder is free from ulceration, the findings will be misleading, as the urine from kidneys will be contaminated by the pus formed in the ulceration of the bladder.

In the cases which are difficult to examine, the diagnosis has to be worked out step by step. If we can only succeed in getting the urine from one kidney we should endeavor to do so, to determine if the kidney on the side catheterized is healthy or diseased. A view of the ulceration around one or both ureters, together with a decided reaction following the injection of tuberculin would be sufficient evidence of disease, provided the urine drawn from the bladder showed pus. The presence of tubercle bacilli would be confirmative but not essential for the diagnosis. In the cases where the diagnosis offers no special difficulty, after the ureters have been catheterized, the right and left urines should be examined. The presence of blood in the urine drawn, does not necessarily imply disease on that side, as slight bleeding generally occurs from the traumatism of passing the catheter. The presence of pus in the urine denotes disease of that kidney. A comparison of the urea secreted would show the relative functional capacity of the two kidneys. If the urine from one side shows 10 grains of urea with no pus and no albumen, and the urine from the other side shows 2 grains of urea with more or less pus and albumin, it is evident that one kidney is healthy and the other is diseased. The presence of sugar after the injection of phloridzin also shows the secreting capacity of the kidney. After the injection of 1/10 grain of phloridzin, sugar appears in the urine from fifteen to thirty minutes later. The healthy kidney secretes about 1 per cent. of sugar, the secretion from the diseased kidney is less, depending upon the extent of the disease. Cryoscopy of the right and left urines is very troublesome to carry out and does not throw any more light on the secreting capacity of the kidney than the tests of urea and phloridzin. The cryoscopy of the blood in comparison with the urine is useless on account of the number of conditions which change or modify the relative freezing points of each.

Rovsing found that in one-third of his cases where the bladder was involved, the ureters could not to be catheterized. The writer has been successful in catheterizing the ureters occasionally in difficult cases with the patient under a general anesthetic, where, on account of irritability of the bladder, it was impossible for it to retain enough fluid.

The hypodermic injection of 1 drachm of a 4 per cent. solution of indigo carmine, fifteen minutes before catheterizing, is sometimes helpful in finding the ureters. The indigo carmine stains the urine, and jets of colored urine are seen issuing from the mouths of the ureters, which may then be more easily located. The indigo carmine test is also useful as showing the secreting capacity of the kidney. In a healthy kidney the urine becomes tinged with blue in five minutes, and the excretion reaches its highest point from thirty to forty-five minutes after the injection. A delay in the commencement of the elimination and a diminution in the quantity of dye eliminated are indications of a reduced renal function.

The most reliable of all the diagnostic tests are the animal inoculations. Guinea pigs are inoculated by injecting into the peritoneal cavity a specimen of the urine drawn from the right and left kidney and the mixed bladder urine. After three weeks the guinea pigs are autopsied and the presence or absence of tuberculous infection of the pig is proof positive of the condition in the human being.

The prognosis in tuberculosis of the kidney, if treated expectantly, is bad. Pathologists continually discover old scars of tuberculosis in the lungs, but old tuberculous lesions of the kidney are never discovered postmortem. If the case is left without operation, the kidney condition grows progressively worse, ending in its complete disorganization, together with involvement of the other. The only treatment which should be considered in primary tuberculosis of one kidney is an early operation for its complete removal before the other one has become involved.

The great advancement in the modern treatment of tuberculous kidney is due to Nitze's invention of the cystoscope. In former times it was not possible to determine the functional capacity of the other kidney, and the mortality of nephrectomy was very high. According to the statistics collected by Küster, the mortality of 223 nephrectomies through the loin ranged from 36 to 52 per cent. Since the introduction of modern methods of diagnosis, by which the capacity of the other kidney can be determined, Watson and Cunningham has collected the statistics of 292 cases, with a proportionate mortality of 8.8 per cent. These statistics have been further analyzed by Watson and Cunningham, showing as follows: 54 per cent. of patients were cured; 19 per cent. died after convalescing, half from the disease, the others from other maladies; 36 per cent. showed great improvement, but not a cure.

In the presence of tuberculous lungs, a nephrectomy is only contraindicated when the destructive process in the lungs has so far advanced that it is evident that a subsequent healing of the lungs cannot take place. In the presence of a tuberculous bladder, clinical experience shows that a beginning bladder tuberculosis heals speedily after extirpation of the diseased kidney, and tuberculosis of the testicle and prostate are also frequently followed by healing, after the diseased kidney has been removed. If both kidneys have become infected, it is

evidently too late for anything but palliative treatment. In cases in which the development of pyonephrosis and sepsis threaten the patient's death, life may be prolonged by a simple nephrotomy, emptying and draining the collection of pus in the kidney, which must be left in to carry on its necessary function.

Case I.—A. M., driver, 33 years, U. S., white. About a year ago began to complain of frequent urination and pain at the end of urethra. Nine months ago had an attack of hematuria. No stricture; urine contains few leucocytes, no blood or casts. Cystoscopy reveals no stone, no ulcer, very slight cystitis. Left ureter catheterized; right ureter, catheter was obstructed about one inch from opening. *X*-ray examination is negative. Injection of tuberculin gives a positive reaction.

December 8, 1908, nephrectomy was performed. The right kidney contained pus and multiple foci of tuberculosis. Convalescence was at first rapid, but the temperature remained around 100°. On December 18, the patient was out of bed and up about the ward.

On January 11, 1909, the wound was found to be gaping on account of insufficient union. On January 14 the wound was cureted; it was filled with unhealthy granulations. The stump of the kidney was explored, but no pus pocket was found. A piece of muscle was excised, and the pathologist reported this tuberculous. The patient grew weaker, the wound failed to close, tuberculous meningitis developed and death occurred on January 29.

Case II.—S. A. L., medical student, 29 years of age, has had attacks of renal colic, beginning six years ago, and occurring at intervals of days and months. He passed a small stone recently. The urine contained pus and blood. In January, April, and June he had attacks of severe renal colic.

In June, 1906, an *x*-ray examination showed a suspicious shadow. In August a guinea pig was injected with urine from bladder. The pig was autopsied and showed tuberculosis.

On cystoscopic examination the bladder was found to be healthy, except for slight ulceration at the site of the left ureter. The catheter could not be passed into the left ureter. Right ureter was catheterized and the urine showed no pus. A guinea pig was injected with urine from right kidney and autopsied. It showed no infection.

In October the patient had lost weight and strength; looked and felt badly. He was cystoscoped again: Left ureter, catheter entered half an inch and was obstructed. On the right side it entered easily and the urine was perfectly normal.

On October 5 nephrectomy was performed and the left kidney was removed; no calculus was found; about 3 inches of ureter was removed. On passing probe into ureter a grating sound was noticed, but the probe passed the obstruction and entered the bladder. The kidney was found to be riddled with miliary abscesses.

On October 23 he left the hospital and on January 4, 1907, had gone up to Loomis' Sanitarium, at Liberty, N. Y. He weighed 124 lbs. The sinus was still open, but there was little discharge.

On February 1 he had gained 17 lbs. and was in better condition than he had been for years. The sinus was still open but closing.

During 1908 he was in good health and continuing his medical studies. A condition which still prevailed in October, 1909.

Case III.—J. L. M., clerk, age 26 years, had always been perfectly well until symptoms of cystitis appeared in December, 1907. He then noticed that he had to get up every night to urinate. There was no pain nor discomfort. He grew progressively worse and had to pass urine every few minutes.

On March 20, 1908, cystoscopy was performed under anesthesia. Many ulcerations were seen around left ureter, which could not be catheterized. The right ureter was catheterized. In the urine there was no pus, moderate amount of blood, and no casts. Urea gr. v. to the ounce.

On March 21, the bladder urine was examined and showed a moderate amount of pus, but no blood, and urea 7 grs. In both specimens no tubercle bacilli was found with the microscope. He had great pain in the right side, spasmodic and cramplike for three days after catheterization; also incontinence of urine. The tuberculin reaction was positive.

Guinea pigs were injected. The bladder urine showed tuberculosis. The right kidney urine was negative.

On April 2, nephrectomy was done. The left kidney was a mere shell riddled with multiple abscesses. A large cyst at the upper pole was filled with urine. The wound was closed around a drainage tube. Recovery was uneventful. On May 6 a fistula was still present where the drainage tube was placed. He was going to the country.

On June 1 he could hold urine one hour and had gained weight.

In October, 1909, he has position as shipping clerk on a dock in New York Bay; has gained 23 lbs. in weight; the appetite is good; he feels strong and well; the sinus is healed. The urine still contains pus and is passed every half hour, obliging him to wear a urinal most of time.

Case V.—E. C. D., architect, 27 years; his mother died of phthisis. In childhood he had pyothorax. Six years ago had testicle removed for tuberculosis. When eight years old he had an attack of sharp pain on left side of back, which lasted two hours and was followed by similar attacks on an average of at least one every two months. There was one quiescent period of six months, five years ago. There was a history of passing gravel, pus, and blood; seven years ago he had a severe hemorrhage from the kidney for the first time. He kept about his work, in spite of attacks of colic, until eight weeks ago; then the pain began to be almost constant, requiring morphine grs. 1/4, three or four times a day to control it. He lost about 30 pounds in weight. The urine was passed frequently, with tenesmus, and much pus.

On October 20, 1906, he was admitted to Long Island College Hospital. An *x*-ray examination revealed no shadow. The cystoscope showed a cystitis; the right ureter was easily catheterized and appeared normal. There were ulcerations about the left ureter and it could not be entered. The right kidney urine showed no pus, a few blood cells, and a few cells from pelvis of kidney, but no casts or crystals; urea grs. 9¾ to oz.; a trace of albumin from blood; a trace of sugar. Phloridzin was injected. The bladder urine, in 24 hours, amounted to 76 ozs. It was acid, S.G. 1909; pus 3½ per cent.; albumin 2½ per cent. by volume; no sugar; urea 3.07 to the ounce; 281 grains total. There were no casts or blood. The pus was free

in form of clumps and shreds. There were a few cells from the pelvis of the kidney, but no crystals.

The prostate was enlarged and lumpy. In the lungs there were rough breathing and moist râles at apex.

Left nephrectomy was done. The kidney was destroyed and converted into a sac communicating with an enormously distended ureter, filled with mixture of pus and urine. The kidney was cut off from the ureter and the edges of the ureter were stitched to the wound and a drainage tube introduced.

November 15. Recovery has been uneventful. The patient left the hospital in two weeks, and is now walking about and has been advised to go to Brentwood Sanitarium.

March 15, 1907. He has gained 25 lbs., appears well and strong and the sinus has entirely healed. Dr. Arrowsmith found evidences of consolidation in lungs in November, which have now almost entirely disappeared.

1908. He is in good condition, has bought a farm in the country, and is doing the work on it. The sinus closes at times and pus accumulates in the dilated ureter, giving rise to pain. When the sinus opens and discharges, the pain is relieved.

1909. The condition is unchanged.

The following case represents the early and inefficient modes of diagnosis and treatment of tuberculosis of the kidney which were employed a few years ago:

Case VII.—H. A. In December, 1900, the patient began to complain of frequent urination, with a little blood and some pus in the urine. He was treated by bladder washing, but was not benefited and the frequency of urination increased. At present, he passed water every three-quarters of an hour and wore a urinal constantly.

April 8, 1901. An examination was made with a searcher. No stone was found. The cystoscope could not be used, as the bladder capacity was only 2 ozs. The microscope showed pus and staphylococci, but no tubercle bacilli. The prostate and vesicles were not enlarged. An external urethrotomy with prolonged drainage and bladder washing for one month resulted in a good deal of improvement, and in four months' stay in the country he has gained 15 pounds in weight and passed water four times a day and once at night.

In October, 1902, the condition remained about same. The urine was loaded with pus and of acid reaction. The cystoscope was used and demonstrated a stream of purulent urine issuing from the left ureter, with a swirl of clear urine from the right. The bladder showed a marked cystitis. A separation of the urines was made by means of the Harris segregator, with the following report:

Right kidney: a few pus cells from the pelvis of the kidney; a few uric acid crystals and cells from the tubules; urea 0.011 gram; reaction acid.

Left kidney: a moderate amount of pus; a large number of cells from pelvis of kidney arranged in large sheets and masses; a large amount of kidney epithelium; some uric acid crystals; urea 0.015 gram; reaction acid.

Sample of bladder urine: There was 9 per cent. of pus by volume. No tubercle bacilli and very few bacteria were present; only a few bacilli and cocci were seen.

October 13. Nephrotomy was performed on the left side. No stone was found; a tube was introduced and the kidney was drained.

November 25. Kidney still draining through the tube. Microscopic examination of urine drawn from tube in pelvis of kidney showed a few stray leucocytes but no pus.

May, 1903. The patient had tuberculosis of testicle and seminal vesicle. The testicle was removed The fistula into the kidney was still unhealed.

November, 1905. He returned for advice after spending one and a half years in the country. The fistula in the back was healed, but he had painful and frequent urination and dull ache in the region of the left kidney.

January 4, 1906. Nephrectomy of the left kidney was done and a large pus kidney (tuberculous), almost all of whose tissue was destroyed, was removed.

February 1. He left the hospital, with the wound in good condition. The prostate felt lumpy and was tender. The old fistulous track in perineum opened spontaneously. Fistula in back still persisted. The right apex of the lungs was suspicious. He was sent to the country to lead an out-of-door life.

March, 1907. The patient had lived on a farm and was able to do light farm work and was in good condition, although there were distinct fine râles in the right lung. The perineal fistula still opened occasionally. He urinated frequently and involuntarily, so that he had to wear a urinal.

June, 1909. The patient was well and comfortable and able to do light work on the place.

The object in representing this case in full is to show that without the modern methods of catheterizing ureters and demonstrating the tubercle bacilli by animal inoculations or vaccination, the diagnosis of tuberculosis of the kidney is extremely obscure. In the absence of an exact diagnosis, temporary palliative surgical operations such as external urethrotomy and drainage of the bladder for cystitis, establishing a fistula into the pelvis of the kidney with prolonged drainage were employed, instead of at once removing the focus of tuberculosis by the radical operation of nephrectomy. Not having done so, the tuberculosis extended from one kidney to the bladder, prostate, and seminal vesicles, and finally to the lungs. After removal of the diseased kidney, a general improvement in all the tuberculous deposits took place, and to-day the patient is in a very comfortable condition and is able to support himself.

Case IX.—Mary W., married, 31 years, has had three children and no miscarriage; has always been well and healthy. Her mother died at forty of typhoid fever. Ten months ago the patient was troubled with painful and frequent urination and tenesmus. She complained of frequent pain in body, particularly on the right side of the abdomen. Appetite was poor, the bowels irregular. She lost weight and strength; had no cough, but was feverish at night and had night sweats. Seven months ago she consulted a physician.

The urine was pale and acid. It contained shreds, a trace of albumin, and casts, but no sugar. Tuberle bacilli were found.

Examined with the cystoscope, the bladder mucous membrane was covered by scars and granulomas; both ureteral openings were narrowed.

Both apices of the lungs were affected. There was pain on the left side of the abdomen, growing progressively worse. The symptom of greatest

annoyance was the pain on the left side of the abdomen.

On October 16, 1906, she was admitted to Long Island College Hospital. She was emaciated and weak. The temperature was elevated. The right kidney was enlarged and easily palpated. On cystoscopic examination the bladder held 3 or 4 ozs. There were ulcerations about both ureters making catheterization difficult. The right kidney urine (Oct. 30) contained .01 per cent of pus; no casts or blood, and urea, grs. 2¼ to the ounce: the left kidney urine (Oct. 28) contained 0.01 per cent. of pus, no casts, no tubercle bacilli found, urea grs. 6.1 to the ounce. The guinea pig injected with urine from the right kidney after three weeks was found to be extensively affected with tuberculosis. The pig injected with left kidney urine was also affected, but less so. Nephrectomy was performed on the right kidney. It was very adherent, and much enlarged; the wound was closed with drainage. The kidney showed a large saccular dilatation at one pole filled with purulent urine; the capsule was adherent, and the outer surface studded with tuberculous nodules.

On November 15, two weeks after operation, the temperature was 101° or 102° in the evening; the urine 40 to 50 ounces and purulent. The pain in the left side was relieved, but the patient complained of neurasthenic pains in chest and region of wound. After leaving the hospital she had a good deal of pain, but less than before operation. She had typical tuberculous temperature as high as 102° and a profuse discharge from the wound. In January the condition grew worse and the existing sinus was enlarged to permit better drainage. She had a constant dull pain in lower part of wound. In the middle of January the patient had an attack of la grippe, with a temperature as high as 103.6°, could not retain food, had cough and night sweats, and her condition seemed serious. This attack lasted three and a half weeks, and since that time she has steadily grown stronger, has had better appetite, a normal temperature in the morning and at 8 P. M. she was now able to hold water two or three hours during day, but at night passes urine every half hour, but says her urination is only slightly painful as compared with the condition before her operation.

April 1, 1907. She left the city to go to the mountains.

1908. The patient lived four months in comparative comfort, and finally died.

Case XI.—C. T., single, born in Italy, a laborer, aged 26 years. The patient's former history was indefinite, as he spoke little English. He was sent to the hospital from the immigrant service with an infected toe; after this was healed he still continued to run a temperature 99° to 100.5°, and began to complain of frequent and painful urination. He was referred from the medical service after exclusion of typhoid, complaining of pain in the lumbar region, and tenderness over this part, but the kidney was not palpable. The urine contained a small amount of pus, no sugar or casts, urea gr. 7 to the ounce, and epithelia from the bladder. By cystoscopy, a very slight degree of cystitis was seen. The right ureter was catheterized, the urine showing a few more pus cells than normal. The left ureter also was catheterized and the urine was normal. The right side urine contained urea gr. 7 to ounce, and the left side urine, urea gr. 5 to ounce. No tubercle bacilli were found.

December 2, 1908. The tuberculin reaction was negative. Owing to the general condition, pain, temperature and past history, operation decided upon, without waiting for pig inoculation.

December 3. Nephrectomy was performed on the right side and a tuberculous abscess found in the upper pole; this had ulcerated through to the capsule, seemingly quite recently, as there was about one dram only of pus in the capsule, which was adherent partly and torn at this point on removal from the kidney. There were small tuberculous areas elsewhere throughout the kidney.

On December 4 he had reacted well from shock; temperature, 101°.

December 29. Comfortable convalescence.

January 11, 1909. The wound had healed; the patient had gained flesh.

January 19. Felt well and strong, had no fever. Discharged from hospital.

32 Schermerhorn Street.

THE CHAUFFEUR'S FRACTURE.

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Modern machinery brings its special types of occupation diseases and among them the chauffeur's fracture, which is common in the experience of many surgeons, though perhaps there are not many who look upon these cases as other than those of the ordinary Colles' type. Fractures of the carpus, metacarpus, and phalanges are sustained by chauffeurs from the sudden and violent reversal of the starting handle of their automobile engine, but these are comparatively infrequent lesions in this connection. The type of fracture most commonly observed among chauffeurs and described below is a subvariety of the ordinary Colles' fracture but forms a distinct clinical entity.

When an automobile engine stands unused there is a gradual change in the proportions of air and gasoline vapor which fill its cylinders so that the mixture loses its explosive character. For the engine to turn the shaft automatically, fresh explosive mixture must be sucked into the cylinder by the motion of the piston before it is of any use to apply the igniting spark. To accomplish this suction no method has as yet been devised save for the shaft to get its first turn by man-power. It is during this starting turn by hand that the chauffeur's fracture is produced.

If the explosion is timed to occur in the cylinder before the piston reaches its highest point, or, in other words, if the spark be advanced, the said piston will be pushed down so as to turn the shaft and crank backward suddenly and violently. The motion of the crank-handle is thus reversed with a pressure of from 40 to 80 pounds to the square inch. If a human hand be pushing down with force upon this crank-handle at the time it is suddenly and violently pushed up against the said hand, something unpleasant may happen to the owner of the hand. If the back-kick of the handle occurs during its ascension it will be suddenly pushed downward, straightening out the fingers and releasing itself from the grasp. Under these circumstances no harm will be done unless the handle fly backward quickly enough and with force enough to strike the

forearm and break a bone by direct violence. At times, as shown in one of the skiagrams, the patient sustains a typical indirect fracture of the lower end of the radius from the back-kick of the handle which then flies around and smites his forearm, breaking by direct violence the shaft of radius, or ulna, or

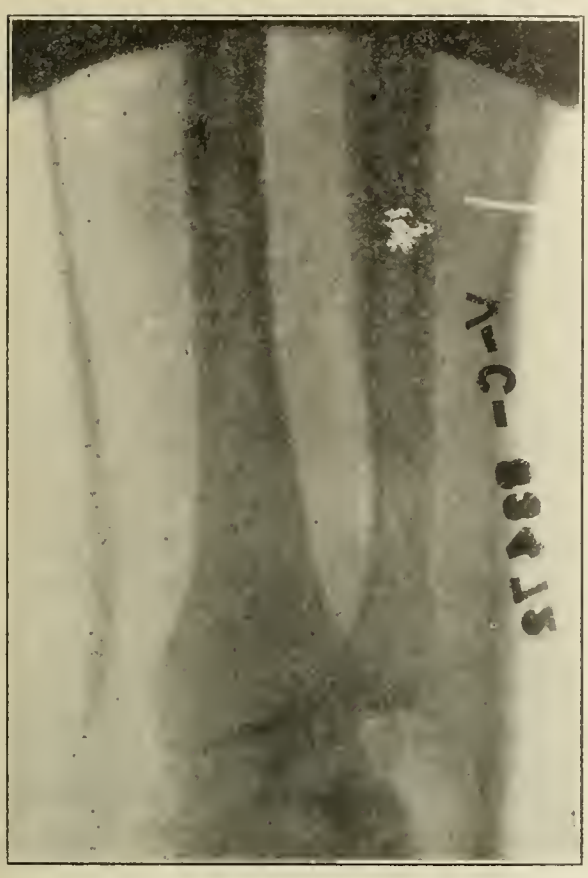

Fig. 1.—Oblique fracture of radius into wrist joint and fracture of its shaft in the same patient. A combination of the direct and indirect types of chauffeur's fracture. The styloid process of ulna is also ruptured.

both. This skiagram showing both types of chauffeur's fracture in the same patient was loaned by Dr. Ransom S. Hooker.

From our present standpoint the types of engines used in automobiles are alike except in the number of their cylinders. In one-cylinder engines there is but one point in the circle described by the crank-handle where it is possible for a back-kick to occur. In eight-cylinder engines the back-kick may occur at any one of four points in the circle. The automobile engines mostly in vogue are those with four cylinders. One might expect considerable variation of fractures sustained from force applied in such varying directions, but as a matter of fact the prevailing type of break is one occurring lower on the radius and with milder symptoms than those of the usual Colles' injury which has been acquired by falling upon the outstretched palm.

Fracture of the styloid process of the ulna is so frequent a concomitant of the ordinary Colles' lesion that it must be considered typical. Stimson, in his classic text-book on fractures and dislocations, states that this complication occurs in 10 per cent. of all cases of fracture of the lower end of the radius. Scudder of Boston puts the percentage at 80. I find among my own cases, where accompanying skiagrams have obviated the possibility of error in diagnosis, that in all cases of fracture of the lower extremity of the radius exclusive of incomplete and chauffeur's fractures, this avulsion of the styloid process of the ulna has occurred in 71 per cent. But it occurs much less commonly among the cases of typical indirect chauffeur's fracture. I have found it present in but 7 out of 30 cases or less than one out of 4.

Many chauffeurs are young adults and one would expect to find these low radial fractures among them coinciding more or less regularly with the line of union of the epiphysis with the shaft. But it does not often do so. Ossification of the lower end of the shaft of the radius is completed anywhere between the 18th and 21st year, but long before this age is reached we find fractures in the neighborhood crossing this epiphyseal line and even paralleling it.

The chauffeur's fracture is usually either transverse or oblique into the wrist-joint. In the latter case it is the lower outer corner of the radial head which forms the fragment. Variations are seen as comminuted and incomplete fractures, but there are comparatively few cases showing marked radial displacement of the hand or severe silver-forked deformity. Where the lower outer portion of the radius is found detached it is evident that it has been avulsed by the wrenching of the hand which grasped the handle. The few writers on this subject are divided in opinion as to whether the mechanism of the fracture be one of impaction through the

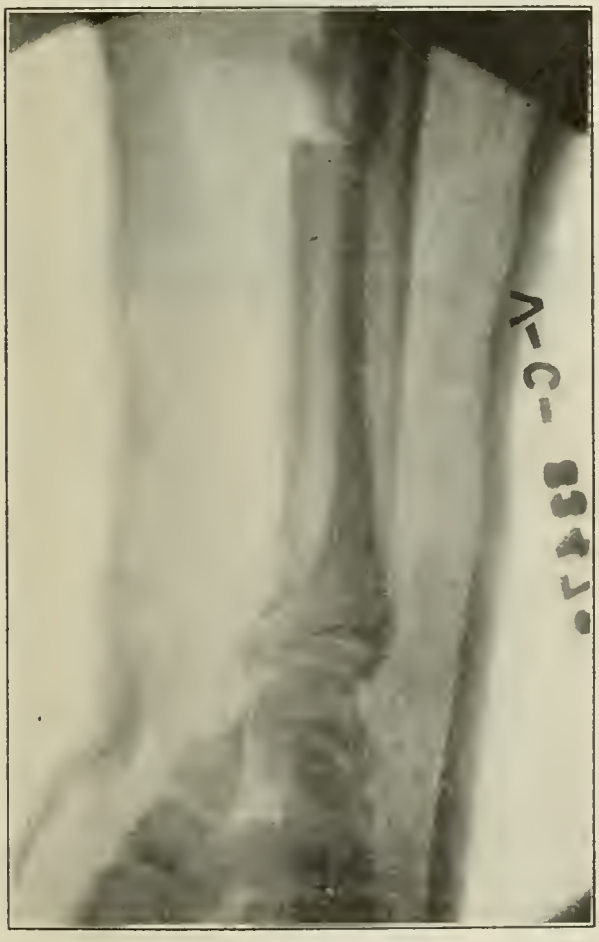

Fig. 2.—Lateral view of Fig. 1.

palm as in the ordinary Colles' type of injury or one of tearing off a fragment of bone by severe ligamentous wrenching. It seems clear to the writer that most of these fractures are caused by avulsion. As is so often seen to be the case, bone is torn rather than ligament where both have been subjected

to the same strain. Here the violence is evidently transmitted through the palm in a direction upward and outward while the thumb and fingers encircle the handle. The back-kick wrenches the hand violently in the direction of abduction and extension.

So mild are the symptoms in many of these cases that they are frequently considered to be sprained wrists, and do not reach the surgeon for several days. A typical case seen a day or two ago occurred in a chauffeur who drove his car many miles after the accident.

FIG. 3.—Typical chauffeur's fracture. Avulsion of lower outer segment of radius from back-kick of automobile crank-handle with slight deformity.

Treatment.—The chauffeur's fracture is a badge of carelessness. It does not occur where the ignition is properly adjusted so that the explosions in the cylinder will occur during the descent of the piston. In order to start the engine, if properly adjusted, it is but necessary to engage the crank-handle near its lowest point as it begins to rise and pull it up through a quarter of a circle, when an explosion in one of the four or six cylinders will start the automatic motion. If, however, an explosion occurs while one of the pistons is rising, thus constituting a back-fire, the handle of the crank will be jerked harmlessly out of the driver's hand. Should he be pushing the handle through the downward portion of its arc when the said back-fire occurs its violence may have added to it the strong muscular effort of the descending arm. As a matter of fact in actual practice it is very often necessary, in order to start the engine going spontaneously, to spin the handle, as it is called. This means a rapid revolution of the crank many times repeated. Under these circumstances a back-kick may come at any one of several points in the circle according to the number of the engine's cylinders.

Even though the spark be advanced and though it be necessary to spin the handle the danger of sustaining the chauffeur's fracture may still be obviated by attention to the proper method of grasping the handle. This should be grasped with the fingers and palm only, the thumb lying upon the same side of the handle as does the palm. The thumb should never encircle the handle. Should a back-fire now occur during the descent of the handle it will slide harmlessly up the palm.

Although so easy of prevention the chauffeur's fracture will continue to occur, and the surgeon should be ready to recognize the presence of fracture when a hasty examination might lead to the diagnosis of a less serious injury.

Immobilization of the forearm and wrist in anteroposterior splints is sufficient in the majority of cases. The fingers are left free and the patient is instructed to move them freely, for by so doing a return to the normal use of the hand will be hastened. Massage by one skilled in the art is of prime importance and should not be omitted. It may be begun immediately. The prognosis is good as would be expected in a class of cases occurring in young active adults where the deformity is but slight. The patient is usually back to work in three weeks with a wrist-band to be worn for a week or two after release from the splints.

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SOME RECENTLY DESCRIBED SYMPTOMS IN SPINAL CORD TUMORS.

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ACCORDING to Stursberg,[1] whose analysis is the most careful and complete up to the present time, the percentage of cure in operations for spinal cord tumors is 32.2 per cent. This is gratifying in view of the inaccessibility of the tumors and the difficulties incidental to their diagnosis and localization. But one cannot read Stursberg's tables without seeing at once that many of the failures were avoidable and that much more may be expected from the operation. Delay in operating is the most conspicuous reason why the successes were not more numerous. It is also evident, in studying the question of spinal cord tumors generally, that certain new symptoms which have not yet found their way into text-books, must be reckoned with, and that variations in other symptoms not generally understood have interfered with prompt diagnosis. This paper will consider some of these.

We are so in the habit of regarding a spinal cord tumor as a local process, without effect on parts of the nervous system not directly connected with the region invaded, that symptoms appearing at a distance have often puzzled examiners when they tried to reconcile them with the spinal symptoms. Yet in a constantly increasing number of cases, tumors in the upper part of the spinal axis have been associated with choked disc and symptoms referable to the mid-brain and cortex. The development of these latter disturbances has been so associated with the development of the spinal symptoms that a relationship between the two was incontestable; and yet it is not a relationship of identical cause, as autopsies have shown that the brain symptoms, viz., the cranial nerve palsies, the choked disc, the delirious mental states, the headaches, and the epileptic convulsions, do not owe necessarily their existence to metastases from the spinal tumor nor from any destructive lesion whatsoever.

Such cases are explained on the assumption of an internal hydrocephalus. In many, the symptom complex of this condition was typical and complete; and in several the autopsy showed the dilated ventricles and oversaturated brain tissue of internal hydrocephalus, which had resulted from the closure of the spinal subdural space at the site of the tumor, either directly by the tumor itself, or through the membranous adhesions not infrequent in tumor cases.

Choked disc is the symptom which has received the most attention. Taylor and Collier[2] were among the first to analyze the condition. Most of their cases were myelitic, though they report one case of extramedullary and intrathecal myxoma and one other tumor case from literature. In one case of fracture of the vertebræ in the cervical region, there was swelling of the disc for five diopters. A spicule of bone was found at operation compressing the cord. This was removed and the choked disc rapidly receded. These authors found no cases in which the lesion was below the third dorsal segment.

In addition to choked disc, there may be many mid-brain and cortical symptoms. Nonne reports a primary intramedullary sarcoma which brought about well marked internal hydrocephalus. Before death there were palsies of the motor nerves of the eyes, of the facial and hypoglossal and of the nerves of deglutition, as well as epileptic convulsions.

Grund[3] reports a similar case in a child with a glioma of the lower cervical region. The cerebral symptoms consisted of headache, vomiting, slowed pulse, and choked disc. In this case the leptomeninges were also much involved.

The hydrocephalic symptoms in these spinal cases are usually late in development, but not always. Heubner[4] has reported a case in which the first symptoms were central—viz., headache, vomiting, unilateral, postneuritic optic atrophy, and nystagmus. The tumor consisted of six gliomatous masses extending from the lower cervical region to the lumbar region. Associated with it was a well developed chronic spinal meningitis. Cases such as this seem to favor the view that membranous adhesions quite as much as the tumor mass itself can shut off the subdural space and so inaugurate the hydrocephalus, an assumption which receives further support from what we now know of serous meningitis.

In all of the reported cases, the tumor has concerned the cervical region. But I am not prepared to go as far as does Taylor[5] in saying that choked disc has never occurred from tumors in the lumbar region. His case, which I saw in the early stages only, was an intramedullary sarcoma which began in the cauda equina and extended upward to the mid cervical region, proving fatal in seven months. In three months there were distinct mental symptoms, and in less than four months there was demonstrated a swelling of the optic discs. But at this time the spinal symptoms were limited to an area indicative of a lesion at the dorsolumbar junction, and symptoms referable to the cervical region did not occur until there had been headache and free vomiting. So it seems entirely possible that in this case the hydrocephalus had begun before the tumor had passed far beyond the upper confines of the lumbar region; a possibility to be taken into consideration if an unexplained choked disc or other symptoms of increased brain pressure should appear even when all the spinal symptoms point to a low lying lesion.

In 1903, Spiller[6] reported an operation upon a supposed spinal cord tumor at which no tumor was found, but which resulted in the evacuation of a subdural cyst. This communication proved very important, as by it attention was first called to the subject of serous cysts and circumscribed serous meningitis. Spiller's case has been followed by several others[7] of similar character. Bliss[8] has recently graphically described one as follows: The symptoms had been those of a spinal cord tumor following a trauma.

"The spines and part of the laminæ of the seventh cervical, the first and second dorsal vertebræ, were removed. The dura bulged irregularly at the upper and lower ends of the part exposed, seeming to indicate a constriction between. The dura was a darker white at the bulging points. The dura was slit centrally from below upward. A sharp spurt of clear fluid, which could not be distinguished from the cerebrospinal fluid, occurred. It seemed that the lower end of a sack had been opened, for the upper end ballooned up with cerebrospinal fluid, as it surged upward in response to the cardiac movements. When the dura was grasped by forceps and gently lifted, small bands of tissue were seen stretching between the dura and the pia. Very slight force with a dural probe sufficed to break these up, after which the ballooning process ceased. There was proliferation and engorgement of the vessels of the pia."

As far as is known, the cysts, which are subdural, consist in larger or smaller quantities of cerebrospinal fluid, collected in the meshes of the pia or between the pia and dura. They are not parasitic, differing from the parasite cysts in being not multiple but single, and in being much less apt to cause extensive erosions of the vertebræ. Nothing in the symptoms distinguishes these simple cysts from spinal cord tumors; and, in fact, they have all been found at operation undertaken for tumor.

No cause has been discovered for the simple serous cysts. Some cases have followed trauma. It is possible that some of them are merely a complication of a spinal cord tumor. At operations at which they are found, therefore, the operation wound should not be closed, after evacuation, until as much exploration as possible has been done. It is in these simple cysts that the best explanation is found of spontaneous recovery from spinal cord tumor, such as is reported by Henschen.[9]

Another condition often found in the neighborhood of tumors (6 times out of 22 of Krause's spinal operations) is a circumscribed serous meningitis, or circumscribed subdural collections of cerebrospinal fluid in the immediate neighborhood of the tumor. This may interfere with correct localization particularly if the serous collection is above the tumor, as is apt to be the case; and lesions of this character seem to me eminently qualified to bring about an internal hydrocephalus.

The one significant vasomotor symptom which has not received much attention is edema. This has been observed chiefly in the lower extremities, in tumors of the lower segments of the cord and in cauda lesions. It has the general characteristics of edema due to kidney disease but is distinguished from it by the urine being normal. In one of my cases there was some edema of the ankles, with normal urine. But the edema may be very great. In a case seen in consultation with Dr. Frederick Peterson, the lower extremities were swollen to one-third of their natural size. It is not always possible to be certain that this edema is not the result of blocked venous return, although it is certain that no such cause is necessary. Schnoll,[10] before operating on a gliosarcoma of the sacrum, in which the edema of the legs was very great, did a laporotomy for the purpose of investigating the vena cava. These were found unobstructed and after removal of the tumor the edema disappeared with the other symptoms.

Since my report, in 1892,[11] of a patient who died from spinal cord tumor without having suffered severe pain, a considerable number of cases have been recorded in which pain was inconspicuous or late in appearance, or altogether absent. By greatly enlarging the possibilities this remarkable variation from the usual injects new difficulties into diagnosis. It must now be reckoned with that a slowly developing and painless compression of the spinal cord, without evident cause, may well be the result of a new growth within the spine; and all such cases challenge attention from the point of view of exploratory laminectomy. When pain is present, it is usually one-sided at first, is referred to some one of the spinal nerves such as a sciatic, an intercostal, or a branch of the brachial plexus. It occasionally appears as a referred pain and in the period which precedes paralysis, spinal cord tumors have been mistaken for pleurisy, for gall-bladder disease, for appendicitis, for angina pectoris, as well as for rheumatism or neuralgia. The pain may come on suddenly. Flatau[12] has reported a case in which the first symptom was a sudden pain in one foot, and Abbe[13] another in which pain between the shoulders, coming on suddenly after a game of golf, was the first sign of trouble. The pain is rarely constant at first; it may come on only at night or after fatigue; as the disease progresses, the pains take on a distinct neuralgic character. The attacks, which make life hard to bear, last for a few minutes or for several hours. They are repeated several times a day, or less frequently. There are often intermissions for weeks or months so that the patients cherish the delusion that they are cured. One patient was incapacitated for work for several months by the pain, and then was so far freed from it that he was able to resume his work for six months without serious inconvenience. Another, while under treatment for a supposed rheumatic affection, went to Marienbad. While taking the baths the pain stopped and the patient had several months of comfort and was led to believe that she was cured. There is considerable variation as to what starts the paroxysms of pain. They are often spontaneous, coming on without evident cause. They may be, also, intimately linked with movement. Many patients are comfortable except when a change of position, a sudden jar, coughing, and the like brings on the pain. These are the cases most apt to be mistaken for rheumatism for some time. Attacks of pain associated with movement are also seen in the spasmodic twitchings, which are apparently of reflex character.

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IS MEDICINE FAITHFULLY MIRRORED IN MOLIÈRE?

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Upon entering the lists in championship of Molière's fair fame, our first care will be painstakingly to fix the barriers. The establishment of limits is in any discussion a proper logical procedure; it is more than that in the development of our present argument—it is essential, it is imperative. Indeed, the setting of bounds in the way of discrimination and elimination will constitute the greater part of our task.

As a first step toward inclosing the field it may be remarked that portrayals of the medicine of the seventeenth century, and not of twentieth century medicine, should be looked for in Molière. Truly enough human nature is always the same; but human knowledge grows, and human manners change. Man is forever man, but men forever vary. And just so doctors and physic are not fixed quantities; the several epochs have produced their peculiar types, or their divergent transmutations of type. Satire cannot be prophetic; it is necessarily realistic and historic—it deals with the "here" and the "now." Aristophanes draws his caricatures from the Athens of his day—it is Socrates and Cleon and Euripides, and Athenian sophism and demagogism that he shows us. And so Molière in his travesties of medicine finds his subjects about him—the matters medical compassed by his art appertain to his France and to his era.

Let it be borne in mind that seventeenth century medicine was a thing very different from twentieth century medicine. We are yet far, far from a consummation, but, nevertheless, we are at a point appreciably nearer the goal. And this is said in no

self-laudatory or vain-glorious way. It is asserted with full recognition and appreciation of the basal work wrought through the dragging ages under conditions and against obstacles and amid restrictions whose overcoming was signalized alike by the worthiest achievement and by the most splendid heroism. Indeed, the triumphs of the past form the keenest spur to our endeavors and the strongest warrant of our hopes. And inspired by conquest we will go forth to conquer. We will investigate and investigate, and analyze and analyze, and differentiate and differentiate, until at last ours will be the crowning victory—until we shall shout our final "eureka." Of course, about that time Gabriel may blow his horn, in which case there would remain to us only our labor for our pains. But no matter; is not victory, at any rate, often its own sole reward?

Medical science had, truly, not got very far on at the middle of the seventeenth century. Some progress had been made to be sure, but the situation presented more of potentiality and promise than of fact and accomplishment. Speculation still vastly eclipsed investigation—outranked it and outweighed it. Gross anatomy had reached a structural stage foreshowing its final proportions. Physiology and pathology were largely a conglomeration of doctrines, whimsical, mystical, ephemeral. A few remedies of utmost value had been empirically discovered and proven, but the materia medica was a sad jumble—an indistinguishable mass of chaff and wheat with the chaff greatly preponderating. Therapeutics partook of the fancifulness and vagueness and instability then characteristic of pathology. Chemistry was barely being evolved from alchemy. Chemistry of the organic world, as we now know it, was then *terra incognita*. Histology, that foundation of the foundations of medical science, was an embryo in the womb of time. As for surgery, it had won considerable prestige and dignity, especially in France, where, according to Pagel, an enduring primacy had been secured for it three centuries earlier by Guy de Chauliac. But surgery is first an art, and only afterward a science.

Reference to a few specific incidents may give us additional light. Jean Fernel's "Medicina Universa," though produced at an earlier period, maintained its vogue in all Europe well up to the time of which we write. In a section of this work treating of how to proceed upon visiting a fever patient, occurs this passage: "And, moreover, it is necessary to see by the proper signs which are manifest in his body, whether it is pure or impure; if it is impure, in what region of the body resides the vicious and morbid humor?" Scarcely a *renchérissement* upon that is the following passage from Molière's "L'Amour médecin.":

"Doctor Tomès—'We have looked the patient over sufficiently, and without doubt there are many impurities in her.'

"Sganarelle—'My daughter impure?'

"Doctor Tomès—'I mean to say that there are many impurities in her body, a quantity of corrupt humors.'"

One of the most virulent and implacable of the antagonists of Harvey was Jean Riolan *fils*, dean of the Faculty of Paris, and long the head of medicine in France. Through his influence the teaching of Harvey's doctrine in lectures was prohibited. True, the stigma of this outburst of bigotry is somewhat palliated by the facts that one of Harvey's earliest and warmest advocates was Descartes, and that *le Grand Monarque* later commissioned Dionis to teach the circulation at the Royal Garden expressly instituted to counterpoise the ultra-conservative action of the Faculty. Strange to say, Harvey made common cause with Riolan against Jean Pecquet. Riolan and Harvey in alliance! Could there be more forceful illustration of the fog and chaos pervading the medical science of that day?

Jean Riolan *père*, himself, had been twice elected to the deanship of the medical faculty upon the very strength of his devotion to classical authority. No man ever wore more proudly the chains of mental servitude. He became the chronicler of his own abject thralldom when he wrote, "I prefer to err with Hippocrates, whose knowledge has been so long approved by all nations, than to be right with Paracelsus, that impious pseudo physician." In "Le Malade imaginaire" Molière gives us this sketch from the mouth of a doctor speaking of his son, who is an advanced student of medicine—"Above everything, that in him which pleases me, and in which he follows my example, is that he is blindly attached to the opinions of our ancients, and that he has never wished to comprehend or hear the reasons and the experiments of the pretended discoveries of our age, concerning the circulation of the blood and other notions of like stripe." Can it be that Molière has here wrought into his immortal art the very Jean Riolan *pere et fils?*—or has he simply seized and fixed forever the features of a type to which belong Riolans and Riolans a numerous company?

Upon the occasion of the wounding of the warrior-surgeon, Machaon, Aesculapius' son, at the siege of Troy, Homer makes the hero, Idomeneus, say, "A physician is worth many another man." And true has this been all the way down from the day of Chios' sightless bard. When it is a question of a bodily ill or hurt the doctor, with all his shortcomings and too-far-goings, yet has ever been the best man in the field. A bit of Frankliniana sets forth how at a meeting of a medical society of which he was president, Sir John Pringle was asked for his opinion as to whether on the whole physicians have done most good or harm. Sir John replied dryly that it depended on whether under the appelation were to be included old women—if they were, then had physicians done more good than harm; otherwise, more harm than good. Let us at least partially draw the sting of Sir John's quip by insisting that if without the credits of the grannies added thereto the score is against the doctors, still is it a better record than could, or would, have been made by any other class of men. In the treatment of disease and in the management of sick people, medical men have at any period been in advance of the contemporary laity. In no science has any one so broken away from the plodding ranks of humanity that he by a sudden and single flight reached the ultimate goal. The greatest souls of earth have, after all, been only leading souls. The Star of Bethlehem went just before the Wise Men of the East. After the unrolling of centuries the Galilean came; but He had his forerunners, and about His age in a constellation of glory cluster Hillel, Gamaliel, Philo, Apollonius, Cicero, Seneca, Epictetus.

But what faults and fallacies and follies are to be imputed to medical practice throughout its various stages! And how grossly empirical has it been! In very self-exculpation, self-justification, let us deprecate the equivalent use of the terms empiri-

cism and charlatanry. Then, too, had doctors only stopped short always with what they knew! But that would have been to reveal the narrow limitations of medicine. Sophocles has Ajax saying, "An able physician does not have recourse to magic chants for a malady which the knife alone can cure." Nevertheless, he has been ever prone to ring in the "magic chant" at any rate in a supplementary way.

The absurdities and monstrosities of medical practice were, however, inevitable. The application of a science logically comes last—is a climax; in medicine, of necessity, it was first. Doctors had to practice medicine for a livelihood while they developed it, in order that they might develop it, as a science—to exist by it while they were creating it—at blossom time to hypothecate the fruit; a case of *manger son blé en herbe* with a paradoxical signification. Besides, people demand doctors that doctor. Very few have been those to exclaim with Job, "Ye are all physicians of no value." Most folks, rather, are like King Asa of Judah, who, when he was "diseased in his feet," "sought not to the Lord, but to the physicians."

And that will-o'-the-wisp of reasoning processes, *post hoc ergo propter hoc,* so illusive and delusive and elusive, how by it has medical practice been led again and again upon treacherous quicksands and into desert wastes! Jack Tar whistles for a wind; and whistles and whistles until the wind comes; and thinks it came because he whistled for it—that is the logic of a preposterous proportion of medical expedients. From the savage priest doctor with his dances, incantations, and charm-rattles, up to the grave and dignified *medicinæ doctor* with his cap, cloak, and cane will the impeachment hold—up to that point, and beyond it; but how far beyond must not be told.

The systems of medicine, various and multifarious, have one after another led medical practice from captivity to captivity; so much so that anon the greatest clinicians, in disgust and dismay, have been wont to sweep them aside, and to hark back to the naturalism of Hippocrates. In many instances these systems have not even reached the plane of tentative working theories. Some have contained germs of truth, or partial truth; and had they been granted only relative and subordinate sway, might have tended to purely benign ends; but reared to absolute and despotic reign, they proved veriest Molochs and Juggernauts.

And were the crudities, the puerilities, the absurdities, the vagaries, the monstrosities, and—shall we say it?—the atrocities, of speculative, quasi-rational, embryo-scientific medicine, were these ever more salient, more glaring than at the middle of the seventeenth century? A giant early in those days was van Helmont with his misty doctrine of the Archeus. Another of the period was de le Boë with his iatrochemicalism. Yet another was Borelli with his iatromechanicalism. The consistent practice of schools reared upon such foundations could not escape being largely grotesque and pernicious. But there, too, was Sydenham, the bed-side doctor, the clear-sighted, the level-headed. And Sydenham—Sydenham?—yes, Sydenham!—Hippocrates *redivivus*!—gauged the action of mercury by the amount of saliva secreted, and advised in volvulus the application of a live dog nakedly to the belly!

Considering Molière, himself, one must discriminate between the man and the playwright. At once let us frankly admit with Sainte-Beuve that he did not always do so well as he taught—that his life was not so lofty as were his ideals. But it is the writer that concerns us in this discussion; not the person. Cloud and tempest and defilement appertain to the lower earth. The heavens are always bright. The stars are everlastingly the same. And Molière's genius speaks from its home in the upper ether. And as reflection ranges the dizzy distance between the mortal weakly walking and the immortal sublimely soaring, David's lines come to mind—"Though ye have lien among the pots, yet shall ye be as the wings of a dove covered with silver, and her feathers with yellow gold."

From the standpoint of strict reason and relevancy, Molière, the man, might properly here pass out of sight. A conspicuous circumstance will not permit such a dismissal, however. In spite of the hard thumps he gave them Molière seems to have lived on good terms with the medical men about him. He generously used his credit with Louis to gain for the son of his own physician a state appointment. But at times and in places doctors have allowed themselves to show pique toward one of the truest monitors medicine has ever had—the creator of that irresistible ridicule, so life-giving because so death-dealing. At one aiming to correct them they have made faces as at a tormentor; and have cast in his teeth the peevish retort, "You, yourself, are not any better than you ought to be." The patient upbraiding his surgeon with deformity! These performances entitle Molière to apologists within the ranks of medicine. With such incitement to speech Horus, himself, scarcely could keep silence.

Perhaps the most direct and pertinent apology of Molière's faults and failings would be the laconic statement that he was a Frenchman. Your Frenchman is forever the despair of the rest of the race. He is so unscrupulous in his unfaithfulness, so polished in his profligacy, so dignified in his debauchery, so saintly in his sinning, so dainty in his deviltry, that to people outside of France he is an inscrutable mystery, an eternal *double entente.* And, yet, what were the world had there been no France! Molière, the genius, belongs to all time and to everywhere. Molière, the man, was the average, typical Frenchman; no more, no less.

But other nations have alike shown ethnic traits equally shocking and puzzling to outsiders. Rome's very first foundation stones were laid in a brother's blood. Rome's history is a succession of gory tablets. Sulla was not a monster; he was incarnate Rome. To Rome the safe foe was the dead foe. Jugurtha's fate was damnable; but its execution was Roman. Claudius' pardon of Caractacus was illustrious; but it was not Roman. And, yet, we cannot understand how a Julius Cæsar could tolerate the ignominious, cruel death of the heroic Vercingetorix. We cannot understand how a Titus could devote indiscriminately humans and brutes by thousands to slaughter in the arena. We cannot understand how a Marcus Aurelius could have sanctioned a religious persecution which rivaled that of Nero.

Greece was the land of free sentiment and free fancy. To be a Greek was to be a universal beauty-worshiper. Perception and enjoyment of the concretely beautiful are essentially functions of sensation; and sensuousness merges by easy degrees

into sensuality. So we could comprehend mere laxity and license of morals among Greek communities. But we cannot understand how Greece, enlightened, glorious Greece, could lapse down the grade of degredation, degeneracy, depravity, perversion to the lowest level of unnatural vice. We cannot understand how many of her foremost men could have been addicted to such vice, nor how it could have been condoned, even extolled, by some of her most famous philosophers. We cannot think of the truth-loving image-maker of Athens, the sent of God to the Hellenes, as the approving and sympathetic counselor of a professional courtesan. We cannot think of the lord of the Academy, broad of intellect as well as broad-shouldered, in the capacity of an advocate and eulogist of monosexual love.

And so marvels might be cited in others of the various civilizations ancient and not so ancient. But let us pause to look at ourselves—us of anglosaxonism by descent, or by choice, or by destiny. Are we, too, not a riddle?—we who have made of puritanism a term coequivalent with pharisaism and hypocrisy!—we, the tax-gatherers of the whole earth, who, when we do happen to go up into the temple to pray, instead of smiting upon our breasts and begging for mercy, in phylacteries and wide-hemmed robes borrowed and ill-becoming us, standing bolt upright, thank God that we are not like other men!

Satyr-like souls there are, revolting prodigies of licentiousness, whose supremest conception of blissful existence chiefly comprehends harlots here and houris hereafter. They have been confined to no time, no place, no caste, no guild. They have sat on thrones and in chairs; and they have, too, loomed large in the field of world-literature. But Molière was not one of these. He can be charged with only mild libertinism—in France a soft impeachment. Voltaire killed the calumny that sought to sully Molière's name with the shame imposed upon Lot by filial solicitude, and imputed rightly, or wrongly, to the Blue-Beard of English royalty.

In sooth, Molière was guilty of the folly of marrying a young wife at an age when he might have more profitably been thinking of something else. For that he had a monumental example in the protagonist of tragic drama, the author of the *"Œdipus Tyrannus."* Molière was the victim of matrimonial infelicity, rather than the originator of it. And let us remember that the roll of husbands unwisely or unluckily wed also bears such names as Socrates and Nicon, father of Galen, and John Milton and John Wesley. Truly "a prudent wife is from the Lord."

As stated, this notice of Molière, the man, is intended to be an apology. We shall attempt no panegyric. Much might be said of his merits—of how he failed like a man, and conquered like a god. We might laud his virtues—might speak of his bigness of heart, and of his greatness of soul. Big hearts are plenty; great souls are nobler, and are rare. We might show how the fires of adversity and suffering but heightened the purity and luster of the gold that was in him. Aeschylus says in the "Agamemnon," "This law is from Zeus—at the price of pain, knowledge. Drop by drop until we sleep falls upon our hearts the sharp remembrance of sorrow; and in spite of us wisdom comes." And so Molière toiled and suffered and endured. And we imagine his heart-strings vibrating in many a weary, dreary hour to the sentiment of those lines from the "Wanderers Nachtlied" of Goethe—"Ah! I am tired of striving! What shall avail all pain, all pleasure? Sweet peace! Come, ah! come into my breast!"

Doctors are men as well as doctors—that is another pertinent point of discrimination. Most human of the human are they. DaCosta once said to his class in giving his Christmas God-speed, "He who is not in full sympathy with the humanities of life is only half a man—indeed, he is only a third of a doctor." It is well that it is so. It is better to be loved as human than to be adored as divine—better for each, better for all. King Oedipus says to the seer, Tiresias, "To serve humanity is the most beautiful use that man can make of his art and of his power." To best serve men one must know men; and to best know men one must be a man. Massillon, he to whom the great Louis said, "In hearing some preachers, I feel pleased with them; in hearing you, I feel displeased with myself"—Massillon, when asked whence he derived his intimate knowledge of human nature, replied, "From my own heart." Schiller expresses the same idea thus —"Would you recognize yourself, observe how others do; would you understand others, glance into your own heart." Vauvenargues shades the thought thus—"We discover in ourselves what others conceal from us, and we apprehend in others what we conceal from ourselves."

The physician certainly belongs to the genus homo; but he is just as markedly a being of personality, of individuality, even of peculiarity. There are doctors and doctors; just as there are all sorts of other people. You have your long doctor, and your short doctor; your fat doctor, and your lean doctor; your slow doctor, and your brisk doctor; your taciturn doctor, and your garrulous doctor; your grave doctor, and your jovial doctor; and so on. There are queer doctors, too—doctors who are like some religious sects, that, in turn, are like some horses that have all the essential qualities of a first-class, high-grade horse, but are off color.

Now doctors, being at the same time so typically and so originally human, it is not strange that the eye of a poet like Molière, which

> —"in a fine frenzy rolling,
> Doth glance from heaven to earth, from earth to heaven,"

should often settle upon them as characters representative of human traits and human freaks. But to portray them thus is to show them as men; not as doctors. Van Laun declares that "Molière placed upon the stage nearly all the human passions which lend themselves to comedy and farce." In doing this what a numerous train of personages he drafts into service! Every walk of his life has furnished its contingent. And the same part is not always played by the same individual. Of course, Molière at the same time caricatured class faults: but he did it generally and impartially. Voltaire says that "he contributed to rid the public alike of self-important underlings, of the affectation of blue-stockings, of the pedantry of strong-minded women, of the robe and the Latin of doctors."

When Molière began his career as a dramatist the ribald, hyperbolical, roaring farce of Spain and Italy was in vogue. There he started. But genius walks beneath the wand of destiny. At that low level Molière could not tarry. Beginning with "La Jalousie du Barbouillé" and Le Médecin volant"

upon a plane all unworthy of his mission and of his powers, he led his art up and up until it reached the heights of "Le Misantrope" and "Le Tartuffe." Lapses and relapses are evident, which partly justify the severe stricture of Despréaux that he "allied Tabarin to Terence." But victory, not defeat, is the measure of the conqueror. By the criterion of his masterpieces, rather than of his marred products, should be fixed the rank of the creative artist. If Molière is not always Molière, neither are Æschylus and Corneille always Æschylus and Corneille.

Molière stands out in bold relief as a reformer. His literary instrument was broad caricature bordering upon burlesque. He was not of the class of La Rochefoucauld who, with a single massive projectile, well aimed and mightily driven, would rip asunder from stem to stern the rotten hulk of hypocrisy. He was not of the class of Pascal, who brought to bear against error until it was crushed, an unrelenting, inflexible, irresistible logic which, like "the mills of God," though it "ground slowly, yet ground exceeding small." He was not of the class of Voltaire, who with that graceful, diamond-pointed rapier of his, was wont to deliver through and through thrusts; when there would be a dart and a glint and a prick; and everybody would laugh, and nobody knew anybody was hurt; and, lo! wrong had received its death stroke. A right royal boxer was he, a Pollux, who in fair, open ring gave good, hard thumps until the faults and abuses and vices he opposed went down, nevermore to rear a respectable head. Joubert says, "Molière is comic in cold blood. He provokes laughter and does not laugh."

A *pensée* of Pascal runs thus—"It is dangerous to impress too much upon man to what extent he is like the beasts, without showing him his greatness. It is, again, dangerous to impress too much upon him his greatness without his baseness. It is yet more dangerous to leave him ignorant of both." In drama Corneille and Racine presented the ideal in man—depicted the potential dignity, nobility, glory of his being. Side by side with them wrought Molière. The function of his art was to produce the counterpart of that fair picture—perhaps we had better say the background of it—to throw into the scene the weakness, the meanness, the viciousness of man's nature. That Molière consummately did—did it for then and forever. And the enlightening, edifying value of his work will remain while on this little sphere of ours are reared and trained and tried and sealed archangels for the courts of God.

Satire in its application should be characterized by consistency, invariability, impartiality. It should treat all alike, and always alike; if it do that, no one person, or class of persons, has any ground for complaint. What a fool fit for bedlam would be the individual who should smash a distorting mirror because it made him look ludicrous, its sole design and uniform effect being to make people look ludicrous! The perspective and the ratio of Molière's caricature are always the same; concerning it there can be no particular grievance.

A comparative study of *la médecine* and *le médecin* in his plays and *la médecine* and *le médecin* as they actually existed at his day, reveals the fact that Molière had a clear discernment and an accurate comprehension of the weak side of matters medical. Howsoever it may be urged that he hit too hard and too much, at least it cannot be said that he did not hit in the right place. His keen discrimination in this way is significantly indicated by his silence as to surgeons. Although of lower caste, surgery as an art at that time was far above and beyond medicine proper. Molière's doctors are not sawbones. It was the scholasticism, the bigotry, the pedantry, the servility to authority, the swollen pomp and pageantry of medicine that Molière attacked. And then, and since then, other great lay thinkers have done the same—have done it more scathingly for having done it more seriously.

But that is not all. Doctors, themselves, have been, perhaps, the harshest critics of medicine—which is as it should be. Rabelais, our Rabelais, said, "Certain men, who are among physicians and pass for such, are found, if one searches them to the bottom, empty of knowledge, of good faith and of prudence; but full of arrogance, of envy and of uncleanness. They get their experience in killing people, as Pliny formerly made complaint about it; and by them one is menaced with more peril than by the malady itself." Such denouncing Ezekiels have arisen in our midst all the way down to our Autocrat of the Breakfast-Table.

When Blackmore asked him what medical authors should be taken as guides, Sydenham replied, "Don Quixote." In this oracle of Delphi, what wisdom lies hidden! If Cervantes, why not Molière? Let him have a perpetual place as a teacher of medicine. Thankful, rather than resentful, that he has written so much about us, let us study him deeply, humbly, appreciatively. Let us not be as were *les faux dévots* toward "Le Tartuffe." In his "Amphitryon" Molière makes Sosie say, "The lord Jupiter knows how to gild the pill." Molière himself does not gild his pills. But let us not, like children, reject his salutary doses because they have the flavor of the medicine. And from him we shall learn as scientists the lesson, half-concealed by cynicism, in this maxim of La Rochefoucauld—"The truth does not do as much good in the world as its appearances do harm there." And as men we shall learn to live like Philoclès of the "Télémaque," of whom Fénelon says, "He made greatness to consist not in self-aggrandizement, but in self-conquest, and in doing nothing base."

CHRONIC CONSTIPATION.*

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It is impossible to give even a complete synopsis of so large a subject as chronic constipation in a short paper so I will confine myself to some of the main points of the etiology and treatment of the condition. These two are naturally to be considered together, since the treatment of constipation should never be purely symptomatic but by direct consideration of the cause or causes and removal of the same.

Probably chronic constipation is, on the average, more carelessly or irrationally treated than nearly any other symptom or pathological state. In formularies we often see prescriptions containing various combinations of purgatives and laxatives recommended for use in chronic constipation, these often being used for varying lengths of time without de-

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termining the factors entering into the particular case, sometimes without a physical examination and without the conjunction of other and more curative measures. I have seen cases of this kind where endeavors to secure daily movement of the bowels, by means of purgatives only, has resulted in total inability to have a stool without some medicine. Recently I saw a young man who had suffered from chronic constipation for seven years, during the last five of which he had been treated solely *per os* with nearly all the various drugs, with the result that his condition became progressively worse, finally becoming entirely dependent on stronger doses of the medicines to produce any result whatever. After absolute removal of all purgatives and the institution of systematic local and general treatment his condition improved almost from the start.

Definition and Classification.—By constipation is meant the insufficient evacuation of the bowels, whether due to too small or too infrequent movements, more often the latter. The condition may exist by itself, may be symptomatic of another condition, may accompany another pathological state or may cause other troubles. The factors entering into the causation are legion. There may be one or several in a given case.

I shall classify the various varieties of chronic constipation as follows:

I. Mechanical obstructive constipation or obstipation; II. Non-obstructive.

A. Chronic constipation primarily caused by disease of other organs than the stomach or intestines: (1) Due to venous congestion of intestinal circulation (a) in organic disease of the heart and kidney; (b) in chronic pulmonary affections, asthma, emphysema, etc. (2) Due to impairment of secretions poured into the intestines: (a) in chronic disease of the liver, where the bile is affected; (b) in disease of pancreas. (3) Due to disturbance of innervation of intestines through disease of brain, cord, and nerves: (a) brain tumors, hydrocephalus; (b) chronic insanity; (c) tabes and general paralysis; (d) lead poisoning; (e) neurasthenia, hysteria, and hypochondria.

B. Chronic constipation caused by gastric disease: (1) Due to impaired motility of stomach (a) atony of stomach; (b) dilatation of stomach; (c) pyloric stenosis (cancer and ulcer). (2) Due to secretory disturbance (a) hyperchlorhydria; (b) chronic gastritis; (c) achylia gastrica.

C. Chronic constipation caused by, causing, or accompanied by other intestinal conditions: (1) Due to painful conditions, causing voluntary abstention from stool: (a) hemorrhoids; (b) fissure of anus; (c) ulcers of rectum; (d) chronic proctitis. (2) Due to changes in the mucous membrane impairing its irritability: (a) chronic catarrh of small intestine; (b) mucous or membranous colitis; (c) sigmoiditis; (d) atrophy after catarrh.

D. Chronic constipation unaccompanied by any organic lesion: (1) Due to pathological functioning: (a) spastic constipation; (b) spastic contracture of the sphincter without anatomic cause. (2) Due to imperfect physiological functioning (simple chronic constipation).

This classification is, I think, clear because of its simplicity. In parts of it I have followed Illoway closely. I have arranged the various classes in the above order, leaving simple constipation until last, since it is to the last varieties that I wish to pay the most attention. I shall now consider separately the different groups, the first ones briefly and the latter more fully.

Mechanical Constipation (Obstipation).—These are mostly surgical cases, some of the varieties rather common, others rare. I shall merely cite the causes and varieties. Gant (p. 76) mentions some 25 varieties as follows: congenital deformities and displacements of the intestines; extra-intestinal pressure; neoplasms; foreign bodies; intestinal calculi; fecal impaction; adhesions and exudate; angulation; diverticula and rectocele; abnormal mesentery; hernia, invagination, and prolapse; splanchnoptosis and enteroptosis; paralytic ileus; dilatation of the intestines; enterospasm; obstruction by intestinal parasites; hypertrophy of O'Beirne's sphincter, rectal valves, levator ani, and sphincter ani; deviated coccyx; diseases of the rectum and anus, as hemorrhoids and fissure. This class of cases embodies anatomical and organic conditions, and so I do not consider enterospasm as belonging in this group but rather under the cases due to perverted function. Nor should hemorrhoids and fissure be considered here. I shall dwell on obstipation no longer than to urge that all of these factors be taken into consideration and by a careful history and physical examination ruled out, as far as possible, before the case is treated as one of the nonobstructive constipations.

When obstipation is finally diagnosed the treatment instituted will be chosen to fit the individual case, being always, however, by removing the cause, usually by surgical means accompanied, or followed, by appropriate measures for the correction of the conditions resulting from the long continuance of the obstipation. These, in general, are diet, attention to the hygiene of the body as a whole and the bowel in particular, exercise, external and internal hydrotherapy. They will be described more in detail later on.

Chronic Constipation Caused by Diseases of Other Organs than Stomach and Intestines.—Chronic diseases of the heart, kidneys, liver, and lungs are often accompanied by varying degrees of constipation, induced by hyperemia of the intestinal mucous membrane and obstruction to the portal circulation. Correction of these conditions by appropriate means will often by itself stop the constipated state if not of too long duration. In addition to the affections of the liver, producing portal obstruction, as cirrhosis, any disorder which pathologically alters the bile in quality or quantity may produce rather obstinate constipation. Affections of the pancreas occasionally cause costiveness, but a fatty diarrhea is more common, except in diabetes mellitus where the abstraction of such large quantities of water from the body leaves the intestinal contents too dry. Various disturbances of the nervous system, either organic or functional, are accompanied by considerable costiveness, so much so that constant supervision of the inmates of asylums and sanatoria is necessary to insure against it. In these cases with the exception of the pure neuroses the laxative treatment with drugs, preferably cascara or aloes, belladonna, and strychnine pills, is indicated, combined as far as possible with diet and hygienic treatment.

Chronic Constipation Caused by Gastric Disease.—Although some of the causal factors are somewhat obscure, it is well known that certain diseases of the stomach do, *per se*, produce constipation. Those most constant in this respect are hyperchlor-

hydria, ulcer, cancer, atony, and dilatation of the stomach. Somewhat less frequent causes are chronic gastritis and achylia gastrica. Any of these may, however, produce a diarrhea or constipation alternating with diarrhea. Because of this rather intimate relationship between affections of the stomach and intestines it is wise wherever possible to take a test meal at the time of the preliminary examination before attacking the intestinal trouble.

Chronic Constipation Caused By, Causing, or Accompanying Other Intestinal Conditions.—Certain painful conditions, to wit, hemorrhoids, fissure of the anus, ulcers of the rectum, and chronic proctitis may either cause or be caused by chronic constipation, and no matter which is first in the field they are bound to aggravate each other, forming a vicious circle. The patient abstains from stool as long as possible in order to avoid the pain of a defecation, only to make matters worse when at last he has a hard constipated movement accompanied by much straining. In such a state of affairs it is necessary to reverse the ordinary method of procedure and relieve the constipation first, at least temporarily, before removing the cause. Other diseased conditions of the intestinal tract cause costiveness as one of their symptoms, irrespective of pain or voluntary abstinence from stool, as chronic catarrh of the small intestine, catarrhal or membranous colitis, and less frequently atrophy following catarrh.

Treatment is directed toward getting rid of the intestinal disorder by means of diet, irrigations, internal medication, exercise, and general hygiene. Under general hygiene we should include plenty of good air, outdoor exercise, or, if these are not possible, certain specially planned gymnastic exercises to take their place, a cold sponge bath in the morning followed by a brisk rub, proper clothing, no excess of work, physical or mental, nor undue exposure to the weather. In regard to the diet each case is more or less a law to himself, but certain general rules can be laid down. The meals should be regular, frequent, and small, and should contain no very indigestible articles. A somewhat more liberal diet may be given than in catarrhal conditions accompanied by diarrhea, but a more restricted one than is allowed in simple constipation on account of the irritated condition of the mucous membrane. The following may generally be allowed: eggs, soft-boiled or poached or omelet; chicken, fish, steak, and chops, not fried; most soups; dry or toasted bread and butter; rice, macaroni, very small amount of baked or mashed potatoes, spinach, cymlins; baked apple or pear, stewed prunes, mellow peaches; cup custard or rennet curds and whey; cream, but little milk as a rule; Postum coffee, buttermilk, matzoon, and kumyss. Small amounts at the regular meals reinforced by a toasted raw meat sandwich or a couple of crackers with a glass of buttermilk or kumyss, between meals, are indicated. Salt water irrigations or containing some medicament as ichthyol, 2 drams to the quart, or if there is much pain, extract of witchhazel, 3 ounces to the quart, are to be used, given through the colon tube, high up, with the patient lying on the left side, when the large bowel is involved. Two drugs stand out prominently for their alterative and tonic effect on the intestinal mucosa, hydrastis and ichthyol. The former is given in the form of the fluid extract and the latter prescribed in 50-per cent. solution in peppermint water, in ascending doses, beginning with about 8 drops in a wineglassful of water and increasing to 30 drops, t. i. d., provided that the stomach does not rebel. Suitable tonics may be prescribed when indicated by the general condition.

Chronic Constipation Unaccompanied by Any Organic Lesion.—We now come to the group of cases due to pathological functioning or overaction of parts of the muscular coat, and to those due to imperfect or incomplete functioning. The first of these includes the spasms of the various parts of the intestinal canal, producing spastic constipation or enterospasm. All of these do not properly come under this group, as many, if not most of them, have some anatomical cause for the spasm. Spastic constipation is not uncommon. It is produced by a spasmodic contraction of the muscular coat of a larger or smaller section of the intestine, with the result of a partial obstruction of longer or shorter duration. It forms one of the commonest symptoms of lead poisoning, may also be associated with tabes, hysteria, neurasthenia, and other nervous troubles, and according to Einhorn is at times also seen in the debilitated state following serious illness. There is often an exciting factor as an ulcer or an irritated and inflamed mucous membrane.

The treatment consists first in that of the attack and secondly in that of the underlying condition. During the attack all cold should be avoided and heat should be employed externally and in the form of enemata. Hot compresses changed every 15 minutes may relieve, but if not, a hot tub bath at 110 degrees should be tried as also a hot colon irrigation. Atropine is the drug of greatest service in relaxing spasm, and is given hypodermically in large doses—gr. 1/50 to be repeated. In one case I had to give gr. 1/20, followed by a smaller does in a half hour. Usually morphine is required in addition. The treatment between attacks resolves itself into building up the general condition and nerve tone of the patient and removing any anatomical cause which may be present.

Simple Chronic Constipation (Atony of the Bowel).—This state is usually acquired, often carelessly, and when by proper precautions it might have been prevented. Sometimes the costiveness starts in infancy, often in childhood, but it may begin at any time in life, and is very frequent in old age, when the body is on the retrograde with weak muscles and general loss of tone. The female sex are notoriously the most frequent sufferers, but not, I think, in as great proportions as compared to males as is usually estimated. Lack of exercise predisposes, as is seen in the frequent occurrence in the sedentary occupations. Invalidism and debility act the same way. Weakness of the muscles of the abdomen through overdistention and stretching, as in ascites, pregnancy, and abdominal cysts and tumors, or through fatty degeneration and infiltration in excessive obesity are factors. There are certain more active or exciting causes. One of these is neglect of regular calls to stool so that nerve sensibility is dulled and irregularity, first, and established constipation later, is the result. The individual having so long disregarded the needs of the bowel for evacuation is finally in turn treated with indifference by the bowel. A patient whom I saw, suffering at 24 years of age from a marked degree of constipation and a long train of neurasthenic and psychasthenic symptoms, confessed that when a boy he used to go as long as two weeks without a movement. Other excitants are: drug and enema habits; irregular or hasty meals; food

leaving too little a residue or the contrary, too much cellulose débris, choking the intestinal canal; too little fluids and fats; stretching and dilatation of the colon by two large enemata. That there seems to be no limit to this practice is evidenced by the case reported in the *Journal of the American Medical Association* a short time ago of an Italian who was in the habit of administering enemata to himself with a common garden hose.

Under the treatment of these cases we shall consider briefly diet, the institution of correct habits in regard to the time of going to stool, water drinking, and exercise, which are usually essential in all cases and various procedures, one or more of which may usually be employed advantageously, as irrigations, baths, massage, vibration, and electricity.

It should be insisted upon that the patient go to the closet at a certain time each day, preferably just after breakfast, whether he have the desire or not. The mind should be concentrated upon having a movement for at least five minutes, and should not be occupied by other matters as in the habit of reading at stool. If an evacuation does not result no further attempts should be made, unless there is a distinct desire, until the following day at the same time. Impress the patient with the efficacy of this, as the results of concentration of the mind are quite remarkable. To show how easily habits are formed in many cases I will relate the instance of a man I know, who used to have several movements a day. It was inconvenient, so he disregarded as far as possible all sensations coming at other times than after breakfast, with the result, in a couple of weeks, of having the desire only at that time. Later he tried, as an experiment, to see if he could produce two movements a day at will, and found on going to stool morning and evening for a week the desire came at these times.

The diet in simple chronic constipation is not rigid. Usually too much of the following should be barred: proteins leaving little residue, dry foods, eggs, thick soups. Forbid strong tea, cocoa, chocolate, huckleberries, and anything else which contains tannic acid. Plenty of the following foods, which are somewhat laxative, are to be eaten: oatmeal, cornmeal, buttermilk, cream, butter, olive oil, maple syrup, molasses, and nearly all the fruits, raw and cooked, except bananas, huckleberries, and gooseberries. As a rule it is only necessary in arranging the diet to take out the most indigestible things the patient has been eating and add the laxative fruits, oatmeal, etc., in sufficient quantities. If the patient has been gluttonous and the bowel has been dilated restrict the amount of vegetables containing cellulose. But if, as is usual, not enough food containing residue has been eaten, give a diet containing both meat and vegetables with the latter, and fruits in preponderance. Of nearly equal importance is the frequent drinking of cold water, in small amounts. For its tonic and stimulating effect a glassful should be taken every morning immediately on awakening and a half glass at intervals during the day.

Outdoor exercise when possible should be recommended. It will not only serve to improve the general condition and nerve tone, but will strengthen, among others, the muscles entering into the act of defecation. Walking or any of the mild sports are beneficial. If business or other reasons prevent this, ten or fifteen minutes morning and evening devoted to indoor physical exercise will help to take its place. When exercising the window must be open and deep breaths be taken.

A cold sponge bath in the morning followed by a brisk rub is a great stimulant. For those who can stand it a cold plunge may be substituted.

Usually all of the preceding lines of treatment are to be instituted with or without the addition of one or more of the procedures about to be mentioned. Deep abdominal massage in the morning before breakfast often does good, or the same result may be obtained by rolling a croquet ball over the course of the colon for five minutes before going to stool. Vibration by a mechanical vibrator or faradic electricity with slow interruptions are useful. Irrigations may be given of ichthyol, 1 dram to the quart, using them daily for a time and then every other day for a while longer. After a short treatment with the irrigations oil enemata of 6 ounces of olive oil, with or without a little ichthyol, may be given at night, to be retained and passed the next morning, when a movement will usually result. Or again, small cold water injections, 75° to 65°, powerfully stimulate the musculature of the intestines. It is occasionally necessary to clear the bowel out by a purge in some cases, but this should not be repeated any oftener than is absolutely necessary.

As regularity becomes established the artificial aids should gradually be discontinued, the diet and personal hygiene still being observed to make the improvement permanent. A course of several weeks or months of judicious treatment is usually followed by the most encouraging results.

2307 First Street.

PILOCARPINE.

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Pilocarpine is one of the two chief alkaloids found in *Pilocarpus microphyllus*, or *Pilocarpus jaborandi*, Brazilian plants of the natural order of *Rutaceas*.

Jaborine, the companion alkaloid of pilocarpine, while being isomeric with it, yet in its physiological action completely antagonizes the action of pilocarpine, which fact makes the uncertainty of action when the fluid extract is used a matter of no dispute, as it merely resolves itself around which of these two antagonistic alkaloids predominates. If pilocarpine is in the ascendency, then the sweating which follows the exhibition of this agent will occur, which may in the particular instance be the effect that is desired. If, however, jaborine is the ruling principle, then an action closely allied to that of atropine will result, *i.e.* all secretions will be checked, and a result directly opposite to the one desired will be produced.

Physiological Action.—Physiologically, pilocarpine can be classed as a paralyzer of the vasomotor system, a stimulator of the nerve endings in the glands and involuntary muscle-tissue. This action, therefore, makes pilocarpine a powerful diaphoretic and sialogogue, a depressor of the cardiac muscle—by way of its stimulation of the ends of the vagus—a myotic, emetic, and under certain conditions an abortifacient. It produces profuse and rapid perspiration and salivation. The secretions of the nasal and bronchial membranes are increased, the action of the heart is primarily increased but later slowed, there is a fall in arterial tension, and the tempera-

ture is reduced from one to four degrees. The amount of urea eliminated is greatly increased, but the amount of urine is decreased, the watery constituent of the urine being eliminated through other channels. Children are affected less than adults proportionally by pilocarpine. The avenue of elimination of pilocarpine is chiefly through the skin, it being rapidly diffused, and its effects generally pass off in from three to six hours. It is said to produce contractions of the bladder and spleen.

Therapeutics.—It is the indicated remedy in ptyalism. Pilocarpine should be studied in dropsical effusions of the lung, also in renal dropsy. In cardiac dropsy, when the heart is weak, pilocarpine is decidedly contraindicated. It should be remembered in alopecia, and by some authorities it is claimed that its continued use will restore the natural color to gray hair. In eclampsia it is a remedy of sterling worth, producing quick and lasting diaphoresis and diuresis, increasing the amount of urea eliminated, and thus ridding the system of the toxins which have been the causative factors in the spasms. It should be given consideration in cases of diabetes insipidus, where it reduces the amount of urine, and by throwing the work on the skin relieves the kidneys to a very marked degree. In agalactia the exhibition of pilocarpine is productive of a profuse flow of milk. In esthenic cases of erysipelas pilocarpine is the only remedy to be given any consideration, and its action in this class of cases is so sure and prompt as to make it a specific.

Ashland Avenue and Forty-first Street.

LETTERS TO A NEUROLOGIST.

By JOSEPH COLLINS, M.D.,

NEW YORK.

PHYSICIAN TO THE NEW YORK NEUROLOGICAL INSTITUTE.

VI.

Pittsburg, June 16, 1908.

Dear Doctor.—"Seek and ye shall find"—when I awoke this morning these words were uppermost in my thoughts. I reflected: since my prayers have so far been of no avail, and since I believe that there is Divinity in all things, perhaps it is human aid I should seek. I am told that you have insight and judgment, and although I do not know you, I have determined to lay my troubles before you. After you have heard my story, I shall be glad to have a personal interview with you if you deem it advisable. In the difficult and delicate matter which I have to put before you, I shall be as frank as possible and endeavor to do no one an injustice.

My only son is an habitual drunkard. He goes for weeks, even sometimes for months, without drinking a drop, but during this period of abstention he is pale, depressed, ambitionless, absolutely indifferent and silent, even towards me whom he loves. At the end of a more or less extended period he begins to drink, a little at first, then increasingly, until there is but one thing left for him on earth—alcohol. He does not eat, does not sleep, does not come back to our house until he is brought there, a wreck in body and mind. Then begins the slow creeping back to health, and with it remorse and indications of self-disgust. His stomach for a long time refuses food, but after a week or so of strict dieting he begins again to be as he was before the drinking bout began. Physicians say that his health is greatly undermined, and that he cannot survive his way of life for many years—and he is the only thing that makes life worth living for me.

I married at nineteen a prosperous, pleasure-loving, narrow-minded young man. His desires and caprices, whatever they may have been, have always been proportionate to his ability to gratify them. He has been what is called successful, and, although too self-centered and selfish to be really popular, his *lack of insight* has prevented him from appreciating the world's attitude towards him. He is thoroughly self-satisfied.

All our younger children died in early infancy. Our son, George, is now thirty-five years old. He has been the sunshine of my life, but there has always been something lacking in his father's appreciation of him. This failure to understand his son perhaps accounts for the lack of sympathy between them. In childhood and later, when he was grown, George displayed great facility up to a certain point in anything he undertook. In school and in college he stood fairly well in his class, never first, but his position was gained without effort. He had facility in dancing, swimming, tennis, sports of all kinds, but as soon as a certain proficiency had been gained he lost interest and allowed his associates, less highly endowed by nature, to surpass him at every point. On leaving college his father was unwilling to have him join any club, and it was then, I believe, that he began to frequent hotels and their bar rooms. I noticed that he was frequently under the influence of liquor, and I recall that during his college days, which were passed away from New York, and also during the vacations, I occasionally saw him slightly excited by alcohol. He wished his father to give him sufficient money to start in business or to buy a seat in the Stock Exchange, but whether his father had small confidence in his business ability, whether he preferred to keep the reins in his own hands, or whether it was simply that he was too selfish to reduce his own income, he refused to gratify his son's wish, but took him into his own office instead, where he was not particularly needed, and where he felt of little importance.

It was soon after this that I observed signs of discontent in my son, a growing lack of ambition, and an increasing fondness for alcohol. When he indulged in moderation, he became the most charming and delightful of companions—witty, sympathetic, lovable, and interested in everything. He began to be much sought after by society, and I cherished the hope that he would fall in love with some woman who "should be good for everything at home," but, as far as I can learn, he has never seriously cared for any woman.

On account of the increasing lack of sympathy between George and his father, I felt that if I added criticisms and admonitions to my husband's cold disapproval, my child's home would soon become a place for him to avoid. For this reason and because criticism made him irritable I refrained from reproving him. Of late my son has been indulging in self-pity, and is trying to place the responsibility of his failure on his father. He says to himself, "Had I been able to marry, to have a home of my own, all would have been different!" My husband resents this attitude, and at times they are scarcely on speaking terms. In my despair I have spoken to one or two of George's intimate friends, and they seem to feel that he has not been fairly treated by his father.

But is it possible for one generation to be just to another? I, naturally, am inclined to sympathize with George in all things—I weep over his wasted youth, and yet a sense of fairness makes me stop to consider if any individual is really responsible for the actions of any other, whether our real foes, the ones we have to meet in deadly conflict, are not within us, are not our own weaknesses and deficiencies; whether, when we fail, it is not because our weakness is greater than our strength, and whether we are not in reality beaten before we begin the battle of life. In moments of depression I reflect that if we are not climbing the hill, we are all rushing down as fast as we can.

You realize, no doubt, how unfit I am to counsel my son. And even though I advise him in a way which might meet the approval of an impartial judge, when it is contrary to his likings he cannot be made to appreciate that my counsel is not somewhat prejudiced. He fancies that the world, like his own family, has failed to give him a square deal. I see in some of his actions an expression of resentment against this fancied wrong. Indeed, it seems to me that at the present time he lacks not only the necessary motive, but the ability to help himself. He has failed the bright promise of his early day, but I know he has qualities and capacities which, if they can be developed and fostered by guidance and wise counsel, will make for the happiness and welfare of others besides himself.

I hope I have adequately conveyed to you my belief that in times past he has tried to help himself, but in ways which seem to me wholly inadequate, and which have proven so. I mean by "swearing off" or resolving not to drink until a certain day, by promising me to abstain, etc. I feel that no definite plan of action has ever been taken with him, that he has never been apprised of the philosophy of a cure.

Is there any help for him? My own griefs, disappointments, failures, which I shall not enumerate, have crushed my spirit, and in my despair I snatch at the ray of hope which my knowledge of your ability offers me.

Dear Madam.—While thinking over the contents of your letter, my memory invoked a passage which serves as the introduction of a book, nowadays little read, but which delighted many hours of my youth. It seems to me to have peculiar application to you in your present predicament. "They who listen with credulity to the whispers of fancy, and pursue with eagerness the phantoms of hope; who expect that age will perform the promise of youth and that the deficiencies of the present day will be supplied by the morrow, listen to the story of Rasselas." I am afraid you have listened to the whispers of fancy and pursued the phantoms of hope, and that you believe the morrow will supply what is lacking to-day. Such mental attitude is the basis of much happiness and the warp and woof of optimism.

I desire sincerely to help you, but all that I can do is to counsel you to a plan of action which, put into successful operation, will constitute a *modus vivendi* for you, your boy, and his father. You want at the same time to break him of the drink habit and to restore the proper relationship between him and his father. It will be easier to accomplish the former than the latter. Although you say very little about his father in your letter, I gather from what you do say that his extreme self-satisfaction would prevent him from critically examining his own attitude towards his son and making allowance for infirmities which he does not possess. Nor is he capable, I fancy, of appreciating that inhibition is a quality which men possess in varying degrees, and that in proportion to its possession is their capacity to resist temptation. A man may be proud of his birthright, but he does not boast of it; rather is he moved to give encouragement and a helping hand to those who are less fortunate. Virtues which fail to make us more tolerant of the infirmities of others are like riches to them who have no desires—burdensome. Moreover, your husband has had for a long time the attitude of being in the right and of brooking no argument undertaken to convince him of error. Therefore, I am not encouraged to believe that much can be done with him or through him. Whatever is to be accomplished has to be done through the young man himself. The first thing to develop in him is *amour propre*. He must be made to see and to appreciate that by persistent indulgence in this habit he is outraging his birthright and debasing himself in the eyes of his fellow-creatures, and killing one by one all those qualities which distinguish him from the brute. Moreover, he must be apprised of the fact that a continuance of his present mode of life will inevitably entail infirmity of body or of mind, which is bound to be productive of great suffering, and that no amount of pleasure makes up for a comparatively small amount of pain.

To put this in an entirely different way: Suppose you ask your son what is the object and purpose of life for him, do you think he will be able to define it or to give you any formulated expression of what his ideas upon this matter are? Have his conduct and mode of life heretofore betrayed any sentient purposefulness other than to amuse himself or to facilitate the rapidity with which one hour succeeds another? It is to be presumed that every one has an aim or object in life, even though few of us are able to describe it intelligently. *The object in life is to do the work of the hour or of the day.* Take a young man such as your son, who has reached a period of life when it is proper seriously to question the objects and aims of life, its duties and privileges, he should have studied the map of life and planned out a campaign with the studiousness and care that a general gives to the country and the forces by whose aid he hopes to win his decisive battles. "Into this Universe, and why not knowing, nor whence, and out of it he knows not whither," but while he is here he has a duty to himself, his family, the public, to society, and to posterity.

By what is his conduct mainly determined—I mean his whole conduct? He prefers to act in a way which will be productive of temporary pleasure rather than in a way which will conform to what the world, or convention, calls right. What incentive therefore exists or may be called into existence which will lead him to exchange a mode of life that pleases him and disheartens you, for one that he believes is comparatively devoid of pleasure, though it would realize your fondest hopes? The disadvantage of having the kind of a father which you describe your son as having is twofold; first, he fails in his duty, which is to develop in the child the best traits and qualities and to teach him to control the least desirable ones, and second, by his very lack of sympathy and under-

standing, he often drives the mother into too soft and indulgent an attitude.

Your boy seems to have had unusual endowments. In early life, his ambition should have been stimulated, his career as an individual planned, and he should have been made to feel the dignity and responsibility of his own life. Byron says, "Man is a reasoning animal, therefore he drinks!" If your son had been a degenerate or a dipsomaniac, it would have been another thing, but in his case the fact that he took to drink does not contradict his ability or promise, it only shows how little adequate motive or necessary ambition he had to get the best out of himself.

Before we outline a plan of conduct or course of life which we shall advise your son to follow, assuring him that if he does so he will cast his fetters, and that the joy of life will be enormously increased, we must try to put ourselves in his place. If we attempt to convince him by argumentation that he should give up taking strong drink, he is apt to ask, "To what purpose?" or, "Why should I?" What rejoinder shall we make? We may say that he will injure his health, curtail his life, humiliate his family, outrage society, and possibly even menace public decency, but none of these save the third will probably make an appeal to him. So far he has not interwoven his life very closely with the lives of others and he has failed to become the center of a new community. He is not likely to do so now that he has reached the beginning of the second half of life. Society, he will tell you, demands of him that which he gives willingly, and no more. What, therefore, are his social bonds? To so conform his conduct that it does not bring him into contact with the laws of the country, and to be as popular as it is possible to be without fatiguing effort. If you attempt to discuss with him those relationships with persons whom he does not know, whom he knows only very casually, and those who do not materially enter his life, which, with our friends, constitute our life's history, what will he say to you? He will probably say that they do not concern him and that he gives no thought whatsoever to them. You will find it difficult, I think, to arouse an interest in him which will tend to the advantage of the community. A man who approaches his fortieth year without having shown some inclination toward municipal, religious, ethical, political, or other public work is not apt to take it up at that age. Neither does such a person develop a hobby, the pursuit of which, for many of us, contributes so much to the pleasures of life. As a matter of fact, if you were taken from him, your son would be an extremely isolated person; indeed, I think the sense of isolation, which is mainly due to his father's limitations, has had something to do with the development of the drink habit.

We may aid to break the drink habit in a number of ways, but in no other direct way than by providing him with a motive. This motive may be developed (1) through hypnotism, which is a somewhat doubtful expedient, especially in cases of this kind, where there is a lack of character rather than an abnormality or perversion; (2) through religious conviction, bringing about what is popularly called a conversion; (3) through a desire to please and to be worthy. A motive may develop in association with some person with whom he may be fortunate enough to fall in love. This is a strong enough motive to induce change of conduct in some persons, the motive in such cases being to win the love and respect of the other person, the consideration offered in return being cessation of a mode of life that the loved one believes to be degrading; in short, the desire to please; (4) through the friendship of some man or woman whose personality would have a marked influence upon him. George Eliot, in touching upon this in Daniel Deronda, says: "It is one of the secrets in that change of mental poise which has been fitly named conversion, that to many among us neither heaven nor earth has any revelation till some personality touches theirs with a peculiar influence, subduing them into receptiveness." (5) By means of a weaker group of motives, which might be called the social, or philanthropic motives. It is conceivable that this young man might have sufficient social instincts and love of his fellowman to cause him to engage in some line of work which would make for social progress. One might get him interested in some special problem, like tenement-house reform or playgrounds for children. A person who is himself intensely interested in some such subject could talk to him about it and try to gain his interest in much the same way as if he were trying to make a sale or induce him to insure his life.

I am assuming that you are not willing to adopt the drastic measure of putting into operation what is, after all, the most forceful motive, namely, the earning of a livelihood. If, for example, you had known when your son was in college what the future had in store for him and how his character would develop, my advice would have been, make him understand that after he has graduated from college, every source of income from the family will be absolutely cut off. Often this fails to work very well because children, especially in this country, are imbued with the idea that they have a natural right to the monies which their fathers have amassed, and cutting off the supply from the young man abruptly, especially when he has reached the age that this young man has attained, is apt to fill him with such resentment that he will go to the dogs out of spite.

Transoceanic Emigration for 1908.—P. Rosati gives statistics for the emigration from Italy in the year 1908. He shows that the emigrants come to the ports from country district, with carelessness of hygiene, crowding, and poor food. The trains move very slowly, and men, women and children are crowded into old and dirty cars with their luggage. He remarks the repugnance of the Italian peasant to the use of water, and says that it is impossible to get him to use it before he goes upon the steamship, where he is again restricted to small quarters. Trachoma is very frequent, and he states that in most neglected cases it ends in blindness. Skin diseases of parasitic type are naturally frequent among them. Contagious diseases of childhood, and tuberculosis, are also present. The food that they can obtain from the railroad eating houses is of poor quality, and, combined with the lack of hygiene and of toilet facilities along the route, leave many of the emigrants in poor condition before they begin their voyage. When they return from a voyage to South America they bring with them the diseases of tropical countries, ankylostomiasis being frequent, as well as malaria. Many consumptives also come home to die. Trachoma is largely caused by dirt and ignorance, and education in this matter is most important, especially in cleanliness. There is need of small pavilions, where these diseases can be cared for and isolated, with simple surroundings such as these people are used to, but with good hygiene and sanitation. Large and costly buildings would be out of place; good medical treatment is a necessity. When the law providing for better quarters for emigrants on the steamers was first put into effect the resistance on the part of the steamship companies and other interests to its enforcement was very great. Now this is changed, and some of those who resisted most at first are now most anxious to carry it out.—*Annali di Medicina Navale e Coloniale.*

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THE ROLE OF LACTALBUMIN IN MILK DIGESTION.

SINCE in the year 1884 Biedert published the account of his studies demonstrating that there was a distinct difference, not only between the percentages, but also between the intrinsic characteristics of the casein of woman's and cow's milk, the study of the various proteins of the different milks has been the most important object of research among those interested in the feeding and care of infants. The first great step in advance in this work was made by Sebelien when he showed that milk contained two kinds of protein, casein and lactalbumin, and that in woman's milk the proportion of the latter was much greater than in cow's milk. Since then many theories have been advanced as to the fate of these two substances in the infant's stomach, and their effect upon the digestibility and assimilability of the milk, the main conclusions of which have been that the advantage of woman's milk over cow's milk lies in the fact that lactalbumin is a more easily digested substance than casein, and that the woman's milk contains an excess of this favorable form of infant food. In the *Berliner klinische Wöchenschrift* for January 3, 1910, Bickel and Roeder have published the results of some researches which tend to show that the function of the lactalbumin may be more important than this, that it not only is easily digested itself, but that its presence may also in some ways exert a beneficial effect upon the digestion of casein as well.

The first experiment was a simple study of feeding and weighing. Eight puppies of one litter were allowed to suckle their mother. To two, which were used as controls, nothing else was given; to three was administered daily a definite amount of a soluble salt of lactalbumin; to the other three was given an equal amount of casein. The puppies receiving the albumin in addition to their mother's milk gained in weight distinctly more rapidly than did the control dogs, while those receiving the casein were as uniformly slow in growth. These relative ratios were also maintained when the maternal milk was replaced by cow's milk in the six pups receiving the test food, the controls in the meantime continuing to nurse. The cow's milk with the addition of the lactalbumin seemed to nourish the animal even better than the food which nature had supplied for it.

The second series of investigations was undertaken to study the effect of lactalbumin upon gastric motility. A dog, in which a duodenal fistula had been made, was fed various solutions, and by extracting small quantities of the intestinal contents every two minutes, not only was the condition of the food studied after it had been acted upon by the gastric juice, but the time which it remained in the stomach was ascertained as well. On two occasions, when solutions consisting of 35 c.c. of cow's milk, 65 c.c. of water, and 4.0 grams of milk sugar were given, eighty and ninety minutes respectively elapsed before the stomach had completely emptied itself. On the other hand when plain water, woman's milk, or a similar cow's milk solution, differing only in the addition of 0.5 gram of lactalbumin were fed, the last traces had passed the pylorus in from fifty-six to sixty-two minutes. Even more suggestive than this, however, was the fact that, whereas the plain milk solution upon reaching the duodenum was in coarse, firm curds, the solution containing the lactalbumin was in the form of the fine flocculent particles characteristic of partly digested woman's milk; in fact, the two being placed side by side could not be distinguished from each other. Taking their cue from these experimental findings, the authors proceeded to feed a small number of seriously ill infants, who were unable to take the ordinary milk modifications, with solutions of cow's milk containing in addition 0.5 gram of the salt of lactalbumin to a feeding. The results were most strikingly satisfactory.

The number of these experiments and of the cases treated is far too small to warrant their being used as a basis for any conclusions. The results are, however, decidedly suggestive, and if it is a fact that the usefulness of lactalbumin is deeper than that merely of an easily digested protein, and that its presence in the stomach is the real reason for the difference between the clotting properties of cow's and woman's milk, the fact should be proved by further investigations and a satisfactory explanation of the phenomenon offered. If further work confirms the accuracy of the present contribution, it may prove to be an addition to the science of infant feeding of no small value.

THE RESULTS OF VACCINATION.

TRITE as the subject of vaccination may seem it is one over which there is as much controversy among the general public as there is about anti-vivisection or the suffrage. While it may seem established beyond a doubt that vaccination protects against smallpox, and while we have only to compare the ravages of this disease as it occurs to-day in countries in which vaccination is not practised with the immunity which we enjoy in a country where vaccination is general, still any physician who comes in contact with the parent of the school-child realizes that we are far from reaching unanimity as to the value of this practice. It is an everyday occurrence in a public school to have parents deny the value of vaccination, dilate on the deaths that it has caused by tetanus and sepsis, question its protective value, and deny the right of the majority of the

community to require its performance as a matter of protection. We are told that many physicians do not believe in it, but declare that it is not only useless but injurious. We are also told that a child should not be vaccinated in cold weather lest it should take cold in the sore. We are met with an absolute refusal to allow vaccination before admission to a public school, and an unwillingness on the part of the Board of Education to force the matter on a taxpayer, lest a suit should bring out the inability to enforce compulsory vaccination. It seems high time that the public should be further educated in this matter, should know the history of vaccination in those countries of Europe in which it has shut out smallpox, and of the high death rate among children, and the thousands of cases of blindness due to variolous ulceration of the cornea, which are to be found in China and Corea.

The matter is brought up anew by the statistics of Goldschmidt of Strasburg, in the *Revue de Médecine*, for September, 1909, in which he gives the results of vaccinations practised since 1872 on many thousands of children. Primary vaccination was practised from arm to arm from 1873 to 1883, with the result of 94.37 per cent. of successful "takes." From 1885 to 1895 the author made use of glycerinated pulp. From 1885 to 1895, 3,312 primary vaccinations gave 98.88 per cent. of successful results. But in both these groups there were six scarifications made in each case, three on each arm. We meet with these cases in examining school children, with each arm scarred with three cicatrices, a severe disfigurement for a girl in this age of short sleeves. Yet our author claims that this method gives a much larger percentage of successes than when fewer scarifications are made. While we have no statistics to offer, we feel sure that it is the experience of those performing public vaccination, that it is possible to get almost 100 per cent. of successes with glycerinated vaccine when perfectly fresh, with a single scarification. Yet one frequently meets with cases in which vaccination has been practised from two to six times without success; albeit every one of them has been found to take when vaccinated with fresh glycerinated vaccine. There is certainly a misconception among physicians of the frequency of immunity against vaccination. This misconception has arisen from the use of inactive vaccine, and Goldschmidt gives us the reasons why so many specimens of vaccine are absolutely inert. Vaccine pulp, according to him, if kept in contact with glycerin for more than two weeks loses a great measure of its activity. Again, if diluted with too much glycerin it becomes so attenuated that it loses its efficiency. A third reason is that its efficiency lessens as it is kept, the same specimen showing good results when first used, and progressively less efficiency as the days go by.

To those who vaccinate large numbers of children and have the opportunity of observing these vaccinations from week to week, as they go through the process of evolution, these facts are well known; but by those who vaccinate only occasionally and do not watch the results, they seem to be unrecognized, and these are the physicians who certify that their patients show a natural immunity against vaccination, and are supposedly immune also to smallpox. The fallacy of this belief is shown by the results of any epidemic of this disease. Goldschmidt cites an epidemic occurring in Alsace-Lorraine after a period in which vaccination had been practised with ineffective virus. The epidemic could not be stayed until the inhabitants had all been vaccinated and revaccinated with fresh, active vaccine. In the epidemic of smallpox in this city some years ago, in which New York furnished 600 victims, it was noticeable that the cases reported daily to the Health Department were all either in babies under five years of age, who had never been vaccinated, or in persons over school age who had neglected revaccination. Not a case in a school child appeared on the lists. The value of the vaccination of school children is here shown. It would seem that valuable statistical studies could be made in this city and published, so that every physician may read them, and every citizen be informed of them, and that so the antivaccinationist may be silenced, as the equally uninstructed antivivisectionist will be, before legislation is passed which shall retard the progress of medical science in this State.

VENEREAL DISEASES IN THE ARMY.

It has ever been one of the most difficult problems with which army surgeons have to deal to know how in the most effective manner to cope with venereal disease in its various forms among the rank and file of the forces. That it cannot be abolished outright is a fact which must be at once faced, in spite of the maunderings of sentimentalists, both male and female. These well-meaning individuals, as a rule, do not like to hear a spade called a spade, but prefer to close their ears to plain talk on the subject, and what is worse, frequently hamper the efforts of those who have been taught, by experience, the best means of fighting the evil. By the endeavors of persons of this class the attempt to prevent venereal disease in the British Indian army was thwarted, but as Kipling might say, "that is another story." Suffice it to say, that so far as the American army is concerned, venereal disease is so prevalent as to be a direct menace to its effectiveness as a fighting force.

Lieutenant-Colonel Henry T. Raymond, Medical Corps, U. S. Army, writing on the matter in the *Military Surgeon* for December, 1909, lays down the following postulates: 1. Specific urethritis is the cause of more misery, invalidism, and noneffectiveness in the army than in any other disease. 2. Soldiers will expose themselves to venereal infection as long as human nature remains unsanctified. 3. Moral suasion alone is inadequate to effect the desired revolution. 4. To effect escape from the physical ills of a sinful practice is a legitimate end of sanitary endeavor. It is not "encouraging vice." The young man who avoids promiscuous intercourse from principle will not be misled through proffered immunity from infection. 5. A rational method of prophylaxis or prevention of specific urethritis has been devised, its general adoption in the army requiring the enactment and

enforcement of a new military regulation making the contracting of a specific urethritis a military offence.

The foregoing postulates are laid down by a man who thoroughly knows his subject, and, therefore, any measures suggested by him as calculated to improve conditions may be pondered with advantage. Colonel Raymond, in 1905, introduced what he termed the "K" package as a preventive of infection. This package consists of a dram vial of a solution of one of the organic salts of silver, and a medicine dropper, wrapped in a small packet for the vest pocket. The soldier is notified of the existence and purpose of the package, by a notice posted in the company lavatory, while each individual member of the command is given a circular on the A B C of venereal diseases. This A B C is arranged in the form of questions and answers and sets forth in plain and concise language the salient features of gonorrhea, syphilis, and chancroid and the necessity for employing preventive measures to avoid infection.

The results of Colonel Raymond's methods have been most satisfactory. He urges that the contraction of specific urethritis by the soldier should be made a military offence, on the grounds that the use of the "K" package if employed intelligently and in time will surely prevent infection, and that the contraction of infection is an argument in favor of negligence if not untruthfulness. There would seem to be no valid reason why the American soldier should be more subject to venereal infection than is his European brother in arms. Probably one cause is that he is given more freedom than the old country soldier. However, when freedom degenerates into license to the detriment of the service, vigorous efforts must be made to assert discipline.

The Prevention of Typhoid Fever.

The prevalence of typhoid fever almost everywhere in this country is a national disgrace. That it does occur far more frequently on this Continent than it should is so evident as to call for no proof. The fact that the average typhoid death rate in the United States was, according to the census of 1900, 46.5 per 100,000, while that of England and Wales was but 11.2, is an incontrovertible proof of the undue prevalence of the disease here. At the annual meeting of the municipal health officers of Ohio, held at Columbus, Ohio, January 20-21, 1910, L. L. Lumsden, Passed Assistant Surgeon, U. S. Public Health and Marine Hospital Service, read a paper on what the local health officer can do in the prevention of typhoid fever, and it would be well did the local health officers everywhere take his recommendations to heart. He said that the health officer should first of all become informed as to the best-known means of prevention, the proper care of the excreta from sick persons, and proper general sewage disposal. He should also secure the prompt report of recognized cases and of suspected cases, so that preventive measures may be begun early. Dr. Lumsden thinks that the early report of cases and suspected cases should be made a legal requirement if possible. The health officer should advise and have carried out at the patient's bedside efficient methods of prevention. The health officer should be legally empowered to have bedside measures of prevention properly carried out, but even if he is not so empowered he can accomplish a great deal by the use of moral suasion on the family and the attending physician. He should have preventive measures continued as long as the dejecta are infective. Probably considerably more than 3 per cent. of persons recovered from typhoid fever continue to discharge typhoid bacilli for two or three weeks after convalescence is established. On general principles, the use of disinfectants in the stools and urine of typhoid convalescents should be continued for at least two weeks after defervescence, and, whenever practicable, bacteriological examinations of the dejecta should be made and the convalescent should not be discharged from the supervision of the health officer until at least two such examinations have given negative results for the typhoid bacillus. Bacillus carriers should be discovered and the spread of infection from them should be safeguarded against. Proper disposal of the sewage should be secured. It would be superfluous to enumerate here the various modes in which infection can be spread if the sewage be not disposed of properly. This is really the most important means of prevention. Dr. Lumsden insists that in communities unprovided with good water-carriage sewerage systems, health officers should strive unceasingly to secure the adoption of safe methods of sewage disposal, and if the pail system or the dry-earth closet system has to be used, a model privy should be kept on exhibition at the health office. Typhoid fever is a disease in which preventive measures count far more than curative. If effective preventive methods be not put into play as soon as possible, the spread of the disease is more or less certain and an epidemic may ensue. Perhaps, Dr. Lumsden has placed on the shoulders of health officers somewhat more than the majority will be able to carry, but his arguments are in the main eminently rational.

The Differentiation of Exudates and Transudates.

Each year the use of the exploratory needle for the diagnosis of collections of fluid in the human body is becoming more general, as by it not only may the presence of the effusion be confirmed, but in most instances its character and the nature of the underlying process may be determined. Pus or blood in one of the serous cavities is easily recognized by a mere glance at the aspirated material, and the finding of either usually gives both the diagnosis and the indication for treatment. When the puncture fluid is clear, however, the problem is more difficult, as the question arises as to whether the process is one of transudation due to stasis, or of exudation from inflammation. In deciding this much may be determined by a careful analysis of the fluid in a laboratory. The estimation of the albumin content, the specific gravity, the differential count of the contained cells, the freezing point, and the viscosity all give valuable information in the hands of a skillful laboratory worker. The practising physician, however, having neither the time nor the technical skill to carry them out is practically debarred from using these procedures. There is one method of examining such fluids which is simple and rapid, requires no especial training, and is considered of sufficient accuracy for clinical purposes, namely the occurrence or ab-

sence of a precipitate when the fluid is treated with dilute acetic acid. This phenomenon, though not new, is not sufficiently well known among the profession at large and an article by Pieper in the *Münchener medizinische Wöchenschrift* for January 4, 1910, upon the subject is thoroughly acceptable. According to the author the chemistry of the reaction is still undecided, and it need not be considered here. The practical test may be carried out by either one of two methods. Moritz recommended adding one or two drops of a five per cent. solution of acetic acid to two cubic centimeters of the fluid to be tested, whereas Rivalta allowed one or two drops of the puncture fluid to fall into a cylinder containing two drops of glacial acetic acid in one hundred cubic centimeters of water. By the first method an exudative fluid at once forms a more or less thick cloudiness or even a heavy white precipitate. By Rivalta's method, as the drop sinks it is followed by a streak in the fluid closely resembling a wisp of cigarette smoke. If the fluid being examined is a transudate these phenomena do not occur, or at most there is formed but a slight pearly opalescence. The test tubes should be observed in front of a black background. The author has examined 130 specimens from various sources and finds that the Moritz test is absolutely reliable in fluids from all serous cavities; where in a few cases of definite ascitic transudates the reaction was positive, the autopsy later demonstrated the existence of secondary infections. Rivalta's method has the advantage that but one or two drops of the suspected fluid is required. It is, however, though equally accurate in all other forms of effusion, somewhat indefinite when applied to cerebrospinal fluid. A thorough understanding of the two methods and their intelligent use may well be of value to the clinician in determining the often puzzling question of the differentiation of exudates and transudates.

Medical Inspection of Juvenile Criminals.

Perhaps the greatest advance in recent years in the criminology of the young has been made by the establishment, in many of the large cities, of the children's courts, by means of which the youthful offenders not only are kept apart from the older and more confirmed criminals, but also are brought in intimate contact with justices and with charitably inclined persons who have made especial studies of child psychology, whose influence, properly exercised, has done much to rescue many children and youths who have taken their first step in the paths of crime. That those who are interested in this movement are not content with what they have already done, but are anxious to continue and broaden their work and to place their movement on an even better and more scientific basis, is shown by the report recently submitted to the Mayor of New York City by the secretary of Division I of the Children's Court, over which Mr. Justice Deuel presides. In this report it is suggested that a hospital be founded in connection with the court to which all children who come to the court may be referred; there they will be thoroughly studied by competent physicians in order to determine to what extent the moral laxity may be due to physical defects, and wherever possible to correct such bodily ailments as may be discovered. The report says in part: "It has long been known scientifically that many adult criminals are victims of conditions, acquired or hereditary, which result in a mental disturbance predisposing them to the development of criminal tendencies. With such cases the time for relief, if curative or meliorating remedies are possible, is in youth, and at the first indication of criminal tendencies, and the best opportunity, therefore, is through the Children's Court, whereto such unfortunates will naturally drift. It can thus be early determined with suitable medical expert assistance whether the difficulty is curable or incurable. Cures will be less expensive to the public than confinement in charitable institutions and later on in reformatories, prisons, and workhouses. The ascertainment of incurability will be of value when youth ripens into full maturity. There are also cases of feeble minds that come through similar causes and are susceptible of help sufficiently to stop the criminal inclination. The court has been experimenting somewhat in this direction and has the subject under most careful consideration. It lacks proper facilities for determining the value of such work. There is no institution to which such children ordinarily may be committed that possesses such facilities in any proper degree." The establishment of such an institution would certainly seem to be a step in the right direction, and it is earnestly to be hoped that the proposition will be crowned with the success which the enthusiasm of its promulgators so richly deserves.

News of the Week.

A Child Welfare Exhibition is to be held at the Seventy-first Regiment Armory in New York City during the month of November, 1910. The projectors of the exhibition purpose to make it even more vivid and pictorial than the Tenement House Exhibit or the recent Tuberculosis Exhibit. To show the facts of child life as they exist in this city, model houses and flats, moving pictures, panoramas, and photographs will be employed. Where statistics are used they will be presented objectively as largely as possible. The entire center of the armory floor space will be kept clear, so that exhibitions can be given of dances, pageants, gymnastic drills, and model play exercises.

The Metropolitan Sewerage Commission, first constituted in 1906 and in 1908 continued until May 1, 1910, is ready with its preliminary report upon the best method of disposing of sewage in New York Harbor. The most important conclusions reached by the Commission are that it is not possible to protect the waters of New York Bay and vicinity by intercity agreement. There are about eighty municipalities concerned, and the subject would be beyond their capacity to regulate properly. It is desirable to establish a sewerage district in order properly to dispose of the wastes, and the Commission believes that this would be the best way in which the sanitary condition of the harbor could be conserved. The most desirable limits for the sewerage district would include a territory of about seven hundred square miles, about half of which would be in New York and half in New Jersey. The best system of administrative control would be an interstate commission, but a separate and distinct sewerage district and a permanent commission in each State would be an effective instrument toward the accomplishment of the end desired, and it would probably be more feasible at this time to create two separate commissions than

a single metropolitan commission having jurisdiction over both States. If two commissions could be so formed as to act in harmony the effect would be nearly that of one interstate commission.

The von Recklinghausen Testimonial.—National committees have been formed to receive contributions from the friends and former students of Prof. F. von Recklinghausen, who three years ago retired from the professorship of pathological anatomy which he had held with distinguished success for thirty-five years in Strassburg, where he is still working with undiminished energy and industry in completing investigations begun over ten years ago. In conformity with his known preference the funds contributed are to be used for a "von Recklinghausen Foundation" for educational and scientific purposes, but the determination of the precise terms and uses of the foundation is to be left to Prof. von Recklinghausen. The opportunity is given to his American friends, admirers, and students, who desire thus to honor this great teacher and master of pathological anatomy, to send their names and contributions either to one of the undersigned members of the American Committee, or to the "Aktiengesellschaft für Boden und Kommunalkredit" in Strassburg, i. Els., Germany. The receipt of contributions, which will close on May 1, will be duly acknowledged. J. George Adami, Montreal; Willard Bartlett, St. Louis; F. Forchheimer, Cincinnati; G. Fütterer, Chicago; A. Jacobi, New York; W. Ophüls, San Francisco; B. Sachs, New York; James Tyson, Philadelphia; W. H. Welch, Baltimore; Francis H. Williams, Boston.

Vaccination Statistics in Great Britain.—That Great Britain is yearly laying itself more open to the dangers of a great smallpox epidemic is evidenced by the rapid growth of the objection to vaccination in Great Britain as shown by the latest statistics. In the year 1906, 935,338 births were registered and the certificates of declarations of conscientious objections to vaccination numbered 52,391, or 5.6 per cent. In 1907 the certificates of objection amounted to 6.2 per cent. of the births and in 1908 to 17.2 per cent. In the first six months of last year, 1909, they reached 18 per cent. The percentage of unvaccinated children yearly is even greater than these figures show, as the statistics quoted refer only to those who have not been vaccinated because of conscientious objections on the part of their parents.

The Third International Laryngo-Rhinological Congress will be held in Berlin during August or September, 1911. Inquiries regarding the Congress to be addressed to the Secretary of the Executive Committee, Prof. Rosenberg, 26 Schiffbauerdamm, Berlin N.W. 6, or to Dr. Finder, 17 Nettelbeckstr, Berlin W. 62, Secretary to the International Committee.

The Third International Congress of Physiotherapy will be held in Paris, March 29 to April 2, 1910, under the presidency of Prof. L. Laudouzy. A detailed program of the work of the Congress and other information may be obtained from the Secretary-General M. le Dr. Vaquez, 27 rue du Général-Foy, Paris.

Reception Hospital for the Insane in Providence.—The Board of State Charities and Corrections of Rhode Island has voted to erect a new reception hospital at the State Hospital for the Insane. The purpose of this addition is to give patients who may be curable the opportunity to be treated without being brought into daily touch with patients who are hopelessly insane.

"The American Journal of Physiological Therapeutics" is to be published shortly in Chicago. The journal is to appear bi-monthly and will be devoted to such subjects as hydrotherapy, electrotherapy, massage, and hyperemia.

Dr. Charles F. Peckham of Providence has been elected Surgeon-General of the Rhode Island National Guard, succeeding Dr. George H. Kenyon, resigned.

Dr. Frederic Bierhoff of New York has removed to "The Pasadena," 10 West Sixty-first street.

Charitable Bequest.—By the will of the late Annie Leidy of Philadelphia the sum of $1,000 is bequeathed to the Charity Hospital of Norristown. By the will of the late Lewis Conrad of Philadelphia the sum of $100 is bequeathed to the Children's Homeopathic Hospital and $50 to the Friends' Asylum for the Insane at Frankford.

The Council of Physicians and Surgeons of New Brunswick held its annual meeting at Fredericton, N. B., on February 22, 1910. The election of officers resulted as follows: *President,* Dr. J. H. Gray of Fairville; *Treasurer,* Dr. Thomas Walker of St. John; *Registrar,* Dr. Stewart Skinner of St. John.

The Tri-County Medical Society was organized at a meeting held at Ellsworth, Kan., on February 18, 1910. The society will be composed of physicians from the Counties of Ellis, Russell, and Ellsworth. The following officers were elected: *President,* Dr. H. Z. Hissem of Ellsworth; *Vice-President,* Dr. J. W. Catudal of Hays City; *Secretary,* Dr. A. E. O'Donnell of Wilson; *Treasurer* Dr. C. D. Blake of Ellis.

The Medical Association of Sagadohoc County (Me.) held its annual meeting at Bath on February 23, 1910, and elected the following officers: *President,* Dr. B. F. Barker; *Vice-President,* Dr. I. C. Irish; *Secretary,* Dr. R. C. Hannigan; *Treasurer,* Dr. L. T. Snipe.

The Waterville (Me.) Clinical Society held its annual meeting recently and elected the following officers: *President,* Dr. A. A. Downs of Fairfield; *Vice-President,* Dr. H. E. Milliken; *Secretary and Treasurer,* Dr. Edson E. Goodrich.

Obituary Notes.—Dr. Ezekiel W. Cooper of Camden, Del., died at his home on February 22, 1910, aged 75 years. Dr. Cooper was a graduate of the University of Pennsylvania in 1861 and was a member of the Kent County Medical Society and the Delaware State Medical Society. He was for several years President of the Delaware State Board of Health and a member of the medical examining board of the State Medical Society.

Dr. W. T. McKnight of Marlin, Tex., died in Austin February 13, 1910, aged fifty years. He was a graduate of the Vanderbilt University in 1888.

Dr. John W. Warren of Warren, Ark., died at his home on February 12, 1910, aged ninety years. He was a veteran of the Confederate Army.

Dr. Henry J. Waite of Minneapolis, Minn., died February 11, 1910, aged eighty years. He was a graduate of the College of Physicians and Surgeons of Keokuk in 1880.

Dr. William Henry Walling of Atlantic City, N. J., died on February 18 at the age of sixty-four years. He was a graduate from the Medico-Chirurgical College in the Class of 1889.

Dr. Ezekiel W. Cooper of Camden, Del., died on February 21 at the age of 73 years. He was graduated from the medical department of the University of Pennsylvania in the Class of 1866. He was President of the Delaware State Board of Health for several years, also member of the Medical Examining Board representing the State Medical Society. He was a member of the Convention that framed the State Constitution of 1896-97.

Dr. Alonzo M. Barnes of Philadelphia died on February 25 at the age of seventy-three years. He was graduated from Penn Medical University in the Class of 1858. He served through the Civil War as surgeon in the United States Army.

Dr. Marion L. Heffelfinger of Chicota, Tex., died at his home on February 17, 1910, as the result of an injury received six months ago. He was a graduate of the Kentucky School of Medicine in Louisville in 1887.

Dr. William A. Miller of Sheridan, Wyo., died recently, aged 36 years. He was a graduate of Washington University in 1900.

Dr. J. W. Redwine of Winchester, Ill., died at his home recently, aged 51 years. He was a graduate of the Missouri Medical College in 1882.

Dr. Hendricks L. Cartwright of Burkesville, Ky., died February 25, 1910, aged 55 years. He was a graduate of the University of Louisville in 1878 and was a member of the Cumberland County Medical Society and the Kentucky State Medical Association.

Dr. George M. Reddish of Somerset, Ky., died in Oklahoma City, February 19, 1910, aged 56 years. He was a graduate of the University of Louisville in 1885, and was a member of the Pulaski County Medical Society, the Kentucky State Medical Association and the American Medical Association.

Dr. Henry T. Willis of Shelbina, Mo., died at his home on February 25, 1910, aged 56 years. He was a graduate of the University Medical College of Kansas City in 1898 and was secretary of the Shelby County Medical Society.

Dr. Charles B. Hawley of Gouverneur, N. Y., died on February 28, 1910, aged 63 years. He was a graduate of the Cincinnati College of Medicine and Surgery in 1871, and a member of the St. Lawrence County Medical Society and the Medical Society of the State of New York. Dr. Hawley was for many years Coroner of St. Lawrence County.

Dr. Lewis O. Flexer died at Delano, Schuylkill Co., Pa., on February 28, of erysipelas, at the age of 57 years. He was graduated from the Department of Medicine and Surgery of the University of Michigan in the Class of 1879.

Dr. Robert Henry Golder of Rossville, Borough of Richmond, New York City, died at his home March 6, 1910, aged 89 years. He was a graduate of the medical department of New York University in 1851, and was a member of the Richmond County Medical Society and the Medical Society of the County of New York.

Dr. A. C. Godfrey of Brighton, Colo., died at his parents' home in Galena, Ills., on February 25, of tuberculosis. He was in practice for a number of years in Lander, Wyo., and three years ago went to Brighton in search of health. A year ago ill health forced him to abandon practice and he returned to Galena. Dr. Godfrey was 41 years old and was a graduate of Rush Medical College, Chicago, in the class of 1891.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

COLORED RACES — POLONIUM — RADIUM AND CANCER — AFTER-CARE OF INSANE PATIENTS — INSTITUTE OF HYGIENE — PSYCHOTHERAPEUTICS AND HYPNOTISM—U. C. S. CHEMICAL DEPARTMENT—OBITUARY.

London, February 18, 1910.

At the Royal College of Surgeons on Monday Dr. Arthur Keith, Conservator of the Museum, opened a course of Hunterian lectures on the "Anatomy and Relationship of the Negro and Negroid Races." The day was the 182d anniversary of Hunter's birth, and the lecturer marked it by showing a lantern picture of his portrait by Reynolds, which hangs in the council chamber of the college, and also made some remarks on the Hunterian collection in the museum. Passing to his subject, he thought the first important work concerned with it was Prichard's "Researches into the Physical History of Mankind," published in 1813. Dr. Prichard, a physician in Bristol, he pronounced to be the greatest anthropologist of his time who anticipated many of Darwin's conclusions. He was clearly influenced by Hunter's experiments and teaching as to the higher races being variants of the darker, probably a result of civilization. A further advance was marked by Sir William Lawrence's Hunterian lectures (1818), which raised a storm of indignation when they were issued in book form. But public opinion changed, and in 1865 Huxley declared Lawrence one of the ablest men he had known and his book as one that "might be read in a Sunday-school without surprising any one." Lawrence concluded that there was only one species of man, the negro being a variety, distinctly inferior; but this should mark him out for protection rather than oppression. The only other addition to the subject for a long period was made by Dr. Pruner Bey, a physician in Egypt. When Africa began to be opened up anthropologists set to work, and it had been found that, as regards head and body form, the African races exhibit almost as many varieties as Europeans. Fuller knowledge of the Pacific Islands, the Malay Archipelago, and of the Far East had shown that the distribution of a race closely allied to the African was made wider than had been supposed and later discoveries have seemed to extend it much further. The lecturer went on to say that we must revise our methods by substituting for empirical measurements others founded on a scientific basis. He then gave a demonstration with a craniometer designed for the museum work. He proceeded to analyze the nature of the various physical characters of the African races, employing skulls brought from Congoland. They were those of the Batetela tribe, which had been devastated by sleeping sickness. He showed that in the characters of the forehead this and the surrounding tribes were less Simian in type than Europeans. They showed, as Pruner Bey had expressed it, "the characters of a new-born babe above the mouth," but he feared that from what was known of the Batetela that their foreheads belied their practices.

In his next lecture Professor Keith said that up to the present time scientific investigation had failed to find any sharp line of demarcation between the white and colored races. So far as color was concerned, it could be shown that the black of the negro did not show itself in the embryo until about the seventh month, and became more intense with age. There was reason to consider his curly hair was a comparatively late feature, and though it could hardly be called a higher evolution, it might fairly be described as a distinct specialization.

The announcement at the Paris Academy of Sciences that polonium had been isolated from radium has given to the subject of radioactivity and its possible influence on disease a still more intense interest, and may be said to have startled the scientific world as much as the public. The latter is naturally taken up with the estimate that polonium may be considered 5,000 times more rare than radium, that it decomposes organic and in organic bodies with amazing rapidity, that it loses weight and disappears in a short time, half of it having gone in 140 days, while radium takes 1,000 years for its complete transformation.

Sir William Ramsay was entertained at the Authors' Club, and, replying to the toast in his honor, given by

Mr. Rider Haggard, naturally spoke of the subject, and mentioned Mme. Curie's new triumph. He said radioactivity was a new word; in fact, the French Academy had not yet decided on its gender, though it had decided that automobile was masculine. Professor Rutherford and another scientist supposed radium changed entirely into different products, emitting during its decomposition alpha particles. The change seemed to be into a gas or mysterious exhalation, called by Rutherford the "emanation." Here then was radium doing continually what the alchemists tried to do, changing the elements. "How long would radium last if it were always changing?" asked Sir William, and answered "Practically forever." "It looks a paradox, but is not," he added. "We can tell how long it will take radium to half-change into the emanations; we have just measured the time in our laboratory; it is 1,750 years. It could be squeezed into a tube finer than that of any thermometer. It was the most concentrated form of energy known, and its emanations went on changing into other things, to each of which, as it became known, a name was given. There was Radium A, which lived for a quarter of an hour and then changed to Radium B, which in its turn lived three-quarters of an hour. Radium C lived for half an hour. In two or three hours all these three substances had been produced and disappeared. Then came a fairly long-lived substance—Radium D—which was half gone in forty years, giving one time to look at it, and it was a leadlike substance with a metallic lustre. Then there was Radium E_1 and E_2 and Radium F, which was probably identical with the polonium discovered by Mme. Curie in pitchblende. Scientists had now the greatest concentrated energy known," said Sir William, and he doubted if they would ever get greater; but scientists were always in doubt, and he doubted his own assertions. The alpha rays shot out at a rate of between 15,000 and 40,000 miles a second and carried energy, but they had to be caught.

"Up to the present," he went on, "it has been said radium cures cancer. I do not think it by any means certain; I think it exceedingly doubtful; but it has not been rightly tried, and all we can say is that there have been things done which are favorable to that suggestion. But, although we may postpone decision with regard to cancer, there can be no postponement as to rodent ulcer. It is a certain cure for that. There has not been a single case of failure, except when the disease had spread to an awful extent before treatment was begun."

The annual meeting of the After-Care Association for Asylum Patients was held at the College of Physicians, and Sir D. Powell took the chair. The report was encouraging. Last year 8,000 were discharged from asylums, many of them cured. But it is easily to be understood that the return to their previous life must be very trying for them. In these cases the society was a help for the sufferers and a safeguard for the community.

Dr. Savage pointed out that many who had recovered from acute mental disorder might seem reasonable, but were not responsible, and premature return to their duties might lead to recurrence, and he mentioned cases whose health had been confirmed by convalescent homes. Sir W. Collins corroborated, and Sir D. Powell said insane persons were often wonderfully sane on all subjects outside their particular delusions, and could do much work while these were in abeyance.

The annual meeting of the Institute of Hygiene was held on Monday, when an important announcement was made, to the effect that the executive had resolved to appeal for £10,000 to carry on and develop the work. The president, Sir William Bennett, in moving the report, indicated some of the efforts made in the past and the great field of work which yet remained almost untouched. He referred especially to the necessity of educating parents in the ordinary principles of hygiene, and declared thousands of children were doomed to early graves or lives of inefficiency and decay by the ignorance or indifference of their parents. Dr. J. C. Thresh, in seconding the report, dwelt on food and alimentation, and said where the work of medical officers of health ended this society's began with fight for personal hygiene as against ignorance and apathy. Sir George Kekewich followed, referring more especially to cleanliness, baths and the hygiene of schools. Professor Haliburton spoke of admixtures and adulterants of foodstuffs, and particularly of the craze for whiteness in bread, which was now often attained by subjecting flour for a few seconds to the fumes of hydrogen peroxide instead of the old plan of keeping for six or eight weeks. By these fumes inferior bread could be made to appear the best. Surgeon-General Sir Charles Cuffe, Dr. Mayo Robson, and others spoke in commendation of the work of the institute and in support of the appeal.

At the Psycho-Therapeutic Society Dr. Forbes Winslow has been talking (some say twaddling) about the "Suggestive Power of Hypnotism." He said that fashion was only suggestion; in politics many voters were hypnotized by the speaker to do as suggested; in sport if the captain of a team showed apprehension the match was lost before it began. Vice, alcoholism, drug habits were cured by suggestion, as were two-thirds of nervous affections. In fact, the whole world was made up of one huge suggestion, and it often required a strong mind to resist the influence. This assertion reminded one of the Berkleyan contention and the Byronic reply that "when Bishop Berkley said there was no matter, it was no matter what the Bishop said."

University College is appealing to the public for further enlargement of the chemical department. The authorities have secured an option of a suitable site, and propose to erect new buildings to meet the necessities and to utilize the space vacated thereby to go some way toward supplying the deficiency of space for other subjects. As much as £70,000 is asked for. The present laboratories practically date from 1871, although elder alumni will remember still more restricted accommodation and the great expectations entertained as to the lasting sufficiency of the enlargement of that date. But they could not anticipate the rate at which chemistry would advance and the college would become too small. In fact, there was an enlargement in 1902, and the number of students have so increased since that time that some have had to be refused. The average number for the last four sessions has been 261, of whom 160 were juniors, 68 advanced, and 33 research students.

Sir Charles H. Marriott, Consulting Surgeon to the Infirmary of Leicester, where he for many years held a most distinguished position, died on Monday, aged seventy-seven. He took F.R.C.S., 1859, M.B. Lond. the same year, and proceeded to M.D. in 1863.

Dr. T. Kilner Clarke, J.P., also a highly distinguished provincial consultant, died on the 14th, aged sixty-six, at his home, Huddersfield. He took M.A. and M.B. Cantab., 1871, and afterward F.R.C.S., 1872, and M.D.T.C.D., 1873. He was consulting surgeon to the infirmary, and held other important posts. He contributed to the societies and journals on various surgical and gynecological subjects.

The death has also occurred of Surgeon-General Alfred Eteson, C.B., M.D.I.M.S., retired, aged seventy-eight. He served in the Indian Mutiny, 1857-1858, and was mentioned six times in dispatches. He was also in the Afghan War, 1879. He was awarded a medal for each campaign and made a C.B in 1907.

Major A. L. Borradaile, R.A.M.C., retired, died on the 5th inst., aged forty-five. He graduated at Edinburgh, 1886, entered the army the next year, and became major in 1899.

From British East Africa comes the news that Dr. Arthur Frost Forster, F.R.C.P., died suddenly at Katonga on the 3d inst.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

CHARITABLE BEQUESTS—MEDICAL STATISTICS—BALNEOLOGICAL CONGRESS—RADIUM CABINETS.

BERLIN, February 1, 1910.

LAVISH spending for scientific purposes is not uncommon in the United States, but with us it is a great rarity. As far as I know, there has been in Germany no such great sums donated for medical purposes as those which have been given by the Speyer family in Frankfurt. I will therefore give a few of the foundations which Mrs. Franziske Speyer has arranged for in her will. The Georg Speyer House for Experimental Therapeutics received 1,000,000 marks; the city of Frankfurt received 500,000 marks for the care of incurables; for the fight against lupus was given 50,000 marks; for the study of cancer, 30,000 marks; for the building of a hospital, 700,000 marks, and for the Medical Protective Association in Frankfurt, 75,000 marks. The total sum reached 2,500,000 marks.

Dr. Prinzing in Ulm was prompt at the beginning of the new year in producing his statistics concerning the

physicians of Germany. The total number of physicians is 31,969, an increase of 329 over last year. For every 10,000 inhabitants there are almost exactly five physicians. Since the year 1906 this number has decreased as follows: 5.06, 5.06, 5.02, 5.00. In the immediate future, however, we may expect a definite increase in the number of physicians, for since 1905 the number of students has steadily increased. The numbers are here given for the summer term in each year: 6,032, 6,570, 7,574, 8,250 and 9,239 during the last summer term. In the eastern part of the Empire there appears to have been a slight decrease in the number of physicians. The number of specialists also seems to have reached a standstill. In the large cities in 1906, of every 100 physicians 34.6 were specialists; in 1909, 34.3.

The first month of the new year is barely ended, and already the congresses have begun. The first congress of the year was that of the German Balneological Society, which met in Berlin on January 28. In general it may be said that this meeting increases in importance each year. The reason for this is that the bath physicians are obliged to take part in scientific investigations if they wish to have their names known. This has had a great influence in improving the curative factor at the baths. With the increasing knowledge the great clinicians have begun to busy themselves more earnestly with balneological subjects. This year His, the chief of the medical clinic of the University of Berlin, has presented the theme which has been worked out in his laboratory, namely, the therapeutic use of radium. It is already known that radium occurs in various sources in considerable amounts. The main difficulty in the way of experiments with it is the great instability of the active radium emanations. Löwenthal of Braunschweig has endeavored to eliminate this fault. He constructed air-tight chambers in which the patients remained for long periods. In order to prevent respiratory distress the carbon dioxide was absorbed by lime and the oxygen supplied from iron bombs. The overheating and moisture of such chamber was easily combatted by cooling and drying mechanisms. The great advantage of such a chamber lay in the fact that the radium emanations developed therein were always of constant strength, and what was of more importance were absorbed by the human body in the same quantity. By observations lasting for hours it was demonstrated that under the influence of the radium emanations metabolism is increased and that the increase lasts for some time in decreasing amount. Further researches were carried out in gouty individuals. It was here demonstrated that in most cases—but not in all—the increased uric acid content of the blood found at the beginning of the treatment was completely reduced so that the blood became free from uric acid. At the same time some of the patients lost their pain while in the chamber. In order to enable all patients in all localities to use this chamber treatment Löwenthal has constructed an apparatus by which the amount of oxygen needed for one person may be transported in a bag.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

DISCUSSION ON TYPHOID FEVER BEFORE THE ACADEMY OF MEDICINE.

PARIS, February 10, 1910.

VINCENT recently made a remarkable report to the Academy of Medicine, on behalf of the permanent commission against epidemics, with reference to the different epidemics which have afflicted France during 1907, and especially on typhoid fever. Though causing a remarkable death rate typhoid is a malady that can be surely prevented. In France it kills from ten to twenty thousand persons annually; in Paris, thanks to the most minute care taken to protect the sources of the water supply, there has been a marked decrease of the mortality from typhoid fever. While thirty years ago there were recorded each year in Paris at least 2,000 deaths from typhoid fever, and in 1882, during an epidemic, the figures rose to 3,214, in 1900 it fell to 1,000. Since 1900, the time when the service for surveillance of the sources of water supply was created, the number of deaths from typhoid has slowly diminished, until in 1908 there were but 226 deaths in Paris. But it is not the same in other cities, and we may say that nothing or almost nothing has been done to protect the country against typhoid fever.

The etiological factors in the transmission of typhoid fever are the same everywhere. Typhoid fever, an exclusively human disease, has for its specific agent the bacillus of Eberth, which lives in the fecal materials or the urine of patients having typhoid fever. But we know that among those who have typhoid the pathogenic microbe multiplies in the blood, and accumulates in the gall-bladder, and may be eliminated at intermittent periods. The patient eliminates the bacillus, not only during several days, several weeks, several months, but several years, after his recovery. There are, then, patients who are chronic typhoid carriers and perpetuate the malady. It is these persons who give birth to unexplained cases, which appear apparently spontaneously in villages, or collectively in families. Soper of Boston relates the case of of a cook who was the cause of 38 cases of typhoid fever in the different families in which she was successively placed. Park of New York has published the case of a cook who, having served eight families, caused 28 cases of contagion. It is by unwashed hands that during the preparation of food these carriers of bacilli may transmit the disease. It is none the less true that of all the causes of typhoid fever the most frequent is the use of contaminated water. The contamination of water results from the projection of typhoid feces into the streams from the toilets along their course, or by easy infiltration of the dejections through the neighboring ground to the streams. Aside from water other intermediaries may propagate the bacillus of Eberth. The preparation of cider necessitates the addition of water to the sweet fruit juice, and this water is generally drawn from the streams. Although the typhoid bacillus disappears in a few days on account of the completion of the fermentation of the cider, it is true that many persons drink cider sweet before fermentation has taken place, and thus receive the typhoid germs. Milk, when it is adulterated with water which contains the bacilli of Eberth, or has been collected in infected vessels, or vessels which have been washed with infected water, may be the source of contamination with typhoid fever. Oysters when they have been placed or preserved in contaminated sea water, especially near the mouths of sewers, become the source of infection with typhoid fever. Among the numerous causes which contribute to the distribution of typhoid fever in the country is the deplorable custom of fertilizing with human dejections the fields, which exists in certain parts of the country. The vegetables are treated every day with the precious fertilizer, which is carefully poured over them with a spoon. Thus vegetables, salads, cresses, tomatoes, radishes, cucumbers and strawberries, consumed in a raw state may become the origin of cases of typhoid fever. As general prophylactic measures against typhoid fever Professor Vincent advocates the hygienic education of the populace and the perfecting of the epidemiological studies of the medical profession. Best to fight against typhoid it will be necessary to create laboratories of epidemiology and bacteriology. He demands also the isolation very early of all the sick as completely as possible. This isolation should be preceded by the declaration of the infection. Further, disinfection is indispensable; it should be carried out with everything that has been contaminated by human fecal materials, by urine, or the expectoration of the typhoid patient. As to measures to be taken with reference to the carriers of typhoid, it would be useful to give them instruction as to the prophylactic measures that should be employed to prevent contagion. Finally, since all foods can be contaminated either by the hands or by flies the methods of protection of foods should be indicated. Since vegetables that are eaten raw may be the carriers of bacilli, in time of epidemic it is necessary to abstain from them or to eat them cooked. Delorme insisted above all on the importance of drinking water as a vehicle of typhoid fever when polluted. The influence of bacillus carriers, whether latent or healthy, is according to him exceptional. Vaillard does not agree with this. He believes that we should take cognizance of bacillus carriers in taking the necessary measures, giving them neither too much nor too little attention. Chantmesse believes that the genesis of typhoid fever is mostly dependent on polluted water, but we must take great care with reference to carriers of bacilli. As prophylactic measures he asks for the assurance of the purity of potable waters, the removal from danger of foods that may be contaminated with impure water, and the increase of human resistance by care of the health. Finally, Chantmesse advises vaccination against typhoid fever.

Widal recalls that it is the reaction of agglutination discovered by himself that permits us to make the diagnosis of typhoid fever. The serodiagnosis of Widal shows that there is but one bacillus of typhoid fever, the bacillus of Eberth, which is absolutely specific for typhoid fever.

Kelsch thinks that exclusively antibacillary prophylaxis of typhoid fever is rationally insufficient. The microbes that are within us are often reduced to silence and deprived of their special functions. The determination of the factors which create or exalt their virulence is not less important than the search to discover them. Fatigue and overwork play an important part in the causation of typhoid fever. Netter thinks that at the present time we do not possess a vaccine which is free from local and general accidents resulting from the inoculation. He believes that we should practice vaccination in all localities in which typhoid fever does not exist; only persons in good health should be submitted to the test, and we should avoid over-exertion during the first few days after the inoculation, and should not send the subjects into infected localities until ten to fifteen days after the inoculation. Experience has demonstrated that those who have undergone typhoid vaccination acquire an immunity that is very appreciable and among them typhoid fever is sensibly attenuated.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

SPECIFIC TREATMENT OF CARCINOMA—HOSPITAL CONSTRUCTION—THE NEW SANITARY SEWER—MEETING OF THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE—PERSONAL.

MANILA, P. I., January 17, 1910.

THE regular monthly meeting of the Manila Medical Society was held at the Philippine Medical School, January 3, 1910, at 8:30 P.M. A paper entitled "Specific Treatment of Carcinoma," by Drs. Coca and Gilman, was read by Dr. Philip Gilman, Professor of Surgery at the Philippine Medical School. This paper was of most unusual interest in that no less than six persons diagnosed as carcinoma were presented who had been treated by the injection method, and who were apparently cured. The diagnosis of carcinoma was reported to have been confirmed microscopically in each instance. The authors stated that this report was only intended to be a preliminary announcement and the exact details of the method used would be reserved for a later time. It may be stated, however, that the treatment is based on the vaccine principle. An incision is made into the carcinomatous mass, a few cancerous nodules are removed, and these are thoroughly ground up, after which they are placed into salt solution, and this latter is injected into the patient. Within a few days the cancerous growth becomes less hard and then gradually undergoes resolution and finally absorption. The glandular involvement also slowly recedes, the whole process taking only several weeks. As a rule, only one injection is given.

At this meeting the annual election for officers of the society was held, with the following result: *President,* Dr. Vernon L. Andrews; *Vice-President,* Dr. Philip Gilman; *Secretary-Treasurer,* Dr. Coca; *Member of the Council,* Dr. E. R. Stitt, U.S.N. After considerable discussion, the society voted to increase the Bulletin of the Manila Medical Society from a four-page leaflet to a sixteen-page publication, to be issued monthly, the same as heretofore.

The need of constructing hospitals in the provinces of the Philippines has been recognized by all the different medical men who have had charge, directly or indirectly, of insular health administration ever since American occupation of the Philippines took place. Requests for appropriations for such projects were presented to the Legislature a number of times each year, but without result. At the last Legislature, however, a law was passed by which the Governor-General was given authority to use such balances as a bureau might have saved from its appropriations for the construction of public works. Such a measure has been anticipated by the officials in charge of the Bureau of Health for a number of years and a balance has been available for this purpose. Recommendation was immediately made to the Governor-General for using some of this fund in the construction of hospitals which have been so urgently needed, and it is therefore most satisfactory to state that this need has now been finally recognized, and for this purpose the sum of approximately $40,500 has been set aside for the purchase of a site in the City of Cebu and the construction of a modern hospital at that place. As Cebu is the center of a population of nearly three million, a hospital there will obviously have a wide field of usefulness. The plans are in course of preparation, and it is possible that the end of the present year will see the accomplishment of this most desirable project. It is expected that the provinces benefited will endow beds and thereby assist in maintaining the hospital after it is once constructed. Several provinces have already signified their willingness to appropriate funds for a number of endowment beds.

Since the new sanitary sewer has been ready for service there have been a total of 211 connections made. It is apparent, however, that unless the number of connections made increase very rapidly that the present rate only keeps pace with the natural growth and development of the city, and therefore no great improvement can be expected. One of the principal difficulties at present seems to be that there are not enough persons engaged in this business to handle the work promptly or a sufficient supply of materials available.

Preparations for the first biennial meeting of the Far Eastern Association of Tropical Medicine, which is to hold its first session in Manila March 5, 1910, are now being actively carried on. All governments in the Eastern Hemisphere have been invited to take part, and information has already been received from a number of countries that they will send medical representatives. This will probably be a larger gathering of medical men who are actually engaged in tropical medicine than has ever taken place.

Major Charles E. Woodruff of the United States Army Medical Corps, who only recently arrived in the islands for his regular tour of duty, has, on account of illness, been compelled to return to the United States.

Progress of Medical Science.

Boston Medical and Surgical Journal, February 24, 1910.

Scarlet Fever Prophylaxis with Streptococcus Vaccine.—Richard M. Smith reviews the work that has been done in the endeavor to secure immunity from scarlet fever, most of the accounts having been published in Russian. The vaccine most widely used was a concentrated bouillon culture of the streptococcus isolated from a person ill with scarlet fever, killed by heating to 60° C., with the addition of 0.5 per cent. carbolic acid. The scale of dosage used by Gabritschewsky and most of the other investigators is 0.5 c.c. of the concentrated bouillon culture for children two to ten years old. For those younger one-half this amount and for adults twice the amount is used. Another method is 0.1 ccm. for each year of the child's age, with 0.25 ccm. as the minimum and 1 ccm. as the maximum. It is claimed that after three doses of the vaccine, and usually after two, a complete immunity is established against scarlet fever. The duration of the immunity is thus far entirely a matter of speculation. It is thought by the closest observers that the immunity lasts at least one and one-half years. The reports of the use of this vaccine in Russian villages during epidemics seem to show that one injection of the vaccine greatly reduces the liability to the disease; children that received two injections were very rarely attacked and there were no cases among those who had had three injections, except one child who was vaccinated during the inoculation period of the disease. From the reports of these Russian physicians where the number of cases vaccinated runs into the hundreds it seems evident that the streptococcus vaccines, used as advocated by Gabritschewsky, have some influence in controlling scarlet fever. Their use, with proper care, is attended by no harmful results. They should be given a wider application in this country to prove or disprove the contentions of the Russian physicians.

A Case of Alcoholic Cirrhosis in a Boy of Four Years.—David N. Blakely reported this case because it did not seem to fit into any of the classes of cirrhosis usually given unless it might be the "fatty cirrhotic liver" to which Osler refers as found most frequently in beer drinkers. The conditions present were at least infrequent. The child was four and one-half years old, the first child of healthy parents, and in good health until last June. The onset of his illness was indefinite but he grew slowly but steadily worse. In October when Dr. Blakely saw him he presented no abnormality excepting that his liver was symmetrically enlarged, nearly down to the level of the umbilicus in the mid-clavicular line. The spleen was not palpable. The surface of the liver was even and smooth, and there were never any irregularities felt. There was no jaundice and no history of any; none developed later. The liver continued to enlarge until the time of his death on November 25, 1909, when it extended about an inch below the umbilicus in the mid-clavicular line. There was

an increasing loss of appetite but no disturbance of digestion. The urine showed concentration, excess of urates, and the slightest possible trace of albumen. During the last two weeks of the child's life there was slight edema of both upper and lower extremities. There was no palpable ascites and the spleen was at no time palpable. The cause of this enlargement was not apparent until it was learned that the father was accustomed to have beer and whiskey and it seems that from the time this child was able to drink from a glass he was given some with the others. This probably continued over a period of nearly two years but the amount taken at any one time was never large.

New York Medical Journal, February 26, 1910.

The Management of Glycosuria in Elderly Persons.—Victor C. Vaughn is of the opinion that the glycosuria of elderly life is due in many instances to excessive carbohydrate feeding; this excess is usually confined to some special carbohydrates, sugar, and wheat starch; the early glycosuric of this class is often able to care for other carbohydrate foods; the harmful carbohydrates should be detected and eliminated from the food; those that can be assimilated should be determined and permitted; there is a specificity in the metabolism of carbohydrates, as there is in that of proteins; the presence of a small amount of sugar in the urine (from 0.5 to 2 per cent.) should not be regarded as a matter of trivial importance. Dr. Vaughn finds that most writers of the subject fail to refer to the fact that in many persons the capacity of assimilating carbohydrates is largely determined by the time of day when the food is taken. Glycosurics who cannot metabolize carbohydrates when taken for breakfast may dispose of one hundred grams of bread when taken at six o'clock dinner. Why this is true he cannot explain, unless it is due to the more hurried way in which both foods and medicines pass through the body when taken in the morning. Another point emphasized is the importance of open air treatment of this form of glycosuria. In a general way it is stated by most authorities on diabetes that life in the open air is beneficial, but this point has not been sufficiently emphasized. Porch sleeping is quite as beneficial to the glycosuric as to the tuberculous.

Cases of Chronic Joint Troubles.—J. Madison Taylor relates his experiences with a number of cases of arthritis deformans in which he secured more satisfactory results than are usually attained by patient and persistent employment of massage and passive motion. While the measures that served him well were simple they were varied in accordance with the individual peculiarities of mind and body. They were as far as possible such measures as the sufferer would accept and to which he would lend his cooperation. The cases served to show what could be done by insistence and persistence with measures well within the reach of all. Physicians, too, often failed to recognize the incipience of rhumatoid disorders or to realize their gravity. The real peril lies in the vacillation and unwillingness of the patient to submit to systematic guidance. In the numerous cases of subacute stiffenings, joint pains, etc., which can be called "rheumatic gout" he has secured the best results from steady use of thyroid extract, which, as Sajous states, enhances general metabolism and nutrition, in all organs, increases the defensive agents in the blood in proportion, and facilitates the bactericidal and antitoxic process.

Inflammatory and Suppurative Conditions of the Retropharynx of Infants.—Dr. E. Mather Sill states that the anatomical structure of the parts in the retropharynx makes infection comparatively easy in infancy. Retropharyngeal adenitis or abscess although not uncommon is frequently overlooked or incorrectly diagnosticated in infants. It was, as a rule, gradual or insidious in its onset, being usually from one to three weeks in developing. In making digital examination great gentleness should be used to avoid rupturing the abscess and no gag should ever be inserted into the mouth as forced stretching of the jaws might result in rupturing the abscess, which might cause sudden death from aspiration of pus. Spontaneous rupture into the air passages was a common cause of death in this affection. Unless the child was very young or marasmic the prognosis if operation was performed was good. The majority of cases of retropharyngeal adenitis terminating in abscess occur during the first year of life. Of 49 of Dr. Sill's cases 19 were over one year and 30 were one year and younger. Twenty-six patients were six months to one year. The oldest patient seen was three years old. These observations correspond with those of other observers. Where there is a hard non-fluctuating tumor, hot compresses may be applied to hasten the softening. As soon as fluctuation is detected evacuation of the abscess should be performed. One should never wait for spontaneous opening. The child is held in the upright position during operation and as soon as the knife has been plunged in the head should be lowered and the pus allowed to drain from the mouth. Where the child is small the incision is not easy and should not be attempted by unskilled hands.

Report of Certain Lumbar Punctures at Bloomingdale Hospital.—The object of this contribution by George S. Amsden is to present the results of careful investigation in thirty-seven cases in which lumbar puncture has been made. In one case, owing to faulty technique, no conclusion was reached. Of the remaining 36 cases, 29 patients were at some time while in the hospital diagnosticated as paretics, tabetics, or cases of acquired syphilis. The seven remaining cases were paranoia, one; dementia præcox, two; mania, three; senile psychosis, one. The clinical diagnosis and the results of spinal fluid examination agree now in 80 per cent. of the cases. In an estimation, therefore, of the practical working value of the spinal fluid examination, it seemed to him that the results, as well as the published data on the subject, leave them in little doubt. This procedure offers in appropriate cases evidence almost as objective as the pulse or temperature, and was of decided value.

Journal of the American Medical Association, February 26, 1910.

Kidney and Ureteral Stones.—A. D. Bevan says that kidney stone surgery affords an admirable opportunity for team work, by which alone, he claims, can the best results be obtained in this special branch of surgery. In 1897 he first used the *x*-ray for the successful diagnosis of kidney stones. Since that time he has operated on more than 60 patients, using the *x*-ray to confirm the diagnosis, and he offers some of his conclusions gained by this clinical experience. He thinks that it is most probable that kidney stones are due to a low grade mycotic infection and that the germ forms are probably colon and typhoid. Kidney stones may exist latent in the kidneys, giving rise to no symptoms, though not so frequently as gall-stones. They may cause symptoms in two ways: by favoring infection or mechanically by obstructing the ureter. The passage of a stone through the ureter does not necessarily cause any pain; the cause of renal colic is the greatly increased intrarenal tension due to plugging the ureter. The passage of the stone is not due to pressure from behind but to the peristaltic action of the muscular fibers of the ureter. In his series of cases he has had a number of atypical ones, simulating appendicitis or gallstone disease, ileus, and stomach trouble. It is rare that an exact and positive diagnosis is made by any one method, though a clinical diagnosis can be made often from the history of colic and blood and pus in the urine. His main reliance seems to be on the *x*-ray, in the use of which, with good technique, the percentage of error, he thinks, will be less than five. In the kidney region there is seldom any localized deposit or other pathological formation giving a shadow except calculus. As regards treatment, he states that operation and removal of the stone are indicated in all cases showing the presence of one or more large stones, the passage of which is improbable; after the failure of medical treatment or the repeated trials of local treatment (lubricants and local anesthesia); and with anuria present for forty-eight hours or more. There are only two contraindications to operation, namely, advanced age and bad condition from organic disease, and second, very small stones in the ureter that can reasonably be expected to pass. Pyelotomy is the operation of choice with small stones in the pelvis or a fair-sized one limited to the pelvis. Nephrolithotomy is the operation for multiple stones, stones in the upper or lower pelvis, stones in the calyces, or branched stones or stones with gross infection. Nephrectomy is the third operation for badly diseased kidneys, and Bevan's results have improved since he has recognized more than formerly the necessity of a primary nephrectomy in such cases. The operations are described. He cautions against the use of nitrous oxid anesthesia in bad heart cases, in which he considers it less safe than ether. He thinks this fact should be more widely known than it seems to be at present. With an expert anesthetist he usually prefers ether. Judging the prognosis from his own cases, he has had but one death in over fifty cases of pyelotomy and nephrolithotomy. He has had three deaths, however, from secondary nephrectomy, both difficult on account of the need of digging the kidney remnant out of dense scar tissue.

Aerophagia.—D. Vanderhoof concludes as follows: "1. Aerophagia is a well-known clinical phenomenon, seen

in its most characteristic form in cases of hysteria. 2. It occurs, however, in normal individuals, and is a most common sympton in functional stomach disorders. 3. In such cases its significance is very frequently misinterpreted as being due to some form of fermentative dyspepsia. 4. Actual fermentation in the gastrointestinaal tract is a rare occurrence, and never gives rise to the excessive quantities of gas that are expelled by the aerophagic patient. 5. Aerophagia is a neurosis associated with a loss of tone in the muscular walls of the stomach, so that the organ is easily inflated by air swallowed with food or between meals. 6. It is entirely independent of the character of the gastric secretions, and occurs relatively as frequently in patients with anacidity as in those with an excess of hydrochloric acid. 7. It does not depend on what the patient eats, but on the condition of the stomach nerves when he eats. 8. The treatment of the condition, after excluding all organic diseases and correcting all possible reflex causes, consists principally in explaining to the patient that the gas he eructates is not due to fermentation, but that it is atmospheric air that he unconsciously swallows."

Uniform Health Laws.—The distrust of federal supervision in health matters will, in the opinion of Joseph Y. Porter, always be a hindrance to a salutary national administration in such matters. He even questions the laws which have been enacted regarding maritime quarantine as being proof against objection on constitutional grounds, though they have been acquiesced in by the States. The success obtained by Gorgas in Havana in eliminating yellow fever and inaugurating a model system of sanitation in Cuba could never have been obtained under our form of government and was not so easily obtained even under the regulations in Panama. He sees the remedy for this state of affairs only in the adoption of a constitutional amendment permitting congress to supervise and control all matters relating to the public health. It is not believed by him that there will be any objection raised sufficient to prevent the ratification of such an amendment. He would not take away from the States their own powers, which should be left to them so far as possible, but would prevent the conflicts of authority which now arise.

Virulence of Bacillus Mallei.—B. L. Arms reports experiments made on the retention of virulence of *B. mallei* under different conditions of culture and subculture. A statement in regard to the rapidity with which the virulence of subcultures of *B. mallei* is lost, by Marshall (Eleventh Rep. Mich. Acad. Sc., 1909), instigated these experiments, which proved that the organism could live in glycerin broth and retain its virulence for at least two months even when kept at body temperature. It was also proved that a culture of *B. mallei* may be virulent after growing on potato for at least a month and that some strains retain their virulence through a great many subcultures on artificial media. The animals employed in the experiment were guinea-pigs. *Bacillus mallei* is an organism handled frequently by many laboratory workers; consequently any fallacy in regard to loss of virulence in old cultures should be corrected, since if one strain is proved virulent, all should be regarded as such unless proved to be otherwise.

Mesenteric Embolism.—F. A. Carmichael reports a case of embolism of the superior mesenteric artery and discusses the nature and gravity of the condition. It is of interest because of its rarity, the extreme urgency of its symptoms, and imperative need of an early diagnosis, and the difficulty of the surgical treatment. In this case death occurred before the intended operation could be performed. The superior mesenteric artery was occluded at a point between the colica media and colica dextra. The portion of the duodenum supplied by the gastroduodenalis was not involved but the entire small intestine except the duodenum was gangrenous. The embolism was assumed to originate from an endocarditis following rheumatism. As there is nothing in the symptomatology to indicate the extent of the infarction the abdomen must be opened before this can be determined and there is danger that after operation, parts seriously involved, as regards their circulation, may be left and cause further trouble. If the entire small intestine is involved the case is evidently hopeless.

The Lancet, February 19, 1910.

The Results of Remineralization in Conditions of Faulty Metabolism, Such as Neurasthenia, Etc.—Hubert Higgins records observations he has made mainly with the object of answering the following questions: 1. Is it possible to arrive at a numerical formula indicating the "state of matter" of the somatic protoplasm? 2. Is chlorine retained in the tissues so as to preserve the balance of colloids and crystalloids when there is a deficiency of phosphorus? 3. Which observations can be relied upon as a guide to successful treatment and the limit of its duration? In one case a group of characteristic measurements were found that showed no indication of variation and instability until a "remineralization" mixture was added to the ration. He has been successful in causing the elimination of parenchymatous chlorine, and in altering the tissues so that its tendency to retention is either lost or considerably diminished. Case records were presented on which was based his thesis. Glénard first described the conditions under consideration and a drawing of chronic spasm of the colon (after Glénard), showing the contracted transverse and descending colon and the splenic pouch, is reproduced. If his experience of twenty-five years could be summed up in a few words, it would be that if these patients were properly fed, provided with a belt, and purged, they will recover. There is absolute necessity for mechanical support in these cases and it was very important to bear in mind the value of saline purgatives. Glénard states that he has seen nothing but good effects by their use "for indefinite periods." He has no hesitation in attributing these conditions to the effects of cumulative action of the toxins produced by cold, fatigue, and autointoxication. These patients should be made to understand that they are not suffering from "nerves" but from a serious condition of vicious metabolism.

Infantile Types of the Temporal Bone and Their Surgical Importance.—Arthur H. Cheatle applies the term "infantile" to those bones which retain throughout life the characteristics of the outer antral wall and mastoid mass as seen in infancy. There are two types in infancy, one in which mastoid mass is diploetic, and one in which the mastoid mass is dense. The surgical importance is the same in both forms and may be considered under two heads: 1. Influence in cases of suppuration in the antrum. In his opinion the anatomical conditions seen in the infantile types are factors in producing chronic suppuration and the dense outer wall of the antrum is one of the factors and not the result. If one were given the choice of temporal bones, preference would be given to the cellular type as being safer in case of infection of the antrum. 2. Influence in operations for suppuration. Apart from the difficulty of opening the antrum on account of the density of its outer wall, one must always expect to find a forward lateral sinus, and the antrum may be very small or highly placed, or both, and the middle fossa may dip down. In cases in which signs and symptoms of acute suppuration in the antrum are present without pronounced symptoms behind the ear it is wise to open the antrum first and not the mastoid process.

The Lymphatics of the Testicle.—J. Kay Jamieson and J. F. Dobson consider the possibility of removing the lymphatic glands of the testis in malignant disease and define the extent of the "lymphatic area" of the testis. Malignant disease of the testicle is an exceedingly fatal affection; recurrences manifest themselves in the lumbar glands and visceral metastases are frequent. Reference to the description and drawings of the lymphatics will show that the only effective method of removing the lumbar glands would be to strip the aorta and vena cava, the common iliac vessels, the proximal third or so of the external iliac vessels, and the trunk of the inferior mesenteric artery, of all the cellulofatty tissues. They conclude that the arrangement of the lymphatics of the testes is such that the complete removal of the "lymphatic area" is exceedingly difficult and dangerous, if not impracticable.

Perforative Peritonitis Originating in Pouches of the Large Intestine.—Gordon Taylor and C. E. Lakin suggest that this complication must be more frequent than is perhaps usually held since three out of five cases which have come under their observation during the last three years have been cases of perforative peritonitis. They report three cases. Attention has been called to the fact that left-sided abdominal pain of sudden onset may arise in connection with perforation of a sigmoid diverticulum, but perforation of a pouch in the ascending colon, as in one of the cases they report, shows that this exceptional occurrence must be added to the category of pathological phenomena associated with pain commencing on the right side of the abdomen.

British Medical Journal, February 19, 1910.

Effect of Bacterial Vaccines on Nutrition.—Lewis Campbell Bruce says it may be taken as a fact that 90 per

cent. of the sufferers from functional nervous disorders are thin and poorly nourished. In many of the acute insanities, notably maniacal states, the relation of the nitrogen excreted and the urea-nitrogen of the food ingested conforms to that noticed in acute febrile diseases. This suggested that it might be well worth while to try vaccine treatment in such cases. He used a polyvalent vaccine from seven different varieties of streptococci and treated eleven cases of mania with injections of from seven to ten million cocci given at intervals of a fortnight. Eight of these cases had been ill for over a year. Of these two recovered, and two also of the more recent cases. He was impressed with the fact that eight of these cases markedly increased in weight, the increase being after the first injection, and continuing a considerable time after the vaccine had been discontinued; after the stimulating effects of the vaccine had passed off, weight was again lost. He explained this by Ehrlich's theory of cell nutrition. When toxin molecules in the form of vaccines are introduced in suitable quantities the cells are stimulated to produce an excess of side-chains which not only combine with the toxin molecules but also is suitable food atoms presented to them by the blood plasma. Later he has made further observations noting the effects of various vaccines on the body weight of patients under treatment, and feels satisfied that in some cases of obstinate malnutrition vaccine injections improve the general nutrition.

Causes Determining the Production and Distribution of the Eruption in Typhoid Fever.—J. P. H. Greenhalgh shows that the skin area having the same innervation as the small intestine and spleen coincides with the area to which the eruption in typhoid fever is, as a rule, confined. He shows that in this area there is a diminution of tactile sensibility and also a striking loss of vascular tone in the skin. The long latent period, persistence, and slowness in fading of the cerebral streak point to its being a vasodilator reflex. Dr. Cayley has regarded the persistence of the cerebral streak as indicating that the intestinal lesions have not yet healed, which is equivalent to the proposition that the inhibition of the vasoconstrictor and other nerves in the reflex zone in typhoid fever is due to the reflex incidence on them of specific impulses originating in the small intestine, mesenteric glands, and spleen. The influx of a greater volume of blood to the skin in the reflex zone brings a correspondingly greater number of bacilli to the cutaneous capillaries, where the sluggish flow of blood and the impaired resistance of the endothelial cells permit them to loiter in the capillary network. There they are joined by others and this assembly of bacilli sends up inflammation, which becomes visible as the circular, slightly raised rose spots, fading on pressure.

Value of Ball's Operation for Pruritus Ani.—Two cases are reported by Patrick Leighton, both of which were followed by immediate relief after several years of suffering. The object of the operation is to give the nerve terminations in the skin a rest by dividing the trunks, the vicious circle is broken, and the itching does not come back even after the sensation is reestablished. He employed Dr. Ball's method with especial attention paid to the following details: After placing the patient in the exaggerated lithotomy position, the pelvis was raised. This position was of great help in under cutting the posterior pedicle. A plug of gauze was introduced into the rectum to prevent soiling if the patient strained. In cutting the flaps care is taken to include a layer of subcutaneous tissue in order to insure the vitality of the skin and thus avoid sloughing; buttonholing the anal canal leading to fistula is also avoided. The sutures of fishing gut are left long and twisted in a bunch on each side to prevent pricking.

Berliner klinische Wochenschrift, February 7, 1910.

Icterus Syphiliticus Præcox.—Buschke says that there are two forms of liver diseases which occur in the early stages of syphilis, syphilitic jaundice and acute yellow atrophy. The syphilitic jaundice clinically resembles catarrhal jaundice but differs in responding to mercury treatment. It is considered to be caused by a tubercular infiltration of the gall passages or of their compression by swollen lymph glands in the portal region. It is a benign complication of early syphilis. Acute yellow atrophy is usually fatal. The author reports a case of early syphilis which responded well to mercury injection. After the sixth injection he developed a jaundice which appeared to be a rather marked simple syphilitic icterus. On the fourteenth day, however, leucin and tyrosin were found in the urine. The patient recovered. The author believes that the case was one of primary syphilitic parenchymatous hepatitis standing midway between the simple syphilitic jaundice and acute yellow atrophy.

Münchener medizinische Wochenschrift, February 1, 1910.

Further Report on Monkey Poliomyelitis.—Römer confirms the statement that poliomyelitis can be given to no animal except monkeys. His results were as follows in intracerebral injection: With cerebrospinal fluid *nil;* with spinal cord of spontaneous poliomyelitis, three times with positive results, twice without; with spinal cord from experimental monkey poliomyelitis, five times with results, once without. The combined intracerebral and intraperitoneal injection appeared to be the surest method of producing experimental poliomyelitis. The incubation stage in monkeys lasted from six to twelve days. There were no characteristic prodromals. The paralysis came on rapidly. Very acute cases resembled Landry's paralysis in man. The paralysis usually began in one hind leg. The clinical picture of the disease closely resembled that in man. The virus is not yet known. There is some clinical evidence from epidemics that there may be a natural immunity to the disease. Römer has studied the question of artificial immunity in monkeys. His results show that in a monkey that, though injected, has not acquired the disease, a second injection seventeen days later produced a rapidly fatal attack, suggesting a hypersensitiveness to the virus, whereas if the second injection were postponed to the twenty-sixth day an immunity was produced. The results evidently suggest the possibility of there having been a vaccination.

Deutsche medizinische Wochenschrift, February 10, 1910.

The Loss of Water in Obesity Cures.—Reiss and Meyer have carried on a series of metabolism experiments upon persons undergoing various obesity cures, with the especial purpose of studying the water content of the body under the various methods of treatment. They summarize their results as follows: The milk cure causes, besides a destruction of fat and albumen, a loss of water which, especially at the onset of the treatment, causes an appreciable portion of the total loss of weight. Free drinking of water does not decrease the loss of tissue water during the milk cure. On the contrary, in the Rosenfeld mixed diet obesity cure water is in general retained. The cause of this variation in the water excretion under these two methods lies in the salt content of the two diets. If one adds salt to the milk diet and gives the Rosenfeld diet with little salt the water balance is reversed. These opposing relations of salt and water metabolism depend upon abnormal osmotic relations. In addition to this, however, Reiss and Meyer suggest that the water and salt balance may also be influenced by the processes of digestion and intermediary metabolism.

Blood Examination in Basedow's Disease.—Roth has made a number of blood counts on patients suffering from exophthalmic goiter and finds that blood changes are present in most of them. The hemoglobin content is low, the red blood count normal or slightly elevated, and besides a leucopenia there is a lymphocytosis and mononucleosis. Intercurrent febrile diseases change the blood picture in that the leucocyte count increases and the lymphocytosis disappears or decreases. The mononucleosis, is, however, always present. Basing his conclusions on the results of these blood counts, Roth says that, in the diagnosis of the abortive forms of exophthalmic goiter the differential blood count is undoubtedly of very considerable value.

Periostitis of the Epicondyle of the Humerus.—Momburg reports 14 such cases. He says the complaint of such patients is always the same. The pain in the elbow is at first slight and barely noticed. Using the arm causes the pain to increase so that the patient has to give up work. The pain is felt from the epicondyle down to the fingers and sometimes up to the shoulder. It is especially severe during pronation, supination, and flexion and extension of the hand and fingers. The objective signs are slight. There is always marked tenderness over the epicondyle and skin changes are noted over this spot. In some cases a local swelling of the periosteum can be made out. The *x*-ray shows nothing. It usually affects the external epicondyle of the right arm. In nine cases the condition followed a severe strain of the arm; in three, a direct trauma. Six cases were in men, eight in women. Twelve times it occurred in the right arm; twice in the left. In every case it was the external epicondyle. He believes the condition is a periostitis due to direct injury or to muscle strain. The treatment consists in immobilization of the arm and painting of the epicondyle with strong tincture of iodine. Recovery is very slow.

Book Reviews.

URGENT SURGERY. By FELIX LEJARS, Professeur Agrégé à la Faculté de Médecine de Paris, Chirurgien de l'Hôpital Saint-Antoine, Membre de la Société de Chirurgie. Translated from the Sixth French Edition by WILLIAM S. DICKIE, F.R.C.S.; Surgeon North Riding Infirmary, Middlesbrough; Consulting Surgeon Middlesbrough Union Infirmary; Consulting Surgeon Eston Hospital. Vol. I. With 20 full-page plates and 994 illustrations. New York: William Wood & Company, 1910.

THE advance of surgical knowledge during recent years has extended the number of clinical conditions demanding immediate surgical intervention. Formerly urgent surgery meant merely the surgery of injuries, but the size of the book here noted shows that the indications have been increased and multiplied. The present translation has been made from the latest, the sixth, French edition. The first volume includes the surgery of the head, neck, chest, spine, and abdomen, with an introductory chapter on surgical methods and anesthesia. A very literal translation of the French text is given, and the attempt in many places to adhere to a colloquial style is not always productive of a satisfactory result; the translation, therefore, though adequate, leaves something to be desired. The illustrations, however, are excellent, and deserve especial commendation. As French methods are almost exclusively referred to, a very good insight is afforded into their characteristics. One concludes after reading this work that there are but few operative procedures which the writer has failed to include under the general designation of "urgent surgery." In fact, the book constitutes a most complete manual of surgical procedure, and may be safely commended to the attention of the profession. An interesting feature is the number of clinical illustrations, usually from the author's personal experience, which have been included to elucidate some of the salient features in the text. The appearance of the second volume will be awaited with interest.

THOSE NERVES. By GEORGE LINCOLN WALTON, M.D., Consulting Neurologist to the Massachusetts General Hospital; Author of "Why Worry?" "Glories, Pleasures, Pomps, Delights, and Ease Can but Please Outward Senses When the Mind Is Untroubled or by Peace Refined"—John Ford. Philadelphia and London; J. B. Lippincott Company, 1909.

"WHAT is it, then," says Epictetus, "that oppresses and makes us beside ourselves? Why, what else but our own impressions?" This may be taken as a sort of text of this little book, which is a sequel of the author's first publication, entitled, "Why Worry?" The subjects therein introduced are here further elaborated, and many useful suggestions for the nervous and distraught are presented in a convincing and delightful way. The specific mission of the book, the author states, is "in line with the present trend in favor of treating—or, preferably, of preventing—mental disorders by mental methods." The laity seem to have a constant craving for books on medical topics, and we are often at a loss to know what may be recommended. Apparently this book is of the right sort for such a purpose. It would be well for the practitioner to scan its pages, of course, before "prescribing" it for any specific case, the same as he would examine any other book. In doing so he will be personally repaid, however, for he will find it brimful of paragraphs bearing on most common and controllable conditions of mind and body, some of which may be peculiar to himself. Self-control, fears, obsessions, character, and habits are among the subjects discussed.

HEART DISEASE, BLOOD PRESSURE, AND THE NAUHEIM-SCHOTT TREATMENT. By LOUIS FAUGÈRES BISHOP, A.M., M.D., Clinical Professor of Heart and Circulatory Diseases, Fordham University School of Medicine, New York City; Physician to the Lincoln Hospital; Late Chairman of the Section on Medicine, New York Academy of Medicine; Member of the New York Pathological Society; Alumni Association, St. Luke's Hospital, etc. Third Edition. New York: E. B. Treat & Co., 1909.

THE fact that a third edition of this work has been demanded will cause no surprise to those familiar with the earlier editions, for the author's treatment of his subject, so far as he goes, is clear and satisfactory. The chief faults to be found are that the management of the subject is not sufficiently comprehensive, and that the statements made are not always supported by convincing arguments. The theory that there is a brain center presiding over the tone of peripheral blood-vessels, for example, is insisted upon, but sufficient evidence is not furnished to force its acceptance upon those interested in the problems of the blood-circulation. In describing vasomotor control, also, the author makes no mention, so far as we can find, of the importance of the sympathetic nervous system, but appears to regard this control as exercised entirely by certain cerebral centers. The statement that head noises in elderly people are sometimes due to circulatory disturbances is of interest, and is borne out by the experience of those whose practice has to do with the aged, many of whom complain bitterly of the pulse sounds in the ear. The explanation of these sounds, the author says, would seem to be the circulation of blood through badly filled blood-vessels in the neighborhood of the organ of auditory sensation. Dr. Bishop emphasizes the fact that clinical workers should not yield so much to the laboratory as they are now in the habit of doing, and in this one feels that he is quite right. The description of the Nauheim treatment, as practised in Nauheim itself and as it may be administered, sometimes more satisfactorily, in New York and in the patient's own home, is clear and satisfactory.

DIAGNOSTIQUE ET TRAITEMENT DES MALADIES DU NEZ. Par le Dr. J. GAREL, Médecin honoraire des hôpitaux de Lyon. 145 Figures dans le texte and 4 Planches hors texte. Troisième Édition. Paris: Vigot Frères, Éditeurs, 1910.

THIS, the first of the new year's crop of books on rhinology, covers the usual range found in a simple manual and presents a very fair and complete exposition of the usual topics. The author wisely avoids the discussion of disputed points and confines himself to accepted theories, modified by his own experience which has been an extensive one. The book is printed and illustrated in an attractive form.

DOCTOR RAST. By JAMES OPPENHEIM. Illustrated. New York: Sturgis & Walton Company, 1909.

THIS little book is a clever presentation of a series of episodes taken from the daily life of Dr. Rast, whose character it is the author's purpose to delineate. Dr. Rast lives in the teeming slums of the East Side of New York City, drawn and held there by his love for humanity, and absolutely turns his back against the temptation to flee to a lucrative practice in a pleasant rural district. Dr. Rast has the philosophic habit and sees things socially and religiously. He is a social experimentalist though he lives in the scientific spirit. Dr. Rast defines a doctor as "simply an ordinary man, like Jesus, who lays his hands on the filth of the world's flesh, but lays his heart and soul on bruised hearts and broken souls," and he proceeds to live up to his ideal. The author has succeeded in making the book intensely human and the life in the locality very realistic. The book is a timely reminder that the practice of medicine is something more than a science or a business.

BACTERIOLOGY FOR NURSES. By ISABEL McISAAC, Author of "Primary Technique," "Hygiene for Nurses," "Hygiene for the Use of Public Schools." New York: The Macmillan Company, 1909.

THIS is the latest addition to the list of scientific books for nurses, and it is one of the poorest that we have seen. About the quantity of bacteriology that nurses really need, we have nothing to say just now; but a perusal of this volume convinces us that a knowledge of the English language should be demanded of those who write for pupil nurses. Some of the expressions which we have marked, are: "The nature of the protein substances of bacteria are" (page 14); "the elaborate minutiæ * * * has grown" (page 19); "the presence of bacteria * * * insure" (page 32); "the injection of the poisonous products * * * have caused" (page 80); "the staining and cultivation is" (pages 102 and 105); "the bacillus coli are found" (page 108); "a class of parasites are distributed" (page 155); "the odor or flavor are," and "filtration or boiling are" (both on page 174). Mere typographical errors we pass by. On page 29 the spores of the anthrax bacillus are said to survive drying for ten years or more; on page 150 they retain their vitality for thirty years. On page 30 we are told that "both carbon and nitrogen must be resolved into simpler forms before absorption can take place"; but as both carbon and nitrogen are elementary substances, it would be difficult to resolve them into anything simpler. On the same page, we read "parasites, * * * as the name indicates, exist in living tissues"; but there is nothing in the name to indicate the fact stated. On page 43 we find that diastatic enzymes convert sugar into starch. We have probably given sufficient extracts from this book to show that pupil nurses will be better employed in acquiring the details of practical nursing than in reading this "Bacteriology for Nurses."

The Principles of Pathology. By J. George Adami, M.A., M.D., LL.D., F.R.S.; Professor of Pathology in McGill University and Pathologist to the Royal Victoria Hospital, Montreal; Late Fellow of Jesus College, Cambridge, England; and Albert G. Nicholls, M.A., M.D., D.Sc., F.R.S. (Can.), Assistant Professor of Pathology and Lecturer in Clinical Medicine in McGill University; Out-Patient Physician to the Montreal General Hospital; Assistant Physician and Pathologist to the Western Hospital. Vol. II., Systemic Pathology. With 310 Engravings and 15 Plates. Philadelphia and New York: Lea & Febiger, 1909.

Those who had the pleasure of reading and studying the first volume of this work will welcome its successor and complement which has now been issued. It is written in the same easy, almost colloquial and logical style as the first volume, which makes the reading a real pleasure and lures one on from subject to subject almost as the plot of a well-constructed story. The first volume was by Adami alone, but in the preparation of this one he has had the assistance of Nicholls, his associate at McGill. In reading with the subject of special or systemic pathology the authors have not been content with simply noting the anatomical changes in the various organs occasioned by the disease process, but have included a study of the effects of those changes upon the functions of the organs, a most important subject and of immediate actual value to the practitioner, but one which is usually ignored in treatises on pathology, and left to works on general medicine and surgery. The advantage of treating of this in immediate relation with the anatomical changes is so obvious that it is strange that it should have been so generally omitted by writers on pathology. It marks a tendency away from minute specialism and a recognition of the fact that the science of medicine is a harmonious unit which cannot be separated into unrelated parts without detriment to the whole. The authors have broken the tradition which places anemia, plethora, and other affections of the blood and disturbances in its distribution in the division of General Pathology, arguing very justly that there is no reason why hemal and vascular and not nervous and respiratory disturbances should be treated as portions of the course in General Pathology. This volume on Systemic Pathology opens, therefore, with a section on the cardiovascular system, including the blood, the heart and blood-vessels, the blood-forming organs, and the lymphatic system. Following this is the usual section on the respiratory, alimentary, nervous, urinary, reproductive, ligamentary, muscular, and osseous systems, and the ductless glands.

The publishers' work has been well done, the type is clear, the illustrations are numerous, well executed, and well printed, and the binding is substantial. The book has not the usual fault of those illustrated with half-tones that in the matter of paper the text has been sacrificed to the pictures, and in order that the latter may show well the reader's eyes are tortured with a glare, especially by artificial light, which tempts him to forswear knowledge that must be gained by headaches and lacrymation. The paper here is of a fairly dull finish, yet sufficiently smooth to bring out the pictures, and so the book can be read in any light with comfort. For this the publishers deserve the thanks of the medical public.

Biographic Clinics. Vol. VI. Essays Concerning the Influence of Visual Function, Pathologic and Physiologic, upon the Health of Patients. By George M. Gould, M.D., Formerly Editor of *American Medicine;* Author of Various Medical Dictionaries, "Borderland Studies," "The Meaning and the Method of Life," "Righthandedness," etc. Philadelphia: P. Blakiston's Son & Co., 1909.

This latest, and, as the author tells us in the opening essay, last volume of the interesting series of "Biographic Clinics," resembles those which have preceded it in the character of its contents and in the manner of treatment of the subjects, though the style is, if anything, a little more vitriolic. Dr. Gould is an original thinker, and what he writes is almost always interesting, and he is, moreover, earnest and honest in his advocacy of a great truth, though, like most men of one idea, he exaggerates the importance of his subject and antagonizes those whom he would convert by the extravagance of his assertions. His greatest fault, and the one which has hindered the success of the cause he has at heart, is his inveterate habit of invective and vituperation. He views all his opponents with a moral astigmatism uncorrected by charity, and accuses them all—oculists, internists, neurologists, and surgeons—of greed and criminal extortion if they do not agree with him that the sum and substance of human pathology are founded upon uncorrected eyestrain. He writes like a disappointed man who despairs of converting the medical world to his way of thinking. It is a pity, for it is a great truth he advocates; eyestrain undoubtedly is at the bottom of much physical and mental suffering, and if the cause had been more tactfully presented much more of this suffering would now be finding relief. Now that Dr. Gould has retired from the contest, we may hope that some better poised advocate may take up the cause, and by argument and example, untempered by temper, persuade his fellows to look into the subject of eyestrain without prejudice and in a scientific spirit. When this is done, much for which Dr. Gould has contended will be accepted.

The present volume contains twenty-two essays on subjects connected with eyestrain. Two of them—"biographic clinics"—are on Jonathan Swift, the others on various living subjects. The opening chapter is entitled, "Valediction." In it the author announces that he has laid aside his pen, having given to "the gospel" all the strength and money he could spare, but he hopes and believes that others will take up the task, and that the money and the zeal will be found to train men to prosecute the work. He quotes from the recent writings of many leaders in various branches of medicine to show that the seed he has sown has taken root here and there, and if this were the only essay in the book one who believes that Gould is right, in the main, would be spared the discouragement which is caused by a reading of the other chapters, notably that on "Medical and Ophthalmic Blunders." Several of the chapters, not polemic in character, will be found instructive by the young ophthalmologist in his study of the difficult science of refraction, and a number contain points and hints which can be put to good use in daily practice. There is one chapter which ought not to have been included in any published work. It is a letter from a patient, who gives address and signature, in which the secrets of the consultation room are revealed, to the credit of neither patient nor physician. The writer is evidently an hysterical woman, who confesses to kleptomania, among other faults, and who was cured of her propensity to take what did not belong to her, as well as of vomiting, as it were in the twinkling of an eye, by the fitting of glasses. Suggestion, of course, had no part in the cure! This case is so evidently one of hysteria, accentuated possibly by eyestrain, that its citation will hurt rather than help the argument. The inclusion of the report among Dr. Gould's writings was a blunder—worse, indeed, than a blunder, for it was an offence against ethics and good taste. The chapter mars what is otherwise a most entertaining and readable book, despite the faults of style and method to which we have before alluded.

Causes of Disability as Applied Under Accident and Health Insurance Policies. By Charles Hamilton Harbaugh, M.D., Expert Examiner and Adjuster, Medical Director American Examiners' Association, ex-President American Association of Medical Examiners and Philadelphia Medical Examiners' Association, formerly Demonstrator of Syndesmology in the Jefferson Medical College, Member of the American Medical Association, Philadelphia County Medical Society, etc. Octavo of 650 pages, with 123 half-tones and 15 full-page plates, 11 in colors. Philadelphia: Overbrook Publishing Company, 1909.

This book is designed for the use of insurance and fraternal examiners, general practitioners and students of medicine, attorneys, and corporations. Years of experience have shown the great need that exists among doctors for a book giving information concerning accident and health insurance examinations. The book contains the following chapters: Advantages of making accident, health, and liability insurance examinations; necessary qualifications for a successful insurance examiner; examining for accident insurance companies; policy forms; injuries and diseases of the head and neck caused by accidents and resulting in disability; injuries and dislocations involving the joints and bones of the face; injuries to the neck, including the larynx and trachea; accidental injuries involving the chest, abdomen, and back which result in disability; injuries and diseases of the male sexual organs and surrounding parts; accidents and diseases of the upper extremities; of the lower extremities; illnesses causing disability of the skin; of the brain, and nervous system; of the circulatory system; of the lungs and respiratory system; of the digestive system; of the liver; of the kidneys and bladder; fevers; miscellaneous diseases; disability due to poisons and gases; adjusting claims for disability resulting from accidents or diseases; methods of securing appointment as examiner for insurance companies and when appointed, how to command examinations in competition with other physicians. This book fills a want in this particular field of work.

Society Reports.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, December 20, 1909.

THE PRESIDENT, DR. ROBERT T. MORRIS, IN THE CHAIR.

Symposium on the Throat Symptoms of General Diseases, with Therapeutic Suggestions. Syphilis and Allied Conditions.—Dr. HENRY L. SWAIN of New Haven, Conn., read the introductory paper on this subject, in which he confined himself to a consideration of the lesions of the mouth and pharynx, and largely to the question of the diagnosis of syphilis from the diseased conditions which were most readily confounded with it. Given an ulceration in any part of the mouth or throat, what might such a lesion be? It might be an original sore, the primary manifestation of syphilis; it might be a mucous patch; it might be a so-called tertiary lesion, an inherited syphilis, a Vincent's ulceration, an aggravated canker sore, a tuberculous ulceration, a lupus, a so-called noma, a cancer, a postexanthematous or postdiphtheritic ulceration, a pemphigus, a pemphigus-like ulcer following la grippe, a thrush, or a leucoplakia buccalis. It might be any one of these, but the physician, if of an analytic turn of mind, could mentally exclude this or that form of trouble according to the age of the patient, the frequency with which the manifestation occurred, the location in which the lesion most often manifested itself, and the characteristics, number, and other objective appearances. He might use to help him out microscopical examinations of some of the portions and contents of the sores, and, lastly, he was governed by the constitutional symptoms and history. Age, for example, readily excluded some causes, but this rule, however, should not be too rigidly applied. Fortunately, many of these forms of ulceration could immediately be ruled out on account of their great rarity, provided only that the examiner was careful in his consideration of the picture as presented. From the number and location of the ulcerations present something might be deduced: For example, mucous patches occurred all over the mouth; they were frequently symmetrical and were exceedingly rarely present singly. Vincent's ulceration rarely occurred excepting upon the tonsils and adjacent tongue, or gums. The deeper, large ulcerations of syphilis occurred on the tonsils, soft palate, gums, and posterior pharyngeal wall. The gummatous infiltrations occurred largely upon the hard palate, and included sometimes portions of the soft palate, a denudation of bone taking place over the area of the original gummatous deposit, and a sequestrum of considerable size sometimes forming, owing to the interference with the nutrition. Canker sores occurred anywhere in the mouth and cheeks, but rarely upon the tonsils, soft palate, and pharynx. Tuberculosis was rarely, in the speaker's experience, found in the mouth. Chancres of the mouth, outside of the lips, usually affected the tonsils and tongue. Carcinoma, if one excluded the lips, occurred more frequently on the tongue, and epithelioma of the tonsil was not infrequently recorded. Noma, when it appeared, was usually on the cheek. A general stomatitis, when of an aggravated type, or a thrush, might have isolated spots of ulceration in various portions of the cheek, gums, and tongue, but usually it was perfectly clear that the ulcerations were but part of the general manifestation. Leucoplakia occurred upon the tongue and sometimes upon the cheek and gums. There was a distinct form of syphilitic inflammation of the gums which might be the only manifestation found in the mouth. Lupus, when it occurred in the throat in children, as well as hereditary syphilis, was liable to affect the deeper portions of the pharynx and postpharyngeal wall, and they produced the most atrocious scars of any form of ulceration with which he was familiar. The only way that he could differentiate between these two forms of ulcer or the scars that resulted from them was by the use of tuberculin. Dr. Swain then discussed in detail the appearance and characteristics of these various lesions of the mouth and pharynx and cited illustrative cases. In discussing their treatment, he said that if the lesion was syphilitic, a solution of bichloride (1-200 or 1-250) could be applied, and would cause it to heal up rapidly, especially when combined with proper internal treatment. By chance he once applied a 10 per cent. zinc chloride solution to a Vincent's ulceration, and it healed up so promptly and so exquisitely that he had used it ever since, to the exclusion of other remedies. Nothing seemed so good for canker sores as pure sticks of nitrate of silver. In the treatment of gross syphilitic deposits as they appeared in the soft and hard palate, it must, of course, be a cardinal rule to get the greatest possible effect from the antisyphilitic medication in the shortest possible time, so as to limit the defects. The greatest asset which we could have in handling the syphilitic, and the one which was often the hardest to obtain, was the loyal adherence of the patient to the long period of treatment and to any one physician.

Dr. FRANK C. RAYNOR of Brooklyn said that in his part of this discussion he would restrict himself to a few remarks on the diagnosis of the primary sore, and the treatment of syphilis as it affected the throat. Local pain, while not characteristic and of varying degree, was the one symptom that directed attention to the throat, and, while the lesion might be atypical as to appearance and location, we had coexistent constitutional symptoms, not associated with other diseases with which it might be confounded. As the chancre did not make its appearance until some time after infection—two or three weeks, usually—the presence of a general toxemia was apparently evidenced by malaise, slight fever, anemia, and headache, more or less continuous, but worse at night. In the constitutional treatment of syphilis, Dr. Raynor said he relied almost exclusively on the administration of remedies *per os,* as he found this method generally effective, and less objectionable to the patient than inunctions or intramuscular injections, the value of which, however, he did not dispute, and, on occasion, employed. In the earlier stages, as a rule, he used a variation of the "mixed treatment," employing therefore a tablet containing corrosive sublimate, gr. 1/64; potassium iodide, gr. 2; syrup of ferric iodide, minims 5; Donovan's solution, minims 2, and tincture nux vomica, minims 2. This formula was based on an old mixture employed for many years by Dr. Samuel Sherwell. In addition to the antidote, mercury, and to the eliminant, iodine, it contained the tonics iron and nux vomica, and last, but by no means least, arsenic. This he believed to be a very valuable addition, and to it he largely attributed the good results obtained by the employment of relatively small doses. He had never found occasion to use the huge doses of the iodides so often recommended. In the later stages of the disease he usually supplemented the tablets with the mixed iodides in varying amount, rarely going above ten or twenty grains.

Dr. H. ARROWSMITH of Brooklyn, speaking of Vincent's angina, said that American medical literature was particularly devoid of any special reference to this disease, which he believed was much more common that had been generally appreciated, and furthermore, that its possibilities for harm were exceedingly great. Undoubtedly many cases that were observed were classed under some other category. The general supposition that the disease attacked the soft parts alone was erroneous, for cartilage and bone were involved, several fatal cases having been recorded, and a higher mortality would probably follow more general recognition of the disease. The diagnosis was to be made only from smears, as the bacteria could

not be successfully cultivated, which might explain why specimens submitted as probable diphtheria (which Vincent's angina in the early stage very closely resembled) had been returned with a negative report. Treatment was very unsatisfactory.

Tuberculosis: Primary, Buccal, Laryngeal; Lupus.—Dr. Wolff Freudenthal said that a tuberculous lesion, once firmly established in any part of the human organism, could no longer be regarded as a localized disease, but a general one. In what way could a laryngologist assist in the diagnosis of pulmonary tuberculosis? It was certainly a fact that in doubtful cases there were certain signs in the upper respiratory tract which gave us a clue to the presence of pulmonary disease. One of these symptoms, to which the speaker said he had called attention many years ago, was the occurrence of ulceration in the upper part of the pharynx, which was so characteristic that it could not be mistaken for any other type. The only one with which it might possibly be confounded was the tertiary lesion of syphilis, but even from this it was quite distinct. Another distinctive symptom a little lower down in the buccal cavity was an outspoken anemia; this pallor was so marked that it could not be overlooked, and it extended over the hard and the greater part of the soft palate. From that point where the uvula joins the soft palate we had just an opposite condition—a marked congestion of the mucosa extending over both sides, around the pillars and tonsils, while again, further down, the epiglottis showed an anemia. These conditions, of course, were not present in all cases, but when you got such a picture you were inclined to say that you were most likely dealing with a case of pulmonary tuberculosis. Another symptom to which the speaker called attention, which he had found of value in doubtful cases of pulmonary tuberculosis, was the hypertrophy of the lingual tonsil, and that this part should be affected seemed to him to speak in favor of an ingestion tuberculosis rather than an inhalation tuberculosis. As to the therapeutics of pulmonary tuberculosis, Dr. Freudenthal said we were, so to speak, at a standstill; absolutely nothing new had been done either here or abroad since Dettweiler advocated the open-air treatment and Koch introduced his tuberculin. On the other hand, the treatment of tuberculous lesions of the upper air tract had made enormous advances. In former years a patient with a tuberculous lesion of the throat was considered lost, but this was not so now.

Dr. Bryan DeF. Sheedy, in continuing the discussion of this subject, said we had been doing so much of late for tuberculous involvement of the lungs that he believed general practitioners should give the subject of laryngeal tuberculosis more consideration than it had up to this time received. Discussing first the avenues of infection, Dr. Sheedy said we knew that infection of the upper air passages from the bacilli-laden atmosphere was very unusual, and we also knew that primary infection of the larynx in any part, whether from the air, the lymphatic channels, or by reason of mucus containing the bacilli passing over its normal surface was extremely rare. The speaker said he believed that when we had more improved methods for the positive diagnosis of pulmonary tuberculosis, we would find that practically all cases of laryngeal tuberculosis were secondary infections. Few of us would be willing to go on record as making a positive diagnosis of primary laryngeal tuberculosis and adhering to that opinion without some confirmatory evidence, such as we might expect from the microscope or from prolonged observation. The overwhelming majority of cases of laryngeal tuberculosis must be considered as secondary to lung involvement. Discussing the prognosis and treatment of laryngeal infection, the speaker said that the statement of an American observer that tuberculous infection was more virulent and less rare the nearer it located itself to the outer world, he believed to be true. In other words, when we had a tuberculous involvement of the upper breathway, the disease was more rapidly fatal than when located in the larynx, and that pharyngeal involvement generally meant miliary tuberculosis; that the laryngeal infection was always less virulent than the pharyngeal, and that severe laryngeal involvement was generally more surely progressive than lung involvement. In woman, particularly in the prospective mother, the experience of most observers was that a very short period of life remained to the woman who was delivered while suffering from laryngeal tuberculosis. Surgical interference in cases of laryngeal tuberculosis, where there was any marked inroad on the general health due to the lung condition, was contraindicated. The patients who suffered from pain and dyspnea were the ones who usually had a markedly ulcerated condition of the larynx, and these were the cases who derived the greatest possible benefit from local treatment. In the cases without ulceration, which generally meant without pain, we used soothing applications, and only when the case was positively tuberculous, with apparently no lung involvement, did we think of operative procedure; while the cases of ulceration we put under active local medication, and nearly all could be made comfortable and freed from pain. His own practice was to cleanse the ulcerated surface with a warm alkaline wash through the means of a cotton wound applicator, then cocainize with a 10 to 20 per cent. solution of cocaine, and afterwards apply lactic acid directly to the part through a Killian tongue depressor, beginning with a 25 per cent. solution, and running it up in the course of a week's time to full strength. He had also used a solution containing lactic acid, 50 per cent.; formalin, 7 per cent., and carbolic acid, 10 per cent., with fairly satisfactory results. The ulceration in most cases occurred between the arytenoids, but many exceptions to this were constantly observed. Involvement of the epiglottis had occurred in a few cases that came under his observation, and in these the removal of the epiglottis seemed to be a beneficial procedure.

Exanthemata: Measles (Simple, German), Scarlet Fever, Thrush in Children.—Dr. Francis J. Quinlan, in discussing this phase of the subject, said that affections of the upper respiratory tract occurring in the course of the exanthemata could best be considered and treated according to their different degrees of intensity. Thrush, for example, was generally regarded as a very light disease, but there were times when it assumed alarming aspects, producing symptoms of suffocation which might render tracheotomy or intubation imperative. In measles we had the characteristic catarrhal inflammation of the entire upper respiratory tract, either preceded or accompanied by Koplik's sign. In the large proportion of cases, this inflammation did not go beyond the catarrhal stage, but in some instances the constant coughing produced mechanical ulcerations and suffocative spasm, and even gangrene and edema of the glottis had been reported. Infection of the antrum and other accessory sinuses might also occur. In scarlet fever we had the characteristic strawberry tongue and injection of the fauces, varying in degree from a slight redness to an intense inflammation, with swelling and induration of the soft parts and the formation of a pseudomembrane, with possible mechanical obstruction to deglutition and respiration. Extension of the infection to the Eustachian tubes was a not infrequent complication, and gangrene of the tissues was at times observed. In the treatment of these inflammatory conditions of the upper respiratory tract accompanying the acute exanthemata, in addition to systemic remedies, the speaker advocated the use of a mild cleansing agent, preferably Dobell's solution. In threatened edema of the glottis as well as in all acute and subacute conditions of the larynx, he favored the use of a spray of a solution of silver nitrate, which he felt as-

sured, if employed in time, would prevent the necessity of intubation in many cases. He emphasized the importance of a laryngoscopic examination by the general practitioner as a more routine procedure for the more thorough examination of the throat and its more careful treatment, and finally, as a prophylactic measure, he urged the early removal of obstructive lesions of the nasopharyngeal tract, particularly adenoids and tonsils.

Typhoid Fever: Mouth, Throat, Laryngeal Crises.—Dr. Lewis A. Coffin, confining his remarks to the laryngeal complications of typhoid fever, said that while such conditions were so rare in the experience of many practitioners that they might seem scarcely to merit discussion, yet in various parts of the country where there are frequent and severe epidemics of typhoid from laryngeal complications, they are not infrequent and often serious. In a paper by Drs. Jackson and Day of Pittsburg which they read some years ago before the American Laryngological, Otological, and Rhinological Association, they reported two cases of severe perichondrial inflammation of the larynx complicating typhoid fever, and subsequently took up the systematic study of the subject in one of the hospitals of Pittsburg. Of 360 cases that were carefully watched throughout the course of the disease, 227 showed lesions in the larynx. They were able to divide these cases into three classes: 1st—A subacute laryngitis; 2d—Larnygitis with ulceration of the mucous membrane. In the third type the ulcerations were more severe, involving the cartilages and pericartilaginous tissues, with or without necrosis. Dr. Gibb of Philadelphia, who had also enjoyed unusual opportunities for studying the disease, had confirmed the findings of Drs. Jackson and Day, and also spoke of a paralytic type, in which there was paralysis of the larynx. Personally, Dr. Coffin said, he had never observed these conditions, but he recalled one case, seen in consultation, in which there was a confluent ulceration of the palate, with extensive inflammation and edema of the uvula. As to the etiology of these conditions, they were doubtless the result of the typhoid toxemia. As predisposing factors, Jackson mentioned the dorsal decubitus, lessened cough reflex, and throat trouble prior to the onset of the typhoid fever. He was also inclined to believe that draughts and perhaps hydrotherapy—especially the ice-pack—might provoke laryngeal complications. The milder cases were best treated on the expectant plan, with inhalations of steam, medicated or otherwise. In the severer cases, with edema, intubation was useless; tracheotomy was the only relief.

Dr. Nathan B. Van Etten said the tongue told many truthful tales in typhoid. Progressively, through the usual course of the disease, it told the story of expected events in ordinary sequence. It told of danger and amelioration; it told of neglect, and it reflected the labor of the careful and conscientious nurse. At the onset, the tongue was covered with a white fur, which gradually thickened, but was still moist. The edges might be clear red, with the white fur covering the tongue centrally. The cause of the coating was an overgrowth of the epithelium of the mucous membrane, but it was not fully understood. The thick whitish coat was made up of microorganisms, degenerated epithelial cells, and particles of food. In the second week, the tongue was dry and covered by brownish fur; later, dryness of the mucous membrane of the entire mouth increased, the center of the tongue might be a deep brown, or sometimes there was a black, dry fur, which might form crusts and fissures. The mouth was dry from diminished secretion of saliva, from mouth breathing, and from diminished movements of the tongue. Small fissures were common, and some bleeding might come from them. The movements of the tongue were characteristic. When protruded, it was tremulous, and in the later stages, in severe cases, there was hesitation; the tongue was protruded, and the patient, apparently forgetful, failed to withdraw it. In the third week the tongue might be shriveled, stiff, raw, and fissured, and the lips might be dry and cracked. There might be sordes on the gums, teeth, and lips. The pharynx shared in the general dryness of the mouth, and might be covered with a very tough, sticky mucus, which made drinking difficult and which the patient was unable to cough up and from which he suffered great discomfort. The uvula, tonsils, and pharynx were often ulcerated, and in cultures from these ulcers, typhoid bacilli had often been obtained. The frequent finding of the bacilli in the sputum indicated the necessity of the destruction of all mouth secretions as sources of infection. In the fourth week the tongue became moist and began to clear at the edges. If the mouth be not kept clean in typhoid fever, complicating secondary lesions in organs more or less remote from the mouth might develop with unpleasant and serious symptoms. Parotitis was not uncommon; it was usually unilateral, but might be bilateral. Suppurative otitis media was a rarer complication. Fungi might appear on the tongue and elsewhere on the buccal membrane in the form of thick white patches; the fresh patches were glistening white; the older patches were dirty gray. Lingual ulcers might occur, and were usually benign. By giving water very freely internally, and regular local attention to the mouth, and by keeping the nose clear, so as to limit mouth-breathing measurably, the tongue might remain moist and only lightly coated, and the lips might be nearly normal. In a recent series of thirteen cases of carefully nursed typhoid fever seen in private practice the speaker said he had had almost no unpleasant mouth symptoms.

Dr. Robert C. Myles said that Vincent's angina seemed to occur in waves, and in his own experience it was much more frequent in some years than in others. In the treatment of this condition, the germs, which were often deeply imbedded in the tonsillar crypts, must be destroyed; otherwise there was strangulation of the circulation, and sloughing of the parts occurred. In spite of the profound depression and the destruction of the tissues associated with Vincent's angina, recovery was the rule. In dealing with tuberculous lesions of the tonsil and soft palate, the speaker emphasized the importance of thorough excision, followed by the use of the cautery. In the milder forms of tuberculosis of the larynx and epiglottis, the outlook was much more hopeful than formerly, but when once the disease had invaded the arytenoids or deeper structures, it usually terminated fatally. In measles and scarlatina in children who had had their tonsils and adenoids removed, the throat symptoms were usually much less aggravated than in those who had large tonsils and adenoids. Our greatest hope in the treatment of all these infectious diseases was in the discovery of a serum treatment.

The discussion was then closed by Drs. Swain and Quinlan.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held February 4, 1910.

Dr. Charles N. Dowd in the Chair.

A Case of Fracture of the Pelvis with Extraperitoneal Laceration of the Bladder.—Dr. J. F. McCarthy presented a boy, twelve years old, who was admitted to Bellevue Hospital July 27, 1908. One-half an hour before admission he was caught between the wheel of an ice truck and a platform, the trochanter apparently having been engaged. The boy stated that five minutes before admission he voided urine, so that the possibility of a full bladder played no part in the injury. He presented the usual phenomena accompanying a severe injury, some blood appearing at the meatus. The exploration of

the pelvic girdle was negative, as was also the rectal examination. The catheter returned a small amount of blood-stained urine after which about six ounces of fluid was introduced, all of which reappeared. The catheter was retained in the bladder for twenty-four hours; it was then expelled and it was impossible to reintroduce it. At this time there was no impairment in the various movements of the extremities. A suprapubic incision revealed a large amount of fluid in the prevesical space, and a collapsed bladder containing blood clots. A complete laceration about one and a quarter inches long just above and to the left of the vesical orifice was found. On the same side of this organ exteriorly a large splinter of bone with a number of smaller ones could easily be felt, the projecting end of one large splinter being about two inches from the bladder. A perineal incision was made and the bone area was drained through this wound. Suprapubic bladder drainage was instituted for two days, and then perineal drainage; from this time the case progressed uneventfully. It was now one and a half years since the wounds closed and the condition was excellent. At the time of the boy's admission he also presented the very unusual condition of the perineal type of maldescent of the testes. The conclusions to be drawn from this case were as follows: (1) That the so-called capacity test of the bladder integrity was not tenable, and might even be grossly misleading. (2) That here was a case of true extraperitoneal laceration of the bladder and not a rupture so-called. (3) It clearly demonstrated the experiments of Kusmin that lateral pressure might bring about injuries similar to a force acting in an anteroposterior direction. The question as to the part played in the mechanism of the injury and by the developmental state of the pelvic girth at this age also added to the interest of this rather unusual case.

Resection of Jaw for Ankylosis.—Dr. Charles E. Farr presented a man, thirty-two years old, who, many years ago, had an abscess of the jaw, with an osteomyelitis, resulting in an ankylosed jaw. This condition existed for twenty-eight years, during which time he was unable to take solid food. Dr. Farr saw him ten months ago when he made a short transverse incision, displaced Steno's duct and the facial nerve, split the fibres of the masseter muscle and thus came down upon the ramus of the jaw. He excised the condyle, but even then he got no motion. When he cut off the coronoid process, however, he obtained some motion. He decided that much of the ankylosis was due to lack of use of the jaw. The wound healed fairly well. The patient was now able to open his mouth one inch and could take and chew solid food. Technically the operation was an easy one.

Perforated Gastric Ulcer.—Dr. Hermann Fischer presented this case. The father died of cancer of the stomach, otherwise the family history was negative. Two days before entering the hospital the patient complained of pain in the upper part of the abdomen and chest; he had considerable dyspnea. At the end of twenty-four hours the pain became very severe and was most acutely felt in the right iliac region over the appendix. Soon the pain extended over almost the entire right side of the abdomen; he complained of shooting pains which traveled up to the neck, affecting chiefly the right side, but at times involving both sides. The pain was not referred at any time to the back or the right shoulder. Twenty-four hours after the onset of his illness, the most striking symptom was the dyspnea. His pulse was between 85 and 90, regular and of good quality. The entire right side of the abdomen was very tender and there was marked rigidity of the abdominal muscles on that side. The point of greatest tenderness was over McBurney's point. He had never had any symptoms referable to the stomach. No tumor was felt and there were no signs of fluid. A diagnosis of an acute cholecystitis or an acute appendicitis was made and the patient was advised to go to the hospital. A few hours after his admission the point of greatest tenderness changed to the region of the gall-bladder, and Dr. Fischer was convinced that he had to deal with an acute cholecystitis. The morning following his admission he operated. Upon opening the abdomen a fibrinous exudate was found along the lower border of the liver, as well as on the upper surface of the right lobe; it also covered the omentum which was adherent to the stomach and to the lower surface of the liver. This concealed the gall-bladder and its ducts. On separating these adhesions he found, to his surprise, that the gall-bladder was entirely normal and not at all responsible for the state of affairs. When separating these adhesions to the pylorus he suddenly heard the noise of escaping gas; he then found a small piece of omentum which, after being removed, revealed a pin-hole perforation of the stomach, close to the pylorus. The walls of the stomach in the immediate neighborhood were succulent and injected, but not markedly infiltrated, so that the closure of the opening was readily effected. The patient made an uneventful recovery. This case seemed to be of interest from several different aspects. (1) The patient had never had any symptoms that would make one think of the possible presence of an ulcer of the stomach. (2) They probably had to deal with an acute ulcer of some toxic origin. (3) The perforation occurred in the morning when the stomach was empty and the opening so small that only a fine probe could be admitted. The escape of gastric contents was thus minimal and the patient had excellent chances for recovery.

Finney's Operation for Perforated Gastric Ulcer.—Dr. Aspinwell Judd presented a patient, twenty-four years old, whose father died of cancer of the stomach. He had had symptoms of gastric ulcer, including hemorrhage, as well as pyloric stenosis and had lost twenty-six pounds in weight in two years. He had been on a milk diet for several months. The gastric motility was found to be good, as shown by the use of apple sauce and bismuth and the *x*-ray. He decided to operate and made the classical incision for gastroenterostomy. He found the stomach, the gall-bladder, omentum, and liver matted together. Upon separating the adhesions he found that the omentum was closing a gastric ulcer of some size. At first he thought it advisable to do a posterior gastroenterostomy, on account of the number and extent of the adhesions, but finally decided upon doing a gastroduodenostomy, or Finney's operation. In order to prevent the formation of many adhesions, aristol was freely used. Since the operation the patient had gained twenty-eight pounds in weight. The pylorus as shown by bismuth and *x*-ray was on a proper low level and the function of the stomach was perfect. As in all his posterior gastroenterostomy operations, the patient was sitting up on the fifth or sixth day, the wound thoroughly protected by means of broad bands of adhesive plaster.

Inoperable Endothelioma of the Colon.—Dr. Judd presented a patient who was seen in Dr. Robert T. Morris' service one year ago last October. He had a tremendous mass of irregular outline as large as a child's head, involving the transverse colon and glands and omentum, easily palpable. Everything seemed to be so involved in the growth that it seemed possible to do nothing except an anastomosis. A section of the mass was sent to the laboratory, and it was reported that the growth was an endothelioma. The patient was very much emaciated and cachectic when he came to operation. During the year following the operation he gained fifty five pounds in weight and the mass disappeared under the influence of the *x*-ray adminstered twice a week, using a very high pressure tube. However, the tumor again be-

gan to grow six months after stopping treatment. This demonstrated that almost all cases of sarcoma and endothelioma recur after a time, even though *x*-rayed. In the use of the *x*-ray it was noted that these growths disappeared as kindly under the second administration as under the first. In these cases there was an increase in the fibrous elements. Since recommencing the *x*-ray, the mass had begun to shrink and was now the size of a lemon Otherwise he was in perfect health, with hemoglobin 90 per cent.

Femoral and Inguinal Hernia on Same Side in the Male.—Dr. JUDD also presented this patient. He found only three similar cases in the literature. The operation for radical relief involved no special difficulty and modified Bassini incision being made and classical inguinal and femoral operations being done through the same wound.

Intestinal Obstruction, Resection, and Anastomosis of the Sigmoid in Three Stages.—Dr. JOHN DOUGLAS reported this case. The patient was a young man, twenty years old, who was admitted to Bellevue Hospital with a history of diarrhea, with occasional blood and mucus in the stools for the previous six months. Two days before admission he had acute abdominal pain with vomiting, distention, and constipation. On examination it was found that the abdomen was markedly distended, but there was no local point of tenderness, rigidity, nor elevation of temperature. The pulse was rapid. Repeated enemas failed to cause free bowel action, but a small amount of feces and gas was passed at first. The rectal tube could not be passed more than fourteen or fifteen inches. This latter fact and the evident distension of the colon located the obstruction in the sigmoid, and the previous history of diarrhea, with occasional blood and mucus in the stools, indicated a constriction following an ulcerative condition. A median incision revealed a mass about the size of a walnut in the middle of the sigmoid, and very adherent to the iliac fossa. The intestine above was greatly distended, while below it was collapsed. The sigmoid was freed but could not be brought out of the abdomen without ligating about an inch of the mesosigmoid just below the tumor. The loop of the sigmoid with the tumor at its apex was then lifted up, until the tumor portion was above the level of the skin. The peritoneum of the distended portion above and the collapsed portion of the sigmoid below the tumor were sutured together with catgut along their long axis for a distance of two inches to form a spur after resection of the tumor. The loop of sigmoid, about one inch below the tumor, was then sutured to the peritoneum and the wound was partly closed. A rubber tube was then fastened into the distended intestine above the tumor for the drainage of feces. Thirty-six hours later the tumor was removed without anesthesia. The pathological examination showed the tumor to be inflammatory tissue. The wound became infected from the fecal discharge, but was cleaned up when the spur was cut away by the application of an abdominal clamp left in place until it cut through. The fecal fistula failing to close spontaneously, a general anesthetic was administered and the intestine freed from the abdominal wall and closed by suture. The wound was then closed with a small rubber tissue drain. The case was presented to illustrate the advantage of this method, particularly in acute obstruction in the large intestine, over immediate resection and anastomosis, as the great distension above the obstruction would have made immediate anastomosis difficult and the result doubtful.

Modified Technique for the Combined Operation of Extirpation of the Rectum.—Dr. JAMES P. TUTTLE read this paper. He said that without retracting anything he had heretofore said in favor of the perineal operation for extirpation of the rectum, he wished to state his concurrence in the universal opinion of surgeons that theoretically the combined operation was the operation of choice for the extirpation of the rectum in any condition requiring the removal of more than the lower four or five inches of this organ. Its hitherto high mortality, and the fact that many operators had made the artificial anus a necessary accompaniment of this operation were the only arguments against it. That the latter objection was no longer tenable was shown by the recent writings of Lusk, Hartman, and many others, together with his own report two years ago. The high mortality rate was steadily decreasing, until to-day it was less than that of the perineal operation ten years ago. For tumors where more than four inches of the rectum were to be amputated, the combined method was to be preferred, for the following reasons: (1) It afforded an opportunity to examine the abdominal organs, the glands, and the peritoneum with regard to metastasis. If these existed extirpation was not justifiable, and only a palliative operation, such as curettage or the formation of an artificial anus, should be employed. (2) It enabled one to ascertain how high the growth or stricture extended, and to determine the length of the mesosigmoid at divers points and to select a segment with a good blood supply that could be brought down to the anus without tension. (3) It enabled one to tie the superior hemorrhoidal artery at a point above the anastomosis with the sigmoidal artery, and thus to preserve a good blood supply to the rectum, as had so happily been described by Hartman. (4) It enabled one to clean out all the glands in the intestinal iliac angle, and from there down more perfectly than by the perineal method. (5) By it one could cover up denuded surfaces, and close the peritoneal cavity before opening the bowel. (6) It enabled one to retreat and resort to an artificial anus if the conditions did not warrant total extirpation, or if the length of the sigmoid did not permit the fecal exit to be restored to the anus. The methods employed until recently consisted in selecting a point a short distance below the tumor, tying off the blood vessels *en masse* as one loosened the gut from its attachment to the sacrum regardless of their anastomotic relations; this course had failed simply because of the insufficient and indefinite blood supply to the proximal end of the gut, and to the large denuded surfaces left in the peritoneal cavity after such an extirpation. The technique which Dr. Tuttle had employed for the last three years to avoid this objection was described in detail by him. It differed from that lately published by Lusk in the treatment of the peritoneum, the restoration of the mesosigmoid, in the blood vessels tied, and in the treatment of the ends. It differed from that of Hartman in the same respects except as to the ligation of the blood vessels; in this they followed the same lines. The objections to the combined method were: (1) Its higher mortality, this was decreasing as the technique and dexterity in its performance increased; in the last three years he and Dr. Lynch had done several of these operations, with but one death, and not a single case of incontinence of feces. (2) The objectionable artificial anus so long advised in this method and by so many surgeons as making the operation more radical and safer. It did neither and was rarely advisable not to say necessary. (3) The great amount of gut sacrificed in bringing the intestine down to the anal aperture. There was no more gut lost in this method than there was put out of commission by an artificial anus; moreover, the amount of the sigmoid removed did not seem to add much to the gravity of the operation so long as the proximal circulation was intact. (4) The danger of peritoneal infection. This ought not to be more than in other abdominal operations, for the intestine was not opened until the peritoneal cavity was closed off, and when it was opened it was outside of the body and of the field of operation.

Report of a Series of Cases of Surgery Upon the Large Intestines, with Some General Considerations.—Dr. JOHN F. ERDMANN reported twenty-one cases of surgery of the large intestine irrespective of malignancy, and included eight cases of upper sigmoid malignancy reported previously; these latter were reported in order to enable him fully to consider the operative technique in lower colonic or upper sigmoid cases, using the term upper sigmoid in contradistinction to what they were now pleased to call the lower sigmoid, and formerly the intraperitoneal rectum. Among these cases was one of megacolon (Hirschsprung's disease) occurring in a boy eight years old in which was done a complete excision of the colon and upper sigmoid. There were eight cases involving the sigmoid, one of tuberculous ulceration and infiltration of the cecum with a permanent sinus following an exploration for an appendix; there was one case of excision of the cecum for an old infiltrating sinus of nine years standing, following a spontaneous rupture of an appendicular abscess; there were six cases of carcinoma of the cecum, three of which were excised with two deaths, and three in which enterosigmoidostomy was done with one death; there was one case of general colonic malignancy in a boy of seventeen years, one case of carcinoma of the descending colon and sigmoid in a female eighty-five years old, and one case of colloid carcinoma of the terminal three inches of the descending colon. The earliest symptoms observed were borborygmus, cramps, diarrhea alternating with constipation, a feeling of incomplete emptying of the bowels, the discharge of mucus, blood, and pus, singly or combined, localization of the pain by the patient, or a painful spot on pressure, and finally the localization of the tumor, movable or not, depending upon the section of the colon that was involved. In some cases proctoscopic evidences were obtained. The operative procedure resolved itself into resection with anastomosis, or short circuiting. While the latter was not curative, it should be considered in those cases where the mortality risk was a great factor from a family provider's standpoint. In excising the cecum and sigmoid one should remember their association with the peritoneum. In excising growths of the transverse colon and the hepatic and splenic flexures one should search for the glands in the transverse mesocolon and in the pancreatic area. The removal of any part or all of the colon was easily accomplished if one bore in mind the fact that the outer fold or plate of the peritoneum covering the colon was the hold-fast, and contained no blood vessels; whereas the inner or mesial plate contained the vessels and lymph channels, all of which tended to the median line. Dr. Erdmann said he favored the side to side isoperistaltic anastomosis more than the direct suture, having always felt that his field was kept more sterile. The resection cases were better handled in cases of obstruction in the two stage procedure. Removal of the cecum was done three times for carcinoma, once for tuberculous ulcer and infiltration, and once for an old sinus; of these five cases of excision two died. Dr. Erdmann then reported some case histories.

Dr. FREDERIC KAMMERER said that the statistics offered by Dr. Tuttle were very interesting indeed, because he had not believed the combined operation could be done without a large mortality; that had been his own experience with the operation and, he ventured to believe, the experience of most operators. In cases of cancer of the rectum he had given up resections because he found that invariably in time a stricture of greater or less degree would develop at the point of resection, and near the latter recurrences would frequently appear. For this reason he now did an amputation of the bowel in all cases, after a permanent inguinal anus had been established. A well-established inguinal anus in his opinion was preferable to an anus at the normal site with only partial control. An important point in this connection was the change which took place in a large ulcerating cancer after an inguinal anus had been made. The tumor often decreased to almost half its original size and became more movable, and its removal was then a much more simple process. It had, furthermore, not been his experience that an inguinal anus at the highest available point of the sigmoid ever proved a hindrance to downward traction of the growth when it was attacked by the secral route. Besides, with a permanent inguinal anus, it was unnecessary to draw the upper end of the bowel down to the site of the original anus after amputation. It was sufficient to close it and to fasten it extraperitoneally at the incision into Douglas's pouch, allowing the large wound cavity to heel in part by granulation. As recurrences most always appeared in the bowel, it was of the utmost importance to remove the growth radically in the first instance and, therefore, in trying to save the lower end of the rectum, i. e., the sphincter, the temptation to be less radical than necessary was great, more especially as most cancers were situated in the ampullary portion of the rectum. To establish a permanent inguinal anus and to remove the growth two weeks later was no doubt a less brilliant procedure than the combined operation in one sitting, but, even in very large ulcerating growths, it was eminently safe and was followed by a very low mortality, indeed.

Dr. GEORGE WOOLSEY said that in several cases that he had had the making of an inguinal artificial anus was necessary. For some time he had given up doing a resection. When one brought the bowel down to the anus after doing an excision, sloughing might occur in the terminal inch or so, from interference with the circulation, due to too great tension or improper division of the vessels. Therefore in both these particulars the point in regard to the circulation brought out by Dr. Tuttle, and the bringing down of the sigmoid loop, was a matter of great importance. Dr. Erdmann spoke of the necessity of doing the operation in two stages, where there was a complete obstruction; Dr. Woolsey went further and believed that when the obstruction was not complete and the oral segment was much distended the two-stage operation was the wiser course to follow as he had learned from experience.

Dr. SAMUEL G. GANT believed that the results in Dr. Tuttle's cases could not be improved upon. The pocket found in the rectum in the case reported was nothing more than a thickened rectal valve. Many modifications of Kraske's method had been made; in fact, no one ever performed it as originally described, and probably all surgeons were discarding the Kraske method for the perineal or combined operation. Annular stricture was a commoner occurrence and was usually preceded by a posterior fistula. When possible the ideal operation was the abdominal, doing all the work from above, but when this was not possible it should be combined with perineal proctectomy. When the work was begun from above, metastases in other organs could be determined, the proper vessels could be ligated, all glands could be removed, the bowel could be mobilized to the desired extent, and the work could be performed more aseptically when the incision started from above.

Dr. JOSEPH WIENER said that the work done by Dr. Tuttle in extirpation of the rectum was in a large measure new. There was one point, however, that had not been brought out, that in these cases the question was not an anatomical but a surgical one. He asked if the final results obtained were as good as could be gotten. Would the patients reported by Dr. Tuttle be free of the disease four or five years hence? He believed not. Questions pertaining to the saving of the sphincter were important; personally he had seldom seen a sphincter following the amputation of the rectum that was worth a great deal. Other surgeons had perfectly satisfactory sphincter muscles

following this operation, but Dr. Wiener said he had not had. He believed the questions that confronted them in extirpation of the rectum were rather surgical ones and not anatomical. He did not believe in resections in cases of carcinoma of the rectum, but in amputation.

Dr. William C. Lusk said that following operations for the removal of rectal cancer, recurrence was sometimes attributed in literature to implantation metastases, so that one should cut widely around the diseased area. Dr. Tuttle was to be congratulated on having saved so many sphincters. Dr. Tuttle spoke of the combined operation for high situated cancers only, but Dr. Lusk thought that this operation was quite as applicable for high amputation in low seated cancers, since the lymphatics from the anus and lower rectum followed upward the course of the superior hemorrhoidal vessels. He believed in taking the abdominal route also because, by employing Giordano's technique of ligaturing the internal iliac arteries, as well as the Mayo's technique of ligaturing the sacra media artery, the hemorrhage was more readily controlled. The tendency to stricture could be lessened by the careful application of the mucous edges in uniting the bowel ends. The Maunsell procedure of prolapsing through the sphincters the portion of the bowel containing the tumor, and then resecting the gut outside the anus, was regarded in literature to be applicable only to cases of small tumors.

Dr. Albert A. Berg thought that the report of eleven cases of extirpation of the rectum for carcinoma without a mortality was wonderful. He had had experience with but five cases in which the combined operation was employed; three of these died, two the result of operative shock, and the third from hemorrhage from the internal pudic artery during the third week. What impressed him most in these cases was the tremendous shock that resulted.

College of Physicians of Philadelphia.

At a stated meeting, held February 2, Drs. John M. Swan and John J. Gilbride presented a communication entitled "A Clinical Study of the Cammidge Reaction." They reported the results of examination of the urine from a large variety of cases and they found the Cammidge reaction present when evidence of pancreatic disease was wanting as well as when it was present. Accordingly they came to the conclusion that the reaction was due to the presence of certain substances in the urine resulting from derangement in the function of the pancreas, whether induced by disease of this viscus or more remote disturbance. They had succeeded in obtaining the reaction with urine to which maltose had been added in minute amount, although previously it had been absent. Drs. E. J. Beardsley, Samuel Rhoads, and J. Shelley Saurman presented a communication entitled "Prompt Symptomatic Relief from Wiring in Aortic Aneurysm." They demonstrated a colored man on whom the operation had been performed and referred to a second patient on whom the operation had been performed a second time. The operation is applicable to sacculated aneurysms not otherwise operable, and its results can be looked upon only as palliative, inasmuch as the conditions underlying the morbid formation cause weakness in other portions of the vessel wall and eventually a fatal issue. A hollow needle of platinum or gold is introduced into the aneurysm and through the lumen fine drawn gold wire of varying length is passed. After as much wire has been introduced as will readily be received, the free extremity is connected with the positive pole of a galvanic battery and the negative with a conducting plate applied to back or in some indifferent situation. The current is gradually increased up to 60 or 70 milliampères, the entire treatment occupying from thirty to sixty minutes. Soon after the current begins to pass the pulsation diminishes and the pain subsides, and dyspnea when present likewise improves. The relief thus afforded may persist for many weeks or months, or even for years, and death as a rule results from another lesion or some other condition. Dr. William G. Spiller presented a communication entitled "Tumors of the Brain and Spinal Cord, Especially in Relation to Surgical Intervention," illustrated by lantern slides. He pointed out the need for early operation, diagnosis being desirable to this end prior to the development of general symptoms. Not much is to be expected in the treatment of infiltrating growths, but there are quite a number considered as fibromata or endotheliomata, usually originating from the dura that do not infiltrate, and if in accessible situations are readily shelled out. Tumors of the pituitary body often grow slowly and attain considerable proportions before giving rise to marked symptoms. At times the only symptom may be bilateral temporal hemianopsia from pressure on the optic chiasm. Tumors of the base are in general more difficult of removal than tumors of the convexity. Tumors of the cord, particularly in the cervical or thoracic region, offer better chances of removal than tumors of the cauda equina. Dr. Alfred Stengel presented a communication entitled "Acute Pulmonary Edema in Cardiac Disease and Its Treatment." He pointed out that edema of the lungs might result as the terminal stage of acute or chronic pulmonary disease, in consequence of failure of cardiac compensation, as a manifestation of acute infection, and without apparent cause. He dwelt especially upon the last form and he recited a group of illustrative cases. The disorder sets in with great suddenness and usually without premonition. The pulse is small and feeble, respiration is labored and shallow, and rapid and numerous bubbling râles are audible over all parts of the chest. The patient may be intensely cyanotic. From the mouth there pour large amounts, up to liters, of blood-stained serum. The patient may succumb in the initial attack, although commonly attacks recur at varying intervals, sometimes over long periods of time. Speedy relief is afforded by hypodermic injection of morphine and atropine in moderate dosage. The nature of the disorder has not been established, although it has been thought to be toxic and vasomotor. Dr. John K. Mitchell announced on behalf of Dr. S. Weir Mitchell that the college had received an unconditional gift of $75,000 for the purposes of the college. Dr. Mitchell announced also the contemplated gift of $5,000 by Dr. R. C. Cleeman. The president announced a gift of $5,000 from Dr. Francis X. Dercum, the income of which is to be devoted to the purchase of books on neurology. A proposition for the lease of the old building of the college was received with approval.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Wisconsin Board of Medical Examiners.

January, 1910.

ANATOMY.

1. Name the bones of the head (including the facial).
2. About how many bones are there in the human body?
3. Name each cranial nerve and give its foramen of exit.
4. Describe the spinal nerves.
5. Describe the eyeball.
6. What are the lymphatics?
7. Describe the aorta.
8. Describe the ossicles of the tympanum.

PEDIATRICS.

1. Give symptoms and treatment of intussusception.

2. Give the symptomatology and treatment of hereditary syphilis.
3. Give etiology and treatment of enuresis.
4. Give synonyms, symptoms, and treatment of membranous laryngitis.

PATHOLOGY, HISTOLOGY, BACTERIOLOGY.

1. Define degeneration. Give causes of fatty and amyloid degeneration.
2. Name types of infarcts. Give description of one type.
3. Differentiate transudate and exudate.
4. Give classification of inflammations, and describe one form.
5. Give pathology of atrophic cirrhosis of liver.
6. Give pathology of parenchymatous nephritis in detail.
7. (*a*) Name the tumors of connective tissue origin. (*b*) What determines the malignancy of tumors?
8. What are the causes of arteriosclerosis? Give pathological histology.
9. Name the diseases due to bacteria. How are these diseases communicated?
10. (*a*) Give method of staining the tubercle bacillus. (*b*) Give method of making a Widal reaction.
11. Differentiate the mucosa of the gastrointestinal tract from mouth to anus.
12. Describe blood-supply of liver in detail.

PRINCIPLES AND PRACTICE.

1. Name four organic heart lesions and give the physical signs in two of them.
2. Describe a typical case of typhoid fever.
3. Give the diagnosis of acute lobar pneumonia. Give the treatment of first stage.
4. Give diagnosis of entrocolitis.
5. Give diagnosis and treatment of round ulcer of the stomach.
6. What is amyloid liver? Give diagnosis.
7. Give etiology and diagnosis of arteriosclerosis.

MATERIA MEDICA AND THERAPEUTICS.

1. Name six antiseptics in the order of their power to destroy bacteria.
2. What are the physiological actions and therapeutical uses of arsenic?
3. What anthelmintics are used against the different intestinal parasites respectively?
4. Name five preparations of mercury, with the doses of each.
5. Give the physiological actions of strychnine in poisonous doses, and tell why it destroys life.
6. How would you treat a case of strychnine poisoning?
7. Name six preparations of iron, with the doses of each.

OBSTETRICS.

1. Give the physiology of pregnancy.
2. Give hygiene of pregnancy.
3. Explain the mechanism of labor.
4. Give etiology and treatment of hyperemesis gravidarum.
5. Explain the reasons for the rarity of conception in a prolapsed uterus. If pregnancy does occur in complete prolapse, what is the result?
6. Give diagnosis and treatment of hydatid mole during pregnancy.
7. Give etiology and symptomatology of puerperal eclampsia.
8. Name the causes and give treatment for postpartum hemorrhage.

GYNECOLOGY.

1. Give the pathology of menstruation.
2. State cause and treatment of sterility.
3. Give symptoms, course, and diagnosis of metritis.
4. What are the indications for curettage of the uterine cavity. Describe method of procedure and dangers to be avoided.

NEUROLOGY, DIETETICS, MEDICAL JURISPRUDENCE.

1. (*a*) What is the structural and functional unit of the nervous system? (*b*) Give brief description of same. (*c*) What area of the cord is affected in acute anterior poliomyelitis?
2. (*a*) Describe briefly the spinal cord and name from within out its three protective membranes. (*b*) At what level of the spine does the cord terminate? (*c*) In locomotor ataxia, where is the primary degeneration?
3. (*a*) Give names of the seventh, eighth, tenth, and twelfth pairs of cranial nerves. (*b*) Give function and distribution of any two mentioned. (*c*) Locate the Gasserian ganglion.
4. (*a*) Give origin, course, and distribution of the great sciatic nerve. (*b*) What are the names of the two large branches into which it divides? (*c*) At about what point does the division take place?
5. (*a*) Name the nerves which, under normal circumstances, control the action of the heart. (*b*) Explain how these nerves differ in their function.
6. Differentiate between criminal and justifiable abortion.
7. What is the difference between expert testimony and other testimony. Give four positive signs of death.
8. Mention the steps necessary and on what basis may a patient be committed to an insane asylum.
9. Name three articles of diet which are tissue formers. Name four articles of diet which are work and heat producers.
10. Give dietetic treatment for typhoid fever from first day of positive diagnosis.
11. About how much water should be consumed during twenty-four hours by a person weighing 150 pounds, aside from what he obtains from his food. Name four functions of water in the system.
12. Name the chief source from which the body obtains its fat. Give dietetic treatment for apoplexy, and give your reasons for same.

PHYSIOLOGY, OPHTHALMOLOGY, AND LARYNGOLOGY.

1. Give origin, distribution, and function of the pneumogastric nerve.
2. What is the effect of alcohol on brain tissue, hepatic tissue, and stomach?
3. Write a detailed description of the function of the seventh cranial nerve.
4. Discuss briefly the physiology of the liver.
5. What would be the results of eating in excess of albuminous, oleaginous, and farinaceous foods?
6. (*a*) Discuss inflammation. (*b*) What are the functions of the skin?
7. Give function and composition of saliva, gastric juice, and bile.
8. Describe manner of using the ophthalmoscope, and name some of the diseases that can be diagnosed by its use.
9. Give diagnosis and treatment of iritis and keratitis.
10. Define hordeolum, chalazion, ptosis, astigmatism, myopia, glaucoma, and refraction.
11. Differentiate diphtheria and follicular tonsillitis.
12. Differentiate chronic laryngitis and tuberculous laryngitis, and give treatment of each.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

WISCONSIN BOARD OF MEDICAL EXAMINERS.

January, 1910.

ANATOMY.

1. Occipital, 2 parictal, 2 temporal, frontal, ethmoid, sphenoid, 2 lacrymal, 2 malar, 2 nasal, 2 palate, 2 superior maxillary, 2 inferior turbinate, vomer, and inferior maxillary.
2. There are 206 *named* bones in the human body.
3. First, or olfactory, through foramina in cribriform plate of ethmoid. Second, or optic, through optic foramen. Third, or motor oculi, through sphenoidal fissure. Fourth, or trochlear, through sphenoidal fissure. Fifth, or trigeminus, through sphenoidal fissure, foramen rotundum, and foramen ovale. Sixth, or abducens, through sphenoidal fissure. Seventh, or facial, through stylomastoid foramen. Eighth, or auditory, through internal auditory meatus. Ninth, or glossopharyngeal; tenth, or pneumogastric, and eleventh, or spinal accessory, through jugular foramen. Twelfth, or hypoglossal, through anterior condyloid foramen.
4. See Cunningham's Anatomy (1909), page 607; or Gray's Anatomy (1908), page 982.
5. See Cunningham's Anatomy (1909), page 723; or Gray's Anatomy (1908), page 1113.
6. See Cunningham's Anatomy (1909), page 905; or Gray's Anatomy (1908), page 772.
7. See Cunningham's Anatomy (1909), page 797; or Gray's Anatomy (1908), pages 589, 593, 667 and 670.
8. See Cunningham's Anatomy (1909), page 754; or Gray's Anatomy (1908), page 1168.

PEDIATRICS.

1. See French's Practice (1907), page 799; or Osler's Practice (1909), pages 519 and 524.
2. See French's Practice (1907), pages 424 and 429; or Osler's Practice (1909), pages 269 and 289.

3. Enuresis. *Etiology:* Irritation of bladder, phimosis, adherent prepuce, caruncle, threadworms in rectum, fissure, overloaded rectum, stone in bladder, very acid or alkaline urine, paralysis, hip-joint disease, drinking too much fluid before bed time. *Treatment:* Remove cause, if possible; light diet, restricted fluids before bed time, light bed clothes, regular habits of urination and defecation, raising the foot of the bed, cold sponging, electricity; belladonna, bromides, ergot, cantharides and potassium nitrate have all been used for the relief of this condition.

4. *Membranous laryngitis* is practically diphtheria. See French's Practice (1907), page 184; or Osler's Practice (1909), page 200. *Synonyms:* Croup, membranous croup, angina membranacea, cynanche maligna, putrid sore throat, angina maligna, etc.

PATHOLOGY, HISTOLOGY, BACTERIOLOGY.

1. *Degeneration* is a pathological process in which abnormal substances are formed within living cells, or the entire cells are transformed into abnormal material. *Causes of fatty degeneration:* Excess of oxidizable material, heredity, diminished oxidation, high temperature, atrophy of the liver, poisons, anemia, cachexia, diabetes. *Causes of amyloid degeneration:* Suppuration, ulceration, tuberculosis, syphilis, gastroenteritis.

2. *Types:* Red or hemorrhagic, and white or anemic. *Red infarcts* are blackish red in color; have a slightly raised base; are surrounded by a hyperemic zone (if recent); are commonly found in lungs, spleen, and kidneys; the area of infarction is cone shaped, with the base at the surface of the organ, the apex pointing towards the center, and corresponding to the point of entrance and exit of the artery and vein. The blood-vessels are overfilled, due to either a backflow of blood from the veins, or to a free capillary anastomosis.

3. When the accumulation of fluid is due to circulatory disturbances it is called a *transudate;* when it is due to inflammation it is called *exudate. Transudates* do not, as a rule, coagulate, but may become slightly turbid on heating; and their specific gravity is usually below 1015. *Exudates* are rich in albumin, and so coagulate on heating; they are also rich in fibrin, and so may coagulate spontaneously; their specific gravity is usually above 1018.

4. See Rose and Carless' "Surgery" (1908), page 40; or Da Costa's "Surgery" (1908), page 81.

5. In *atrophic cirrhosis:* The liver is shrunken and indurated, rough, and of a pale or yellow color; a growth of new connective tissue is disposed in broad bands which run in various directions, and by their contraction divide the liver into numerous irregular lobes. Many acini may be affected at one time. The capsule may be thickened, or adherent to the diaphragm. Jaundice is slight, and comes on late; ascites is pronounced and may occur early.

6. In *chronic parenchymatous nephritis,* "both degenerative and proliferative changes are seen. The tubular epithelium is always more or less affected, showing signs of cloudy swelling, fatty degeneration, desquamation, and disintegration, most marked in the convoluted tubules, but also present in the loops and collecting tubules. The distribution of these changes is usually patchy, giving rise to mottling of the cortex. The lumen of the tubes may be dilated, and contain granular and fatty matters, and hyaline casts, the latter formed by coagulation of exudation in the tubules. The glomeruli may occasionally appear normal, but there is almost always some swelling and hyaline degeneration, together with some proliferation and desquamation, of the epithelium, so that they become highly cellular. Occasionally the glomerular changes may be more marked than the tubular: fatty degeneration of the glomerular and capsular epithelium may be prominent, or there may be swelling proliferation, and desquamation of the epithelium, or both these changes may be combined. The glomerular vessels may be compressed, their endothelium degenerate, and they may be obstructed by leucocytes or by hyaline thrombi, and finally obliterated. Interstitial changes, though present, are not conspicuous, and consist of edema, and scattered foci of round-celled infiltration about the glomeruli and veins. Sometimes hemorrhages are evident in some of the glomeruli and the corresponding tubules. Lardaceous infiltration frequently accompanies parenchymatous nephritis."

7. (*a*) Lipoma, myoma, neuroma, chondroma, fibroma, osteoma, odontoma, myxoma, glioma, angioma, sarcoma.

(*b*) *Malignant tumors* are not encapsulated, tend to infiltrate the surrounding tissues, give rise to metastatic growths, have a tendency to recur after removal, give a cachexia, have a fatal tendency.

8. The *causes of arteriosclerosis* are: Increased blood-pressure, old age, overeating, alcohol, lead poisoning, gout, syphilis, high pressure of modern life, renal disease.

In *arteriosclerosis* it is mainly the inner coat which is affected; this becomes thickened by layers of fibrous tissue owing to the proliferation of the subendothelial connective tissue cells. This thickening is not uniform. The elastic layer becomes granular, and it may be partially destroyed. Where high arterial tension exists the media is affected, and the muscle fibers become hypertrophied; sometimes degeneration occurs here. The vessels increase in length and thickness, becoming tortuous; they also feel resistant and cord-like.

9. *Diseases due to bacteria:* Typhoid, dysentery, syphilis, relapsing fever, Malta fever, influenza, bubonic plague, anthrax, cholera, diphtheria, tetanus, glanders, leprosy, tuberculosis, pneumonia, gonorrhea, cerebrospinal meningitis; and *probably:* mumps, rabies, yellow fever, whooping cough, scarlet fever, smallpox, typhus, vaccine, chickenpox, rubella, dengue, rheumatism, beri-beri, glandular fever.

Communication may be by: Air, food, drink, contact, fomites, insects.

10. (*a*) To demonstrate the existence of *tubercle bacilli* in the sputum: The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

(*b*) *The Widal reaction:* "Three drops of blood are taken from the well-washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. . . . A positive reaction is obtained when all the bacilli present gather in one or two masses or clumps, and cease their rapid movement inside of twenty minutes." (From Thayer's *Pathology.*)

11. The lips, mouth, tongue, pharynx, and esophagus are all lined with stratified squamous epithelium; the esophagus, further, has mucous glands; the stomach is lined with columnar cells, has gastric glands, with shallow crypts, and acid and peptic cells; the small intestine is lined with simple columnar cells, has also goblet cells, Brunner's glands, crypts of Lieberkuhn, villi and valvulæ conniverites; the large intestine is lined with simple columnar epithelium, has goblet cells, crypts, but no villi or valvulæ conniverits; the anus is lined with stratified squamous epithelial cells.

12. See Cunningham's "Anatomy" (1909), page 1120; or Gray's "Anatomy" (1908), page 1346.

PRINCIPLES AND PRACTICE.

1. Mitral regurgitation, mitral obstruction, aortic regurgitation, aortic obstruction. See French's "Practice" (1907), page 576; or Osler's "Practice" (1909), page 796.

2. See French's "Practice" (1907), page 74; or Osler's "Practice" (1909), page 70.

3. See French's "Practice" (1907), pages 156 and 174; or Osler's "Practice" (1909), pages 172 and 189.

4. See French's "Practice" (1907), page 785; or Osler's "Practice" (1909) page 508.

5. See French's "Practice" (1907), pages 748 and 751; or Osler's "Practice" (1909), pages 473 and 477.

6. See French's "Practice" (1907), page 838; or Osler's "Practice" (1909), page 571.

7. See French's "Practice" (1907), pages 623, 626, and 628; or Osler's "Practice" (1909), pages 848 and 851.

MATERIA MEDICA AND THERAPEUTICS.

1. Formalin, hydrogen dioxide, mercury bichloride, silver nitrate, creolin, and chromic acid.

2. Arsenic. *Physiological action:* Escharotic; irritant, tonic; increases cardiac action, respiratory power, intestinal secretions, and peristalsis; produces edema, itching, diarrhea, epigastric pain, irritable and feeble heart. *Therapeutic uses:* In stomach disorders, bronchial and pulmon-

ary affections, diabetes, diarrhea, anemia, and chlorosis, chorea, malaria, and chronic skin diseases.

3. *Anthelmintics* are given by Potter as follows: For *threadworm (Oxyuris vermicularis)*—alum, ferrous sulphate, lime-water, quassia, sodium chloride, tannin, all by enema. For roundworm *(Ascaris lumbricoides)*—santonin, spigelia, chenopodium, azedarach, internally, with senna or calomel. For *tapeworms (Teniæ,* etc.)—aspidium (filix mas), kamala, cusso, granatum (pelletierine), pepo, turpentine, chloroform. For *hookworm (Uncinaria, Ankylostomum)*—thymol, aspidium.

4. (1) Hydrargyri chloridum corrosivum, gr. 1/20; (2) hydraragyri iodidum rubrum, gr. 1/20; massa hydrargyri, gr. iv; (4) hydrargyri chloridum mite, gr. ij; (5) hydrargyrum cum creta, gr. iv.

5. The *symptoms of poisoning by strychnine* are "a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours."

6. *Treatment of strychnine poisoning:* The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible.

7. (1) Tincture of ferric chloride, ♏viij; (2) Basham's mixture, ʒiv; (3) reduced iron, gr. j; (4) syrup of ferrous iodide, ♏xv; (5) tartarated iron, gr. iv; (6) dried sulphate of iron, gr. ij.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), page 164; or Hirst's "Obstetrics" (1909), page 180.

2. See Williams' "Obstetrics" (1909), page 199; or Hirst's "Obstetrics" (1909), page 188.

3. See Williams' "Obstetrics" (1909), page 235; or Hirst's "Obstetrics" (1909), page 388.

4. See Williams' "Obstetrics" (1909), page 509; or Hirst's "Obstetrics" (1909), page 238.

5. See Williams' "Obstetrics" (1909), page 672; or Hirst's "Obstetrics" (1909), page 221.

6. *Diagnosis of hydatids:* The pregnancy begins as in normal cases, but in about the third month the uterus becomes suddenly and rapidly enlarged; irregular uterine hemorrhages occur; and there is a discharge of fluid containing the vesicular growths; labor occurs, and the mass of cysts is expelled. *Treatment:* Empty the uterus as soon as possible, but beware of rupturing the uterine wall; and secure uterine contraction.

7. Puerperal eclampsia. *Etiology:* Uremia, albuminuria, imperfect elimination of carbon dioxide by the lungs, medicinal poisons, septic infection; predisposing causes are renal disease and imperfect elimination by the skin, bowels, and kidneys. *Symptoms:* Headache, nausea, and vomiting, epigastric pain, vertigo, ringing in the ears, flashes of light or darkness, double vision, blindness, deafness, mental disturbance, defective memory, somnolence; symptoms easily explained by the circulation of toxic blood through the nerve centers. These may be preceded by lassitude, and accompanied by constipation, or by diarrhea. Headache is perhaps the most significant and common warning symptom. In bad cases the urine is reduced in quantity (almost suppressed), very dark in color, its albumin greatly increased, so that it becomes solid on boiling. Next comes the final catastrophe of convulsions. The convulsive fit begins with twitching of the facial muscles, rolling and fixation of the eyeballs, puckering of the lips, fixation of the jaws, protrusion of the tongue, etc., soon followed by violent spasms of the muscles of the trunk and limbs, including those of respiration; hence lividity of the face and stertorous breathing, biting of the tongue, opisthotonus, etc. The fit lasts fifteen or twenty seconds, ending in partial or complete coma, possibly death; or consciousness may return, to be followed by other convulsions.

8. See Williams' "Obstetrics" (1909), page 818; or Hirst's "Obstetrics" (1909), page 585.

GYNECOLOGY.

1. The *pathology of menstruation* includes: (1) Premature or precocious menstruation; (2) protracted menstruation; (3) absence of menstruation (amenorrhea); (4) profuse menstruation (menorrhagia); (5) flow in between periods (metrorrhagia); (6) painful menstruation (dysmenorrhea); (7) vicarious menstruation; (8) regular intermenstrual pain.

2. The *most common causes of sterility in woman* are: Gonorrhea, absence or errors in development of any part of the genital tract, malformations of genitals, fistulæ, lacerations, obesity, alcoholism, pelvic inflammations, dyspareunia, inflammations of uterus, tubes, or ovaries, elongated cervix. *Treatment* consists in removing the cause, if possible; curettage has been recommended; in the presence of developmental errors little or nothing can be done; atresia of cervix can be treated by dilatation; if the uterus is misplaced it must be replaced.

3. Metritis. *Symptoms:* Constitutional disturbances, temperature from 100° to 105° F., chills, pelvic pain, and discharge which may be profuse, offensive, purulent, or blood-stained. The vagina is hot; the uterus is tender, heavy, and bulky; later it may become fixed; the cervix is first soft, then hard and firm. *Course:* If of puerperal origin it *may be* fatal; otherwise the tendency is to recovery, after a slow and protracted course. As complications there may be: Pelvic peritonitis and cellulitis, pyosalpinx, and sterility. The disease may produce backache, leucorrhea, uterine displacements, dysmenorrhea, and sterility. *Diagnosis* can be made from above symptoms and course.

4. Curettage. *Indications:* For diagnosis, to remove pieces of retained placenta or decidua, endometritis, mucous polypi, hemorrhage, dysmenorrhea, endocervicitis. *Dangers:* Sepsis, perforation of uterus, hemorrhage, abortion, inflammation of uterus or adnexa. *Procedure:* All antiseptic and aseptic precautions are necessary, the patient should be in the dorsal position, the vagina is to be disinfected, and the cervical canal dilated; a speculum is introduced into the vagina and the cervix is drawn down with volsella; the uterine cavity is irrigated with creolin or lysol; a curette is inserted to the fundus and moved down to the internal os; the operator should begin at one cornu, and go in the same direction all around till he reaches the starting point, and if necessary repeat till no more spongy or hyperplastic tissue appears; the fundus should be scraped separately by moving the curette along it from side to side; in going towards the fundus no scraping should be done, and care must be taken not to perforate the uterus; should this happen no fluid must be injected; otherwise the uterus and vagina are again irrigated, and one or more strips of iodoform gauze are inserted into the cavity to act either as a hemostatic plug or as a drain, which is diminished with two days' interval and withdrawn on the sixth day. A hemostatic tampon should be placed in the vagina and withdrawn the following day. If any fever arises, the tampon is at once removed and the vagina douched with antiseptic fluid every three hours. If not, the vagina is only swabbed with the same every day, and packed loosely with iodoform gauze. After the final removal of the gauze the antiseptic douche is given twice a day until there is no more discharge

NEUROLOGY, DIETETICS, MEDICAL JURISPRUDENCE.

1. (*a*) The neuron. (*b*) The *neuron* consists of a nerve cell of variable size, with nucleus, nucleolus, and one or more processes (axis-cylinder or neuraxon, and dendrites), there is no cell wall, and but little chromatin. (*c*) In *acute anterior poliomyelitis,* the anterior cornua (especially of the lumbar and cervical enlargement) are specially involved; the anterior roots atrophy.

2. (*a*) See Cunningham's "Anatomy" (1909), page 452; or Gray's "Anatomy" (1908), page 834. Pia, arachnoid, and dura. (*b*) To the disc between the first and second lumbar vertebra. (*c*) In *locomotor ataxia* the posterior columns, roots, and spinal ganglia are first involved.

3. (*a*) Seventh, facial; eighth, auditory; tenth, pneumogastric; twelfth, hypoglossal. (*b*) See below, Physiology, Questions 1 and 3. (*c*) The Gasserian ganglion is on the fifth cranial nerve, and is situated in Meckel's hollow, near the apex of the petrous portion of the temporal bone.

4. (*a*) See Cunningham's "Anatomy" (1909), page 648; or Gray's "Anatomy" (1908), page 1030. (*b*) Internal and external popliteal. (*c*) Anywhere between the sacral plexus and the lower third of the thigh.

5. (*a*) The pneumogastric and the sympathetic. (*b*) The former is the inhibitory nerve and slows the heart; the latter augments or accelerates the beats.

6. When abortion is undertaken by properly qualified physicians after due consultation with other physicians, and for the purpose of saving the life or health of the mother, it is *justifiable;* under all other circumstances it is *criminal.* The former is a perfectly lawful medical procedure; the latter is illegal.

7. In *expert* testimony, the witness may give his *opinion* on facts or supposed facts as noted by himself or asserted by others. *Theoretically,* this can be done only by those perfectly familiar with the subject in question; but *practically* any (or almost any) physician with a license to practice is accepted as an expert witness.

In *ordinary* testimony, the witness testifies to *facts* which he has seen, or heard, or with which he has become acquainted by personal observation.

Four positive signs of death: (1) The permanent cessation of circulation; (2) the permanent cessation of respiration; (3) rigor mortis; (4) putrefaction.

8. In Wisconsin: The words "insane persons" include idiots, persons *non compos mentis*, lunatics, and distracted persons. Any three citizens may apply to the county court for a judicial enquiry and an order committing a person to a State hospital. Two physicians are appointed as examiners in lunacy. The form of their report is prescribed. Insane persons may also be admitted as voluntary patients upon two physicians' certificates.—(From Witthaus and Becker's *Medical Jurisprudence*, etc.)

9. *Tissue formers:* Lean meat, eggs, wheat. *Work and heat producers:* Bread, butter, sugar, potatoes.

10. See French's "Practice" (1907), page 111; or Osler's "Practice" (1909), page 99.

11. About 65 to 70 ounces of water are required, besides what is obtained from the food. *Four functions of water:* (1) It is the chief ingredient of the fluids of the body; (2) it serves as a distributor of body heat; (3) it regulates the body temperature (by means of absorption and evaporation); and (4) it enters into the chemical composition of the tissues.

12. The fat of the body is obtained from fatty foods, from carbohydrates, and from proteids.

In *apoplexy* the diet must be light, nutritious, and unstimulating, and consist chiefly of milk and farinaceous foods. Animal food is best avoided, or limited to fish; alcohol, tea, and coffee are also best avoided. A vegetarian and milk diet is best, but individual peculiarities have to be studied. Rectal feeding may be necessary. The reason for the reduced diet is to reduce arterial tension, and so prevent a recurrence of the hemorrhage. Intravascular pressure must also be kept low, hence too little fluid must not be given, and the kidneys should be kept active with diuretics.

PHYSIOLOGY, OPHTHALMOLOGY, AND LARYNGOLOGY.

1. Pneumogastric nerve. *Superficial origin:* Groove between restiform and olivary bodies. *Deep origin:* Nuclei in floor of fourth ventricle. *Distribution* is shown by the names of the branches: Meningeal, auricular, pharyngeal, superior and inferior laryngeal, cardiac, pulmonary, esophageal, and gastric. *Function:* It supplies (1) *motor* influence to the pharynx and esophagus, stomach, and intestines, to the larynx, trachea, bronchi, and lungs; (2) *sensory* and, in part, (3) *vasomotor* influence, to the same regions; (4) *inhibitory* influence to the *heart;* (5) *inhibitory* afferent impulses to the *vasomotor center;* (6) *excito-secretory* to the salivary glands; (7) *excito-motor* in coughing, vomiting, etc.

2. *Alcohol* excites, then depresses the brain; in small doses it stimulates the stomach and may help digestion; later it congests the stomach and liver, over-stimulates the gastric glands and hepatic cells, causes gastric catarrh, produces pathological conditions, and impairs digestion.

3. The facial nerve is the motor nerve of the muscles of expression, also of the platysma and the buccinator; it also supplies the muscles of the external ear, the stylohyoid, and the posterior belly of the digastric. Through the chorda tympani it is a nerve of taste and a vasodilator of the vessels of the submaxillary and sublingual glands. Hence section of the nerve would cause abolition of these various functions; notably, facial paralysis would ensue. When it is paralyzed, the muscles of the face being all powerless, the countenance acquires on the paralyzed side a characteristic, vacant look, from the absence of all expression; the angle of the mouth is lower, and the paralyzed half of the mouth looks longer than that on the other side; the eye has an unmeaning stare, owing to the paralysis of the orbicularis palpebrarum. All these peculiarities increase the longer the paralysis lasts, and their appearance is exaggerated when at any time the muscles of the opposite side of the face are made active in any expression, or in any of their ordinary functions. In an attempt to blow or whistle, one side of the mouth and cheeks acts properly, but the other side is motionless, or flaps loosely at the impulse of the expired air; so, in trying to suck, one side only of the mouth acts; in feeding, the lips and cheek are powerless, and, on account of paralysis of the buccinator muscle, food lodges between the cheek and gums.

4. A lobule of the liver is about 1-20 to 1-12 inch in diameter. It has a darkish red center and a lighter circumference. The center is occupied by an intralobular vein which collects the blood from the capillaries of the lobule, and flows into the sublobular vein, which latter opens into the hepatic vein. Around the lobules are the interlobular veins; these are branches of the portal system; capillaries passing from the circumference to the center of the lobule connect the interlobular and intralobular veins. Between the network of capillaries in the lobule the hepatic cells are packed.

The *functions of the liver* are: (1) The secretion of bile, (2) the formation of glycogen, (3) the formation of urea and uric acid, (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.

5. *Excess of albuminous food* may cause: Congestion and enlargement of the liver, plethora, imperfect oxidation and elimination, delayed metabolism, fever, malaise, diarrhea, albuminuria, calculus, lithemia, torpor, and biliousness. *Excess of oleaginous food* may cause: Delayed nitrogenous assimilation, production of excessive fat. *Excess of farinaceous food* may cause: In addition to same as excess of oleaginous food, acidity and flatulence, corpulence, enfeebled heart action, dyspepsia, and glycosuria

6. (*a*) *Inflammation* is the series of changes which occur in a part as the result of injury, provided the injury is not so severe as to destroy the tissues; it is the "reaction of the tissues to injury." (*b*) *The functions of the skin* are: Protection, sense of touch, excretion, regulation of body temperature, absorption, and respiration.

7. Saliva. *Functions:* (1) To moisten the mouth; (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste; (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition, and (6) to change starches into dextrin and sugar. *Composition:* Water, mucin, ptyalin, potassium sulphocyanide, proteid, sodium chloride, and other salts.

Gastric juice. *Functions:* To convert proteids into proteoses and peptones, to curdle milk. *Composition:* Water, pepsin, hydrochloric acid, chlorides, and phosphates.

Bile. *Functions:* (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metaholism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach, and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action. *Composition:* Water, sodium glycocholate, sodium taurocholate, lecithin, cholesterin, pigment, and inorganic salts.

8. *Use of the ophthalmoscope:* "The patient is placed in front of the source of illumination, and to the side of the eye to be examined, the light behind him so that it shines on his temple, just touching the tips of the outer lashes. He is then told to look straight ahead to an object on a level with his eyes across the room. To examine the patient's right eye the surgeon sits or stands, and holds his ophthalmoscope in his right hand before his own right eye. To examine the patient's left eye he places himself to the left of the patient and holds the ophthalmoscope in his left hand before his own left eye. The ophthalmoscope is brought close to the eye under examination, the mirror of the ophthalmoscope having been inclined and the instrument held in such position that the light from the source of illumination will be reflected directly into the patient's pupil; then, if the media are clear, a red glare called the fundus reflex is seen through the hole in the mirror. If the examiner wears glasses, he need not remove them; in fact, if he is astigmatic, he had better accustom himself to working with his correcting lenses on."—(From Gould and Pyle's *Compend.*)

Diseases which can be diagnosed by its use: Brain tumors, abscess of brain, anemia of brain, cerebral aneurysm, tabes dorsalis, multiple sclerosis, exophthalmic goiter, nephritis, diabetes, hypertrophy of the left ventricles of the heart, fatty degeneration of the heart, syphilis, alcoholic or tobacco poisoning.

9. Iritis. *Symptoms:* Pain, photophobia, small pupil, ciliary congestion, discoloration of iris, exudate in anterior chamber. *Treatment:* Causal, abstraction of blood from temples, atropine, diaphoresis, shielding the eye from light. Keratitis. *Symptoms:* Pain, photophobia, ciliary injection, blepharospasm, impairment of vision, cornea *moy* be perforated. *Treatment:* Causal, atropine, tonics, and symptomatic.

10. *Hordeolum* is an abscess or inflammation in the tissues about the follicle of an eyelash. *Chalazion* is a tumor in the eyelids due to obstruction of the duct in a Meibomian gland. *Ptosis* is a drooping of the upper eyelid, generally due to paralysis. *Astigmatism* is a condition in which, owing to a greater curvature of the eye in one

meridian than in others, the refractive power of the eye varies. *Myopia* is a condition in which the anteroposterior axis of the eye is abnormally long, and parallel rays are focused in front of the retina. *Glaucoma* is a disease of the eye due to increased intraocular tension, and resulting in excavation and atrophy of the optic disc, and finally blindness. *Refraction* is the deviation produced in the course of a ray of light in its passage from one medium to another. Also, the act or process of refracting.

11. In *diphtheria* the onset is more gradual; the temperature rises to about 101° F.; the tonsils are not much enlarged; there is an exudate of a thick, grayish membrane which is very adherent, is removed only with difficulty, and leaves a bleeding surface; this membrane soon reforms and may be found on the fauces and pharynx as well as on the tonsils; in the exudate the Klebs-Loeffler bacilli may be found. In *follicular tonsillitis* the onset is more sudden; the temperature may be a little higher than that of diphtheria; there is no membrane, but the tonsils are red and swollen, and in the crypts are seen white, cheesy spots or plugs, which consist of broken-down epithelium, and are easily brushed away; Klebs-Loeffler bacilli are never found.

12. See French's "Practice" (1907), pages 645 and 360; or Osler's "Practice" (1909), pages 597 and 600.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	June —
Arizona*	Ancil Martin, Phoenix	Phoenix	April 4
Arkansas	F. T. Murphy, Brinkley	Little Rock	May 10
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	April 5
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	April 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 12
Delaware	J. H. Wilson, Dover	Dover	June 21
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	April 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	April 4
Georgia	E. R. Anthony, Griffin	Atlanta	April —
Idaho*	W. F. Howard, Pocatello		April 5
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	July 12
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	F. P. Hatfield, Olathe	Topeka	June 14
Kentucky	J. N. McCormack, Bowling Green	Louisville	July —
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 17
Maine	F. W. Searle, Portland	Portland	July —
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 7
Massachusetts*	E. B. Harvey, State House, Boston	Boston	July 12
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 14
Minnesota	W. S. Fullerton, St. Paul	St. Paul	May 10
Mississippi	S. H. McLean, Jackson	Jackson	May 10
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	June 13
Montana*	Wm. C. Riddell, Helena	Helena	April 5
Nebraska	C. A. Carr, Lincoln	Lincoln	Aug. 3
Nevada	S. L. Lee, Carson City	Carson City	May 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	July 6
New Jersey	H. G. Norton, Trenton	Trenton	June 21
New Mexico	J. A. Massie, Santa Fe	Santa Fe	April 11
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	May 24
N. Carolina	B. K. Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	April 4
Ohio	Geo. H. Matson, Columbus	Columbus	June 14
Oklahoma*	F. P. Davis, Enid	Guthrie	April 12
Oregon	B. E. Miller, Portland	Portland	July 5
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg	June —
Rhode Island*	G. T. Swarts, Providence	Providence	April 7
S Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown	July 13
Tennessee	C. A. Abernathy, Pulaski	Memphis / Nashville / Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Austin	June 28
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	April 4
Vermont	W. Scott Nay, Underhill	Burlington	July 12
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	T. C. McFadden, Seattle	Spokane	July 5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	April 12
Wisconsin	J. M. Beffel, Milwaukee	Madison	July 12
Wyoming	S. B. Miller, Laramie	Laramie	June 22

*No reciprocity recognized by these States.
†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Indiana.—Reciprocity has been established, under certain conditions, between this State and New York.

Virginia.—Reciprocity now exists between Virginia and North Carolina. It is proposed to divide the examination in this State, so that candidates may take half of the subjects at a time. The fee for reciprocity for those coming into, or going out of, the State is $25.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of March 5, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	985	177
Diphtheria	390	43
Measles	1,703	31
Scarlet Fever	703	43
Smallpox	—	—
Varicella	212	—
Typhoid Fever	30	5
Whooping Cough	36	2
Cerebrospinal Meningitis	5	7
Malarial Fever	—	—
Totals	4,064	308

For Night Sweats.—According to Griffin, camphoric acid in 15-grain doses and a sponge in tepid water and vinegar is usually sufficient.—*Memphis Medical Monthly.*

Vaseline Oil in the Abdomen.—Wilkie says that he feels justified in advocating the introduction of vaseline oil into the peritoneal cavity in the following conditions: 1. In operations for the relief of old-standing adhesions. 2. In operations for localized or diffuse peritonitis, where handling of the viscera is unavoidable. 3. In operations for generalized peritonitis to favor subsequent drainage and intestinal peristalsis.—*Surgery, Gynecology, and Obstetrics.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 4, 1910:

		CASES.	DEATHS.
CHOLERA.			
India, Bombay	Jan. 19–25	..	3
Calcutta	Jan. 9–15	..	15
Rangoon	Jan. 9–15	..	4
Java, Batavia	Jan. 9–15	1	1
Philippine Islands, Manila	Jan. 2–15	28	20
Provinces—			
Bataan	Jan. 2–15	12	10
Cebu	Jan. 2–15	9	14
Leyte	Jan. 2–15	22	21
Pampanga	Jan. 2–15	37	21
Rizal	Jan. 2–8	2	2
Russia, general	Jan. 23–29	1	2
Straits Settlements, Singapore	Jan. 9–15	..	2
YELLOW FEVER.			
Brazil, Para	Jan. 31–Feb. 5	10	7
Ecuador, Guayaquil	Jan. 16–31	31	8
PLAGUE.			
Brazil, Pernambuco	Dec. 15–31	..	7
Rio de Janeiro	Jan. 9–23	1	..
Ecuador, Babahoyo	Jan. 16–31	1	2
Guayaquil	Jan. 16–31	28	14
Milagro	Jan. 16–31	6	2
Egypt, Provinces, Beni Souef	Jan. 29–Feb. 1	2	1
Fayoum	Jan. 28	..	1
Galioobeh	Feb. 3	1	..
Garbieh	Feb. 2	1	1
Kena	Feb. 3	.	1
Japan, Kobe	Jan. 23–29	.	1
Russia, Astrakhan	Jan. 31–Feb. 6	11	11
SMALLPOX.			
Algeria, Algiers	Jan. 1–31	.	1
Brazil, Pernambuco	Dec. 15–31	..	25
Rio de Janeiro	Jan. 9–23	1	.
Canada, British Columbia, Vancouver	Jan. 1–31	3	..
China, Amoy	Jan. 9–15	..	2
Hankow	Jan. 8–15	1	..
Shanghai	Jan. 17–30	1	3
Ecuador, Guayaquil	Jan. 1–14	95	13
Egypt, Cairo	Jan. 30–Feb. 4	1	..
Great Britain, Bristol	Feb. 6–12	1	..
London	Jan. 31–Feb. 5	2	..
India, Bombay	Jan. 19–25	..	30
Madras	Jan. 15–21	..	1
Rangoon	Jan. 9–15	..	3
Italy, general	Feb. 6	9	..
Naples	Jan. 30–Feb. 6	18	1
Mexico, Aguascalientes	Feb. 6–12	..	5
Mexico	Jan. 6–12	..	1
Monterey	Feb. 14–20	..	1
Veracruz	Feb. 13–19	1	.
Philippine Islands, Manila	Jan. 2–15	6	..
Portugal, Lisbon	Jan. 31–Feb. 5	14	..
Russia, Libau	Jan. 31–Feb. 6	2	..
Moscow	Jan. 23–29	22	7
Odessa	Jan. 23–Feb. 5	36	14
Riga	Jan. 23–29	4	..
Warsaw	Nov. 21–27	..	15
Spain, Barcelona	Feb. 1–7	..	2
Madrid	Jan. 1–31	..	19
Turkey, Constantinople	Jan. 31–Feb. 6	..	1

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Original Articles.

THE METHOD OF RESPIRATION BY INTRATRACHEAL INSUFFLATION, ITS SCIENTIFIC PRINCIPLE AND ITS PRACTICAL AVAILABILITY IN MEDICINE AND SURGERY.*

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NEW YORK.

[From the Department of Physiology and Pharmacology of the Rockefeller Institute for Medical Research.]

Respiration means in general the supply of oxygen to and removal of carbon dioxide from the animal body. In lower organisms the exchange of gases takes place on the surface, perhaps exclusively by the physical process of diffusion. The surrounding medium contains more oxygen and less carbon dioxide than the animal tissues; and each gas diffuses through the permeable surface membrane of the animal in the direction of diminished tension, that is, oxygen enters into the body and carbon dioxide leaves it. In higher animals, especially in the higher vertebrates, we have to distinguish between an *internal* and *external* respiration. The exchange of gases in the internal respiration takes place between the tissues and the blood capillaries. The mechanism is here nearly the same as in the respiration of the lower organisms. The arterial blood, which contains more oxygen and less carbon dioxide than the tissues, while passing through the capillaries gives up oxygen to and takes up carbon dioxide from the tissues also by diffusion. The accumulation of the carbon dioxide and the exhaustion of oxygen within the capillary blood is prevented by the *continuous flow* of the blood. In the lower animals this result is obtained by the movements of the animals within the medium and by currents of the medium which are in some cases sustained by ciliary movements on the surface of the animal. The external respiration takes place within the lungs. Here we have again to distinguish two parts of the function: one part which attends to the exchange of the gases between the alveolar air and the lung capillaries and another part which attends to the maintenance of the proper composition of the gases in the alveolar air. The first part of the mechanism does not differ essentially from the corresponding part in the internal respiration. In the alveolar air the percentage of oxygen is greater and that of the carbon dioxide is smaller than in the lung capillaries; oxygen therefore is given to and carbon dioxide taken from the pulmonary circulation. The other part of the function of external respiration presents here a new problem and requires a complicated mechanism for its proper solution. The numerous alveoli with their extensive respiratory surface may be considered as one huge cavity containing at the end of a normal expiration about 3000 c.c. of air, that is 1500 c.c. *reserve* and 1500 c.c. *residual air.* The tension of the carbon dioxide in this air is relatively only slightly less than that of the lung capillaries and the difference between the tensions of oxygen in the capillaries and the alveoli is not very great either. Without a frequent renewal of the air in the alveoli the differences would be completely swept away in a few minutes; no exchange of gases could then take place and the animal would die of asphyxia. If the alveoli would open up directly into the surrounding air, for instance, like the system of *tracheæ* in insects, or myriapodes, a small contrivance would suffice to accomplish the proper exchange of the gases in the alveolar air by means of simple diffusion. However, as it is, the alveoli are connected with the air surrounding the animal body by means of long, narrow, and tortuous canals; the small and large bronchi, the trachea, and the larynx and the pharynx, mouth, and nose. The efficient exchange of the gases can be accomplished here only by a proper *system of ventilation.* We know the system which nature employs; it differs in one essential from the method employed for the purpose of renewal of the medium carrying the gases in the respiration of the lower organisms or in the internal respiration of the higher animals. While here the renewal of the medium is attended by a continuous movement going only in one direction, the renewal of the alveolar air in the lungs is accomplished by alternating movements going in the opposite direction. The external respiration, or simply the respiration, as it is generally designated when speaking of higher animals, is accomplished here, as is well known, by two separate actions: the inspiration and the expiration. During the inspiration the thoracic cavity becomes distended by the force of muscular contraction and a quantity of air is aspired into the lungs; during the immediately following expiration a similar quantity of air is driven out again by the elastic force of the tissues which become overdistended during the inspiration. The quantity of air temporarily inspired, known as the *tidal air,* is comparatively small, only about 500 c.c., and one-third of this air remains in the dead space that is in the bronchi, the trachea, etc., and does not come in direct contact with the air in the alveoli. The exchange of the gases between the tidal air and the air in the alveoli takes place by diffusion which, however, is probably greatly accelerated by some sort of shock, brought about by the respiratory movements, which assists in mixing the two kinds of air more rapidly and intimately. The exchange takes place with too great rapidity to explain it by the action of diffusion alone; carbon dioxide is present even in the upper part of the air column already at the beginning of each expiration,

*Read at the New York Academy of Medicine, February 17, 1910.

although this part is separated from the alveolar air by a long *dead space.*

The efficiency of the system of ventilation in the normal animal depends upon the normal activity of the inspiratory muscles and the intact condition of the thoracic cavity. When the latter is not air-tight or when the activity of the inspiratory muscles are greatly impaired by disease or drugs, the ventilation fails and the animal dies from asphyxia. To meet such emergencies, an efficient method of artificial respiration is in vogue for a long time, at least in animal experimentation. It has been practised incidentally by Vesalius in the sixteenth century and has been systematically used by Robert Hook in the following century; it is now, as is well known, one of the regular methods in use in physiological laboratories. It is in substance an exact imitation of the normal ventilation, each respiration consisting of a cycle of two opposite movements, except that the inspiration is accomplished by blowing air by some external force instead of aspiring it; the expiration is accomplished exactly in the same manner and by the same forces as in a normal expiration of a normal animal.

In the course of experiments which Dr. Auer and I have carried out last year we discovered that the ventilation of the alveolar air can be satisfactorily accomplished in a similar manner as the one which is acomplished in the internal inspiration, that is by *a continuous movement in one direction.* When through an opening in the trachea a tube, of a diameter which is distinctly smaller than the lumen of the trachea, is introduced so as to have the lower end reach the bifurcation, or resting loosely even within the upper end of one bronchus, a stream of plain air, sent continuously through this tube, will keep up the life of even a completely curarized animal. The pressure by which the air is driven need not be more than 10 or 12 millimeters of mercury. The chief requirement for the success is that the lower end of the tube should reach the bifurcation. When the tube does not reach deeper than the usual tracheal cannula, the curarized animal dies in a short time. The deeper the tube reaches, the longer does the animal live; but the complete success can be attained only when the tube reaches the bifurcation or reaches a bronchus. Another requirement is that the tube should fill out about two-thirds of the lumen of the trachea; when it is wider, there is not enough space between the tube and the tracheal wall for the return of the air carrying the carbon dioxide, and when it is too narrow, there seems to be not enough supply of the air conveying the oxygen. We had dogs which under this system of ventilation were for four hours and longer under the influence of curare and recovered either by getting out spontaneously from the influence of curare or by the use of physostigmin which is a pretty good antagonist to curare. Similar successes we had when the tube was introduced through the mouth and larynx into the trachea; but on account of the greater narrowness of the larynx it is more difficult to adjust the diameter of the tube to that of the lumen of the larynx.

In non-curarized animals the continuous intratracheal insufflation of air under a moderate pressure reduces the voluntary respirations of the animal to 8 or 6 times per minute. With an increase of the pressure to 20 or 25 millimeters mercury a complete apnea may be obtained. In this case the heart becomes very slow, from which check however it is easily freed by a small dose of atropin. Whether the animal is in a state of apnea from pressure or is freed from voluntary respirations by curare or by any of the methods which eliminate the respiratory center, when the thorax is widely opened, the lungs are found more or less distended, of pink color and completely quiet, while the heart is beating efficiently and regularly.

The fact that the success of the method of the intratracheal insufflation is the more assured the deeper the tube is in the trachea, indicates that the favorable factor in this method of ventilation is to be found in the circumstance that it cuts out the largest part of the dead space. The oxygen carrying pure air reaches the upper end of the bronchi continuously and under a pressure and with a velocity which are greater than normal and removes from there any accumulated carbon dioxide also continuously and with a pressure and a velocity again greater than normal. The exchange of the gases within the bronchi and the alveoli occurs probably essentially by diffusion. It is, however, probable to me that the stream of air which comes out from the tube continuously about the level of the bifurcation with unusual pressure and velocity reaches out farther than this level* and at the same time sets up currents and disturbances in the mechanical equilibrium of the gases within the bronchi and the alveoli which are capable of influencing favorably the diffusion processes. Furthermore the continuous distention of the lungs produced by the insufflation increases the alveolar cavity as well as the respiratory surface, two factors which are capable of influencing the respiratory exchange of gases in a favorable direction.

In the method of pulmonary ventilation as described above the distinguishing points are that the insufflation is continuous, that it is done under higher pressure, that the respiration is sustained simply by air, that the current does not pass out through another normal or artificial opening, but returns through the same normal canal through which it entered, the canal being divided into two paths by an artificial partition; and finally that the pressure within the trachea remains throughout the insufflation higher than in the pharynx and that there is therefore a continuous stream of air moving in the direction from the trachea towards the pharynx. At a later point we shall discuss particularly the advantage of the last mentioned point.

Regarding the continuous character of insufflation we wish to recall to mind that this is the normal method of ventilation in the internal respiration and that in many aquatic animals with bronchial respiration the water enters mostly continuously through one opening, passes over the gills, and leaves through another opening. In mammals the possibility of keeping up life by a continuous stream of air was demonstrated by Robert Hook in the seventeenth century. After piercing holes in the lungs of a dog for the purpose of escape of the air he kept up the life of a dog with an open thorax by blowing in air continuously through the trachea by means of the action of double bellows. In birds the cavities of the long bones are connected with the air sacs. Nagel† reported about ten years ago that in curarized pigeons he kept up the life of the animals as long as two hours by blowing continuously through the cavity of the humerus; the es-

*We shall see later that dust within the tube is being carried to the finest bronchi.

†W. Nagel, *Centralblatt für Physiologie,* Vol. XIV, 1900, p. 553.

cape of the air took place through the trachea. In these two instances the insufflation of air was continuous, but it escaped through openings opposite to those through which the insufflation was instituted and both methods had the advantage that the alveolar air was ventilated directly without the mediation of any part of the dead space.

Under the title "Artificial Respiration by Means of Ventilation of the Trachea," F. Volhard* reported about two years ago interesting results which have some bearing on our subject. By permitting oxygen to pass into the trachea of dogs through a tube introduced through the larynx or by passing a stream of oxygen in front of a cannula tied in the trachea of rabbits, Volhard was able to maintain the life of curarized animals for one or two hours; they never lived longer than two hours and they could not be restored by means of physostigmin after they had been for one hour under the influence of curare. Volhard states expressly that the stream of oxygen in his experiments was never strong enough to cause a distention of the lungs. The experiment never succeeded with air.

There are definite differences between our observations and that of Volhard. Volhard could not keep up the life of his animals when using air; our insufflations are made with air. Even with pure oxygen Volhard could not keep up the life of the curarized animals longer than two hours; we kept them alive for more than four hours, in fact we can keep them alive as long as we wish. In Volhard's experiments there was not enough pressure to distend the lungs; we lay stress upon the use of increased pressure and emphasize especially the importance of the increased pressure in the returning current. We insist futher upon the tube reaching the bifurcation believing that the cutting down of the "dead space" being an important factor in the success of our method of insufflation, while Volhard does not indicate how deep in the trachea the tube was inserted in his experiments.

While we thus can justly claim that our method differs essentially from that of Volhard and is by far more efficient, we readily appreciate the importance of the observations made by Volhard. They demonstrate the significant fact that a luxurious supply of oxygen is capable of considerably neutralizing the evil effects of the accumulation of carbon dioxide, a surprising fact which seems to be diametrically opposite to the opinion of authoritative physiological workers in this line.

A part of Volhard's experiments was published a few years ago by Hirsch, a pupil of Volhard, in a thesis. It was widely abstracted and was the cause that various experimenters in this country employed it. Sollmann discussed that subject before a medical society in Cleveland, but he never published this paper. Robinson† refers to the procedure of the oxygen insufflation as the Volhard-Sollmann method.

Before leaving this part of my paper I should mention that in a few experiments I tried to attain ventilation by means of intratracheal *suction* instead of insufflation. In no case could the life of the curarized animal be sustained for any length of time and in one case the animal died soon of pulmonary edema.

*F. Volhard, *Münch. med. Wochenschrift*, 1908, p. 209.

†In experimenting with this method Robinson was apparently on the way of developing the intratracheal insufflation method, but was distracted from this end by becoming interested in improvements which he made in the Brauer method. *Jour. Am. Med. Assn.*, Vol. LI, p. 803.

In the experiments described in the foregoing part the purpose predominated to establish the theoretical principle that the object of the external respiration can be efficiently attained by means of an intratracheal ventilation without the aid of muscular action and without the rhythmicity of alternating movements. Our attention, however, was soon turned toward the practical availability of this method of artificial ventilation. The objections to the practical application of the method as it stood then lie in the first place in the necessity of having an exact proportion between the diameter of the tube and the lumen of the trachea. Even when the tube had been introduced through an incision in the trachea, it was not always easy to strike the right proportion; and the problem of adjustment became still more difficult when the attempt was made to introduce the tube through the larynx. Soon, however, we made an observation which gave us the key for the removal of this obstacle. In experiments in which the tube did not seem to be well adjusted and the color of the lungs as well as the action of the heart indicated the imminent danger of asphyxia it was found that the interruption of the air stream for a second or two would avert the danger. It is an instructive phenomenon to see a lung which a second before was definitely cyanotic becoming pink immediately after a very brief collapse. Apparently the momentary collapse and distention assist greatly in the exchange of the gases within the bronchi and alveoli. It was then arranged to have the air stream interrupted once or twice a minute for a second or two, and it was found that under these circumstances the life of curarized animals can be carried on safely by insufflation through tubes of even fairly small diameters. I have since carried on often prolonged ventilations in dogs of 5 or 6 kilos' weight through tubes with a diameter smaller than 2 millimeters. Furthermore, it is not necessary to have the lungs completely collapsed; a moderate reduction in the intratracheal pressure is sufficient to maintain an efficient ventilation. In fact, when the interruption is discontinued for only a second or two, the reduction in the distention of the lung is, as a rule, indeed only moderate; there is not enough time for a real collapse. This short slight change in the volume apparently suffices to supplement efficiently the exchange of gases carried on incompletely through the small tube.

In cases of open pneumothorax in which the respiratory mechanism is not paralyzed, the spontaneous respirations of the animal itself offer the required aid to the continuous insufflation through narrow tubes. However, even here it is safer to arrange for an occasional short interruption of the continuous insufflation, especially in operations in which the thorax has to be wide open and the posterior and inferior parts of the lungs have to be dislocated, in which condition the spontaneous respirations of the animal are of no avail at all. The occasional interruption of the air stream insures the continuance and efficiency of the pulmonary ventilations under all circumstances.

With this new information in mind another important practical step forward was made, namely, that the insufflation could be carried on henceforth through tubes which were introduced into the trachea through the larynx. While the size of the tubes had to vary to a degree with the size of the dogs, care was taken chiefly that the tubes should not be too large, preferring the error in the direc-

tion of having them rather too small than too large. The occasional interruptions of the insufflation correct more easily the errors which come from too small tubes than those which come from too large tubes.

The large number of experiments carried on in the last months upon the subject of intratracheal insufflation were made with a view largely to study some of the practical problems connected with the method of intratracheal insufflation.

The first question which naturally arose was: Is this method capable of doing any harm to the respiratory organs? Will not the prolonged presence of the tube within the entire length of the trachea and the continuous insufflation of air into the bronchi frequently cause pneumonia, bronchitis, or do some other damages to some part of the respiratory organs? As an answer to this important question I am able to state that we have now quite a sufficient number of observations at our disposal from which some definite conclusions may be drawn. Besides our own numerous experiments Dr. Carrel employed for the last few months the method of intratracheal insufflation in a large number of intrathoracic operations and so did also Dr. Elsberg who carried on his experimental surgical work in our department at the Rockefeller Institute. I do not know the exact total number of all these experiments and operations. Surely about a hundred dogs have been operated upon by the method of intratrachael insufflations. The operations lasted sometimes two hours and longer. Some of the animals survived and are still alive; others came to autopsy sooner or later after the operations. *In not a single instance did an animal die from the effects of the insufflation or did the respiratory organs show any after-effects of the method.* Neither pneumonia nor bronchitis ever developed in these animals; nor was there any pulmonary emphysema when the lungs were examined days or weeks after the operation. This experience seems to demonstrate quite satisfactorily that the respiratory organs of the animal are not exposed to any special danger by the employment of the method of intratracheal insufflation.

Another problem which had to be studied was the following: Since the tube in the larynx may prevent the complete closure of the epiglottis, it could be assured that there might be danger from aspiration into the lungs of foreign, infectious material from the pharynx, especially if vomiting should occur in the course of an operation. I have investigated this point by special experiments. I shall state in the first place that none of the dogs in which the method of intratracheal insufflation was employed vomited either during or after the operation. In order to study the effect of vomiting I had to employ subcutaneous injections of apomorphin. I shall give the results very briefly. When the stomach was empty before the operation, apomorphin failed to bring on vomiting even after the animal awoke from the anesthesia. When the stomach was full by previous feeding or filled up by a stomach tube with a strongly acid fluid before the introduction of the tube into the trachea, the animal never vomited even after large doses of apomorphin as long as it was under the influence of anesthesia. Under these circumstances, however, the animals vomited sometimes 10 or 15 minutes after the anesthetic was discontinued. In order to have a severe test, pharynx and mouth of the animals were not cleaned and after some time the trachea was exposed, the tube withdrawn, and the trachea clamped beneath the larynx. *On opening the trachea it was found to be perfectly free from the vomited material and the mucous membrane to have an alkaline reaction,* although the stomach contents were made strongly acid. In other experiments a suspension of charcoal was introduced into the mouth and the pharynx and later on the trachea was examined in the manner described before; *not a particle of the charcoal could be detected in any part of the trachea or even larynx.*

Immunity of the trachea against the invasion of substances from the pharynx is here not a matter of accident; it has its reasons, as I believe, in the fact that in the method of intratracheal insufflation there is present within the trachea a strong air current which is capable of driving everything from here to the larynx and certainly can prevent the invasion of any foreign body from the pharynx into the trachea. It is not improbable that the exceptional freedom from postoperative intrapulmonary infections in the numerous animals which were subjected to the method of intratracheal insufflation finds its explanation in the very same condition, namely in the protective action of the current directed outwardly while the insufflation continues. It seems to me that *this factor of the outward direction of the current is an important and practical feature of the method of intratracheal insufflation.*

Another important and practical feature which we have observed in this method is its relation to anesthesia. A noteworthy fact is *the remarkable ease with which the animals become anesthetized.* They may be completely out of the anesthesia; a minute or two after the ether is turned on again they sink into the deepest state of anesthesia with no lid reflex and the body perfectly quiet and limp. They may be kept in this state uninterruptedly for two hours and longer. Again the animals get out of the deepest state of anesthesia in a comparatively short time as soon as the ether is discontinued. This awakening can be hastened by sending through the tube a stream of pure air. Furthermore, it is an instructive fact that except for one death caused by extraneous circumstances *not a single animal was lost by ether when employed by the intratracheal method.* This observation may not be of such importance since in matters of anesthesia an experience gained in 100 cases cannot be considered as very extensive. However, I am able to report the results of two series of experiments which demonstrate clearly the great advantage which this method offers to ether anesthesia. In the first place I have tried in a number of cases in which the insufflation was employed to cause the death of the animal by the anesthesia, pushing the ether to the utmost and increasing also the pressure of the air stream in order to drive more ether into the lungs. *I did not succeed in accomplishing it even in a single instance.* In fact, it seemed that the use of larger quantities of ether did not bring the animal into a deeper state of anesthesia than it already is when only a moderate amount is used.*

Furthermore I have carried out a series of experiments in which dogs were killed by ether in the usual mode of administration and then attempted

*Even for the use of chloroform the method seems to offer a good deal of safety; but I have succeeded in killing one animal by this method when a great deal of the chloroform was used. Altogether I did not make many experiments with chloroform.

to revive them by the intratracheal method of artificial respiration. Usually some time has to pass before everything is properly adjusted and the resuscitation begins as a rule only after the heart has stood still for a few minutes. In addition to the respiration in all cases also the thorax was massaged. The results of these experiments are very interesting, but I should not discuss here their particulars. I had a few animals which were *completely resuscitated after there were no heart beats for* 15 *minutes.* In one case resuscitation took place 21 minutes after heart death. In this case and in some others a small dose of adrenalin and 50 or 60 c.c. of Ringer solution were administered intravenously. I may say in general that my impression is that *dogs, especially younger ones, can be invariably resuscitated from ether poisoning by the intratracheal method of respiration,* supported by massage of the thorax if the resuscitation is not started too long after the heart stopped. At any rate, if the tube is already in the trachea while the heart just stopped beating, it is quite sure that the immediate institution of the insufflation will restore the life of the animal in a short time even without the aid of any cardiac massage. On the basis of my observations and experiments it seems to me that *the giving of ether by the method of intratracheal insufflation is the safest and most effective way of administration of this anesthetic.* The bringing of the ether by increased pressure to the very proximity of the respiratory surface hastens its effect and the continuous returning current of air prevents its too great accumulation in the bronchi and alveoli. In our laboratory we are using at present this method of anesthesia for any operative work on the dog with complete satisfaction, paying no further attention to the etherization except of pouring now and then ether into the bottle. At the same time the animals are under the present method in deeper anesthesia than they were ever kept, while less ether is used up.

In all our experiments in the laboratory the continuous air stream was provided by an air pump connected with our respiratory apparatus. However, we soon found out that a continuous stream can be satisfactorily maintained simply by foot bellows such as are used for glass blowing. The pressure can be kept fairly uniform; besides, we know now that an occasional variation of the pressure is rather an advantage to the ventilation of the lungs. The intratracheal insufflations in the intrathoracic work of Dr. Carrel in his operating room and in the operation of Dr. Elsberg in our laboratory are carried on by means of such bellows.

I shall now describe connectedly and briefly the entire procedure of the intratracheal insufflation in the simple fashion as we are using it now. After the dog is well anesthetized, a long catheter or a piece of stomach tube is introduced through the larynx and pushed down the trachea until it meets an obstacle. The lower end is then usually deep in the right bronchus. It is then withdrawn about an inch and a half, which brings the lower end of the tube to about the level of the bifurcation. By experience I have learned that it is advantageous to provide the lower end of the tube or the catheter only with one opening which should be located at the end point. The diameter of the tube may vary between 3 to 8 millimeters and depends upon the size of the dog; it should be definitely smaller than the lumen of the larynx; it should rather appear too small than too large. The outer end of the tube is carried through the hole of a gag around which the jaws of the animal are tied. By means of a thread which is tied to the gag the tube is held in a fixed position. The outer end of the tube is now connected with a T-tube, one branch of which goes to a manometer, while the other end is connected with a bottle containing ether, which in turn is connected by means of heavy rubber tubing with the bellows. The ether is in a Wulff's bottle, which by means of two Y-tubes, rubber tubing, and clamps, is arranged so as to permit the current of air to pass either through the bottle or directly between the bellows and the animal. The tube between the bottle and the bellows should be provided with a T-tube or plain opening which the assistant who attends to the bellows and the ether keeps closed with his finger and opens it only for a second a few times in a minute. As stated above, this is a precaution which insures an efficient ventilation of the lung. This opening should be kept closed when vomiting is threatening in order to keep up the high intratracheal pressure.

For the purpose of filtering the air driven into the trachea it is advisable to interpolate between the bellows and the ether bottle a tube containing cotton. As a matter of fact in our experiments we have employed such a tube only in exceptional cases and nevertheless we never have seen any ill results from such an omission. However, in prolonged operations I found that there was sometimes dust at the bottom of the ether bottle; it is possible that in these cases the ether bottle served as a filter. Furthermore in experiments in which some powdered charcoal was introduced in some part of the tubing connecting the ether bottle with the intratracheal tube, fine particles of charcoal were found to reach the finest bronchi. We have, therefore, some reason to suppose that dust could be carried through the tube and deposited into the depths of the lungs. Such an event is to be kept in mind, especially when using bellows placed on the floor where dust can be readily sucked in.

It is perhaps not superfluous to point out here the obvious difference between the currents existing in the intratracheal tube and in the space between the tube and the surrounding trachea. In the tube the direction of the current is towards the lungs and the air there can and ought to be guarded against any contamination from outside. In the space between the tube and the tracheal wall the direction of the current is away from the lung and movable particles there are carried outside of the body. The last fact was well illustrated in the last cited experiments; the bulk of the powdered charcoal which was blown down the tube, a small fraction of which reached the fine bronchi, was returning immediately in a stream through mouth and nose as through a chimney.

As a further precaution some may wish to append a device for warming the air before entering the tube. From my own experience I am inclined to think that such a device is an unnecessary burdensome complication, from which the arrangement for intratracheal insufflation should be kept free.*

The arrangement for intratracheal insufflation, as I have just described, is surely simple, inexpensive, portable, and readily prepared at a moment's notice.

I have previously stated the distinguishing theo-

*I should state here that in operations upon the thoracic cavity, before closing the same, the trachea should be compressed for a few seconds; it will cause a distention of the lungs and fill up the cavity.

retical points which characterize our method of pulmonary ventilation. I wish to compare here briefly from a practical point of view the method of intratracheal insufflation with the methods now variously employed in experimental and practical intrathoracic surgery for the purpose of maintaining the differential pressure.* Obviously our method has in common with the so-called overpressure method the fact of the increase of the intrapulmonary tension. Both methods, however, differ greatly in various points. In the first place the intrapulmonary pressure in Brauer's method is of a *static* character, that is, that after the initial increase of the pressure, there are during the remainder of the course, as was pointed out by Seidel, no air currents, no movements within the lungs, the overpressure is stationary; whereas in the intratracheal insufflation the air which is also under higher pressure is at the same time in continuous motion. Furthermore, in the Brauer method the ventilation is carried out by the respiration of the animal itself, while in our method the ventilation is efficiently carried on without the aid of the animal. When the animal is curarized or when the spontaneous respiration fails for some other reason, under the Brauer method the animal dies within a few minutes; while in our method the life of the animal remains safe under all circumstances. Other factors of the method of intratracheal insufflation are the safety of the etherization and the presence of a centrifugal air current within the trachea which is capable of keeping away from the lungs the invasion of injurious elements. It may finally be stated in general that the overpressure method is made only to meet the exigencies of the pneumothorax while the intratracheal insuéation is capable of meeting exigencies of all kinds which may befall the function of respiration, in fact it acts as an efficient artificial respiration. It differs, however from the usual rhythmical artificial respiration, in that the supply of oxygen as well as the removal of carbon dioxide are carried on simultaneously and continuously, whereas in the customary artificial respiration the cycle is distributed between the inhalation of oxygen, exhalation of carbon dioxide, and an inactive intermission. Furthermore, in my opinion, the intratracheal insufflation method has the advantage over the usual artificial respiration in that it offers a greater safety to the etherization and it is guarding the lungs against undesirable invasion.

The differences between our method and that of Volhard I have already discussed above. Besides, Volhard's method could not meet the exigencies of pneumothorax.

The method of intratracheal insufflation has, furthermore in common with the methods employed by Franz Kuhn,† the fact of the peroral intubation. However, Kuhn's peroral tube, which is inserted nearly tightly into the larynx, avoids studiously deeper parts of the trachea, while the second finer tube reaches only to about one-half of the first tube into the lumen of which it is inserted. The current of air in Kuhn's method turns, therefore, within the peroral tube at a level corresponding to the same part within the mouth of the pharynx. It is obvious that the action of such a current differs essentially from that of a current which reaches the bifurcation and has for its end the cutting out of the dead space and the returning of a strong air current along the tracheal walls.

Turning now to the practical applications of the method of intratracheal insufflation, I shall refer in the first place again to its use in exposing the thoracic cavity. As indicated above, we had in this regard quite an extensive experience. The safety and convenience of this method is here surely greater than that found in any of the best equipped cabinets for the differential pressure. The safety is greater, as there can be no danger of failure of respiration. As to the convenience, there can be no comparison, the method can be used anywhere, can be arranged at a moment's notice, and the man who attends to the bellows and the ether and who need not be an expert, can be kept entirely away from the operating table. As stated before, besides ourselves, Dr. Carrel and Dr. Elsberg worked with this method. Dr. Carrel made it the basis for the extension of his ingenious vascular surgical methods into new territories. Both gentlemen will probably report, themselves, their own experience.

Regarding the anesthesia we have already discussed above the advantages which this method offers to it. We have also stated above that by this method we succeeded in resuscitating animals dead from anesthesia, even after the heart had stopped for several minutes. It was further stated already before that in our experiments the paralytic effects of curara were effectively met by the intratracheal insufflation. Similar experience we had with the paralyzing effects of magnesium salts. I shall add here that in experiments which are now being carried on by Dr. Shaklee and myself in resuscitating animals dead from various other poisons, for instance, strychnine, morphine, carbon monoxide, the outlook is promising. For instance, in the case of a dog which received intravenously strychnine more than twice the fatal dose, the animal was thrice resuscitated by the intratracheal insufflation and thoracic massage, once even after the heart and the spontaneous respiration had stopped for more than ten minutes. Every time when the intratracheal insufflation was interrupted, the spontaneous respiration soon ceased and the heart stopped beating. Or cases of morphine poisoning might be cited with no respiration and no reflexes whatsoever in which circulation was kept going for many hours by the intratracheal insufflation. We are not ready for any report on our studies on these subjects, but I feel confident that in any case of poisoning, if discovered while the heart is still beating, intratracheal insufflation will be a great aid in rescuscitating the victim and maintaining his life. (In few experiments made with drowning intratracheal insufflation proved ineffective.)

Intratracheal insufflation will probably prove an efficient help in cases of temporary respiratory paralysis due to disease, for instance in post-diphtheritic paralysis of the respiratory muscles, in acute poliomyelitis, in respiratory paralysis due to a remediable intracranial pressure, etc. Volhard mentions a case of poliomyelitis in which the life was saved by keeping up the respiration for fourteen days by means of rhythmical compression of

*I may be permitted to speak here of the great credit which is due to Sauerbruch in the development of this interesting chapter of modern surgery. This seems to have been lost sight of in the oftentimes heated discussion over the merits of overpressure and underpressure. Not only was the idea of underpressure original and ingenious, but it is undoubtedly due to Sauerbruch's initiative that intrathoracic surgery has attained now such a promising aspect, and this merit will always be his, no matter which method will be found in the future to be the most useful one.

†Franz Kuhn, *Zentralblatt für Chirurgie*, 1908, p. 788.

the thorax. But I shall not discuss merely promising outlooks.

There is, however, one point more which I wish to bring out here. Our extensive experiments have, I believe, demonstrated the fact that *the entire trachea can be invaded without fear of causing damage to the pulmonary apparatus.* The various cavities and canals of the human body were invaded one after another by surgical ingenuity and persistence. The abdominal, cranial, and intrathroacic cavities are now open to the surgeon. The catheterization of either end of the gastrointestinal canal, the Eustachian tubes and the ureters belong now to the routine methods. The invasion of the trachea began already in the bronchoscopic studies. Our experiments have shown, however, conclusively that a tube may be introduced into the trachea and even into a bronchus with comparatively little precaution, and it may stay there continually for hours without causing any harm to the lungs and the bronchi. After all, the lungs are continuously in closer contact with the outside air than in any of the above-mentioned cavities and canals.

Shall the method of intratracheal insufflation which has been fairly well tested by animal experimentation be applied to human surgery? I do not consider it my province to come out here with such a definite advice. But I wish to urge upon the progressive surgeons who are not hopelessly tied to other methods to familiarize themselves with this simple method in operations upon animals. I am confident that they will then soon realize the great advantages which it offers in its application in human surgery. I am not in doubt about the future of the principle of this method, and it is the principle of the method I am interested in and not the minor details of the so-called apparatus. I risk even to prophesy that those who will have sufficient experience with it will soon employ it as a routine method for anesthesia in operations upon any part of the body.

AVOIDANCE OF APPARATUS COMPLICATING THE OPERATION — A PARAMOUNT REQUIREMENT IN THORACIC SURGERY.*

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It has been after much hesitation that I decided to become a party to this symposium. For one thing, the necessity of open criticism of the work of a long time friend and valued colleague held me back. Moreover, he is on the staff of that institution, whose directors have enabled me by their broad-minded attitude to gain that personal knowledge of the question at issue, which mainly enables me to have to-day an opinion on the subject. Therefore, it is a matter of keen regret to me if I have to state here before you that Dr. Meltzer's proposition, as regards its applicability to the practice of intrathoracic surgery on the human being, appears to me in a different light than it does to him.

Again, though the proposition in general is surgical, its discussion must be carried on, partly, on physiological lines, and therefore for me, a surgeon, to take issue with Dr. Meltzer in his own chosen field, impressed me as rather venturesome.

*Read as a part of a symposium on thoracic surgery before the New York Academy of Medicine at its stated meeting, February 17, 1910.

There are other reasons that made me hesitate. A talk on apparatus did not appeal to me. I wanted to talk operations. I thought we had got beyond the apparatus stage. Our honored president has announced a symposium on intrathoracic surgery. But apparatuses are tools, not surgery.

Yet, inasmuch as apparatus cannot be dispensed with in the surgery of the chest, a full discussion of their merits and demerits may after all perhaps be a happy and timely occurrence to clear the atmosphere.

Again, I hesitated, because, having myself constructed apparatus, you might consider me biased, and I feared an impression might be caused to go forth from this symposium that antagonism exists between Dr. Meltzer's apparatus and mine, so that the one might work to exclude the other. Both ideas, should they exist anywhere, would be erroneous. The two apparatuses are not in the same class. They can exist side by side, and as for my mind, it is as open to-day as when I first approached the matter. As to the large body of surgeons of this country, so it is also to me entirely immaterial, whose apparatus will be "the" one; more likely there will be many. The only issue here, as in everything else in medicine, is the well-being of the patient.

Having thus endeavored to define my feelings with reference to the matter under consideration, permit me now to look at it from the point of view of science and go into *medias res.*

It is a curious fact that all those who have constructed differential pressure apparatus of, what Dr. Carrel calls[1] the classical type (an appropriate name for the purposes of this paper), started out with artificial respiration and used it as long as they were experimenting on animals; but when it came to applying to the human being the knowledge gained on the animal, they invariably abandoned artificial respiration, and went to the great trouble of developing their classical apparatus regardless of cost. Sauerbruch and Brauer abroad, and Green, Janeway, and Robinson in this country, have all gone through this experience. Of this type is my apparatus.

And it is also a fact that the use of that other type of differential pressure apparatus, constructed to save expense, and which for the purposes of this paper I would call the emergency type, remained in every instance confined to their sponsors. To this type belong the foreign devices of Tiegel, Brat-Schmieden, and Kuhn. The Meltzer-Auer apparatus is also of this type. They owe their existence partly to an actual emergency, as Tiegel's apparatus, or to the expressed intention to save expense, as Brat's apparatus, or to the endeavor to adapt an apparatus of the physiological laboratory, where animals are the patients, to the more exacting requirements of apparatus for surgery on the human being, as the Meltzer-Auer apparatus.

Now, it is also a fact that whatever real progress has been made within recent years in intrathoracic surgery on human patients, is due to, and stands entirely to the credit of, the classical type of apparatus which has been developed to a condition of reliability and usefulness, while none of the emergency type of apparatus has yet got fully beyond the experimental stage.

Both these types use differential air pressure, that is, as you know, a higher pressure within the lungs than prevails outside of the lungs, so that the lungs do not collapse after the thorax has been

opened. But they differ principally in this, that the classical type leaves the mouth free and accessible at all stages of the operation, while the emergency type encumbers the mouth with tubes, cannulæ, gags, and the like, or closes it with masks. They differ further, in that the classical type sails as close to nature as can be in retaining the physiological condition of natural respiration. The air supplied for lung ventilation is flowing continuously into a tank interposed as a cushion between the air supply and the lungs for their protection. The patient breathes from a large equalizing reservoir. Apparatuses of the emergency type send the afferent air directly into the respiratory tract and thus transfer to the same all the unavoidable vibrations, shocks, and inequalities in the flow of the air, using the lungs themselves as the pressure tank. Again, they differ in that the emergency type has definitely confined itself to positive differential pressure, while several of the classical type employ also negative pressure, and of late also mixed pressure. To some this may appear of little moment. But in the present state of our knowledge the position does not appear well taken that for operations on sick human beings one pressure is as good as another, that the effect of positive is in every respect the same as that of negative pressure.

Compared with the emergency type, the classical type of apparatus is cumbersome. Yet it is of that staunch, sterling reliability, which warrants us in entrusting unhesitatingly to it the patient's life. The emergency type, on the other hand, looks exceedingly simple and costs comparatively little. Yet, from the point of view of the operation, it is complicating. And that is what I would impress on you, that we must distinguish between *simplicity of apparatus* and *simplicity of operation.*

Operations requiring a wide open thorax differ from other operations in that for the same degree of safety they cannot be done without apparatus. For the surgeon that is a misfortune. The surgical part of chest work is exceedingly exacting. You are working on organs not at rest. The work has to be done deep down. The least slip in asepsis is sure death. It is work that requires complete concentration of the surgeon's mind and eye on the surgical side of the task before him. Divert his attention by any manipulation required of the apparatus, and the matter may become serious for the patient. Therefore, the surgeon should not permit himself to be deceived by the unassuming appearance of an apparatus. For him the question is, what kind of an operation will he obtain with that apparatus. For instance, at Dortmund, in Germany, they have tied a cheap galvanized iron funnel over the dog's snout, connected the tube to a source of compressed air, for inspiration, and, for expiration, have dropped a piece of rubber tube into a bucket of water. They opened the pleural cavity, and the dog lived. Would you take such risks with a patient? The apparatus certainly is the acme of simplicity; but what kind of an operation would you be likely to obtain with it on a patient debilitated by long weeks of sickness?

Let me emphasize once more: *Simplicity of apparatus,* and *simplicity of operation* obtained with that apparatus, are two separate and distinct matters. Only where both are combined in a method prevail ideal conditions for successful surgical interference.

Now, as this symposium to-night was originally intended as a discussion of Dr. Meltzer's paper, and inasmuch as it has been brought about by the apparatus for continuous intratracheal insufflation, it will be in order to examine into the Meltzer-Auer proposition, keeping in mind always that we do not examine it simply as a method and as an apparatus, but from the point of view as to how it affects an operation on the human being.

The Meltzer-Auer continuous intratracheal insufflation apparatus will be called herein, for the purposes of this paper for short, the "Blow-pipe Apparatus," inasmuch as a continuous current of air is kept blowing from a cannula at the bifurcation of the trachea all through the operation, and their continuous intratracheal insufflation method the "Blowpipe Method." In going through it, step by step, the attempt will be made to uncover the points complicating the operation, and it will be shown that its present simple appearance is solely due to its incompleteness, and that the apparatus will become more complicated before it can safely be used in operations on the human being.

History.—The beginning of the inquiry is naturally directed toward the question, to what extent is the blowpipe method new? Continuous insufflation has been practised by physiologists for two hundred and fifty years, they have used it and written much upon it during the last century, and surgeons have experimented with it since 1896. The French surgeon, Tuffier, used it at that time in Paris in intrathoracic animal experimentation.[2] In 1908 Robinson of Boston intubated through the mouth to the bifurcation of the trachea, sending in air under pressure through a cannula, and letting the exhaust escape to open air.[3] Kuhn of Cassel who has made intubation a specialty since 1895,[4] and in 1905 came out with a positive differential pressure method based on intubation,[5] closed at first the mouth air tight, but soon improved the method, and since 1908 introduces two tubes in one,[6] a narrow one for inbound compressed air and a wider one for the exhaust to open air. He, however, after much experimentation on the human being, found it best to keep the tube out of the trachea and to stop it at the upper end thereof just below the larynx.[4]

Both these surgeons, Robinson and Kuhn, each separately, but considered in conjunction certainly, have already done what it is proposed to do in the blowpipe method. I happen to know, though, that Meltzer developed his ideas independently. Meltzer told me that, having seen Sauerbruch at work in June, 1908, and later having witnessed some of my operations at the Rockefeller Institute, and seeing both pleural cavities wide open and the animal continuing to breathe, he had not trusted the evidence of his eyes and had gone into his laboratory to verify there what he had seen. Since then, I understand, he has been working on the matter.

The Meltzer-Auer Apparatus and How It Works.—Let us next examine into the characteristics of the blowpipe method. A cannula is introduced through the mouth into the trachea and pushed in as far as the bifurcation. Meltzer and Auer found[7] that the diameter of the cannula must be two-thirds of that of the trachea, which, when figured out, is about the same as saying that the cross-section of the cannula and the cross-section of the ring-shaped space, remaining between cannula and trachea, must be of equal area. In adults the trachea has a diameter of from 7/16 to 11/16 of an inch. Therefore, the cannulæ, figured as above, should be 5/16 to ½ inch thick, and the width of the ring space 2/32 to 3/32 of an inch (assuming the trachea

as of circular cross-section, which is near enough for present purposes). This ring space we will call herein "the flue." At its free end the cannula is connected with a source of compressed air and an ether bottle. A mercury gauge and a by-pass around the ether bottle are connected in, also two outlets to open air, one between air-compressor and gauge, and one between gauge and cannula.

Assume now the cannula in place in the trachea, and the air flowing, passing through the ether bottle on its way. A new mouth has been established, so to speak, at the bifurcation of the trachea, whereby is eliminated a part of the dead space which is the sum total of the air passages from larynx to alveoli. The patient breathes spontaneously. Inspiration takes place at the new mouth, where he inhales the compressed air coming from the cannula, and expiration takes place by way of the flue through the old mouth.

Intubation.—It is not to be supposed that the cannula will stay in the exact center line of the trachea and leave between its outside and the mucous membrane the theoretical air space, but in the course of the operation it will touch the membrane soon here and soon at another point, thereby irritating the membrane and causing secretion of mucus, if not capillary hemorrhage. In his very extensive use of intubation on the human subject Kuhn found excessive irritation of the trachea and very considerable secretion of mucus if the tube was pushed down into the bronchus or down to the bifurcation, or even only one inch below the larynx. He also found strong secretion of mucus in the larynx, if the intubation did not succeed the first time.[4]

Meltzer took part in the discussion of a paper on laryngeal intubation at the International Congress at Berlin in 1890, and there stated that with the glottis open, as in intubation, aspiration of foreign matter into the lung was impossible.[8] That may be correct as far as the old outside mouth above the glottis is concerned. But here the conditions are different. A new inside mouth has been established below the glottis, where a continuous flow is kept up of inbound compressed air. At that point inspiration takes place, and when it does set in, whatever mucus has collected there may be either aspirated or forcibly blown into the lung. It is claimed for the blowpipe method that the outbound air, which flows up the flue along the tracheal wall, will dry up the mucus, so that there would be none there to be aspirated; but, whether that will be the case with people having bronchial affections, remains to be seen. They may secrete more mucus and may secrete it more rapidly than the air can dry it up. In any event at the beginning of the operation secreted mucus will gather at the end of the cannula, because the drying up process will take some time to become effective, while the irritation of the membrane and secretion of mucus are immediate and coincident with intubation. Therefore, at the very outset mucus is liable to be aspirated, and the damage may have been done, and the foundation for a subsequent pneumonia may have been laid, before the surgeon really gets to work.

Again, intubation requires experience. An experienced intubator ought to succeed in getting the tube in place without causing blood to flow; but what about the average intubator? It is essential in intubating to keep exactly to the center line. The index finger is pushed away in and used as a guide; but young assistants frequently will not feel the larynx. Then, there is danger of deviating from the center line and of pushing the cannula into the valleculæ between the epiglottis and the root of the tongue; or it might glide over the rim of the larynx into the esophagus; and if that is not noticed in time, the stomach will be blown up. Even after the epiglottis has been passed there is still danger of getting the cannula into the sinus pyriformes or into the Morgagni pocket (Kuhn). Thus it will be seen that for intubating human beings an experienced assistant is required in every instance.

Difficulties of Intubation and Contraindications.—Not infrequently the root of the tongue is found to be so thick that considerable difficulty is encountered in getting over it. Kuhn found it in one instance physically impossible to reach the larynx, and the same happened to Eiken in cases of dyspnea and heart disease.[9]

Intubation is contraindicated in various affections of the larynx and of the trachea, and the blowpipe method is excluded in cases of goiter, where the trachea has still sufficient lumen for the cannula, but no space remains for the flue. Kuhn also mentions cases where the tube was not tolerated by the narcotized patient and had to be withdrawn after it had been in place for some time. Therefore, it will be seen that the blowpipe apparatus is not all-sufficient, and that one needs another differential pressure apparatus without intubation in addition to it in order to be prepared for all possible occurrences.

Comparison of the Meltzer-Auer and Kuhn Methods.—Mechanically Kuhn's is a better arrangement. He provides a narrow lumen for the high-pressure inbound air pipe, and a wide lumen for the low-pressure outbound air pipe (exhaust), the two pipes forming one tube. Thus no back pressure can be set up in the exhaust pipe. Moreover, this exhaust pipe being metal, can be cleansed of mucus, with a wire brush, while in place.

The blowpipe method provides equal lumina for high and low-pressure channels. The low-pressure air outlet (exhaust) is that long, narrow flue formed by the outside of the cannula on one side and the mucous membrane of the trachea on the other. It is inaccessible during the operation; but even if it were accessible it could, of course, not be cleansed with a brush, because of the mucous membrane, but only by suction, requiring additional intubation.

Again, Kuhn stops at the upper end of the trachea, a definite point. In the blowpipe method it is intended to stop at the lower end of the trachea; yet, *in praxi*, it can here not be determined just exactly where the end of the cannula is located. Meltzer's rule is: "Push in until you meet a resistance, then pull back two inches." Whether that leaves the end of the cannula in the bronchus or in the trachea, is not known.

For the blowpipe method, the providing of two separate channels in the trachea is claimed as an advantage, which, of course, Kuhn has not, because he stops at the larynx. The point of destination of inbound air, after it has passed the larynx, is not the bifurcation of the trachea, but the alveoli, and if two channels were needed or were advantageous in the trachea, they would be much more so in the bronchi and the bronchioli. To subdivide these is, of course, an impossibility. Therefore, to provide two channels only as far as the beginning of the

bronchial tree appears to be a half-way measure.

Intubation or Anesthesia First?—As a rule, the patient would likely first be anesthetized in the old way; then be intubated, and anesthesia then be continued by tube. But Kuhn has frequently intubated first and anesthetized afterwards.

Anesthesia.—We will next consider the anesthesia effected by way of the cannula. Here it is again Kuhn of Cassel, who for the last seven or eight years has practised pulmonal anesthesia.[10] Two drawbacks stand out prominently therewith: first, intubation requires deep anesthesia; second, the quantity of ether administered cannot be properly controlled. Lotsch of Berlin, who operated with Kuhn's latest differential pressure method with open exhaust, says on this point that by the exhaust current of air the narcotic is driven out, and only during inspiration does some of it get into the lung; that consequently a large quantity of ether is required, and how much of it comes to absorption cannot be definitely known.[6] The same holds good for the blowpipe method.

Kuhn, in 1905, demonstrated pulmonal application of the anesthetic by intubation to Czerny of Heidelberg, Trendelenburg of Leipsic, and Angerer of Munich, visiting each of these surgeons individually. But I have not heard that they have taken kindly to it for use in thoracic surgery on the human subject, or that its use for that purpose has spread.

Respiration Under Various Conditions.—Before entering into the discussion of the characteristics of the respiration in the blowpipe method, let us stop just a moment to review the character of respiration under other conditions. "Our normal respiratory movements consist of an active inspiration followed by a passive expiration" (Howell).[11]

"During the respiratory expansion of the lungs inflation of the organ is performed purely by variations in tonus without any actual distention by increase of air pressure . . . The muscles which dilate the thorax do not contract until the lung begins to relax; they then contract in proportion to the relaxation of the tonus, and thus bring about filling without distention. The muscles relax again only when the tonus of the lungs is restored and gives the signal for expiration. Both processes are controlled by a reflex innervation, a far-reaching synergy, so as to preserve precision in the cooperation of the various parts, . . ." (Hoffman).[12]

That is nature's apparatus. When that apparatus failed, recourse has been had since time immemorial to intermittent insufflation. Our modern representative of that type is the Fell-O'Dwyer apparatus for artificial respiration. In this method the natural physiological condition of respiration is reversed. It results in passive inspiration and active expiration.

In the differential pressure method as practised to-day with the classical type of apparatus, either atmospheric pressure or less than atmospheric pressure weigh upon the outside of the lung after the thorax has been opened. Inside of the lung the intraalveolar and intrabronchial pressures are increased over and above the outside pressure by an amount sufficient to overcome the elastic retractility of the lung tissue and to balance it in the expiratory position. The pressure required to accomplish that is maintained over the mouth of the patient. Respiration takes place spontaneously, according to his physical requirements, and inspiration, therefore, being coincident with the tonic contraction of the muscles of thorax and diaphragm, is active. Expiration, however, is not passive. The contraction of all the expiratory muscles is required for expiration against, and for the overcoming of, the differential pressure. Therefore, expiration is active, too; that is to say, in the differential pressure method both inspiration and expiration are active.

Respiration with Continuous Intratracheal Insufflation.—Now what do we find in the blowpipe method? The source of compressed air has been connected up to the free end of the cannula, and insufflation through the same at the bifurcation of the trachea begins. The air is supplied continuously by means of a bellows; but the breathing is intermittent; it is the spontaneous action of the lung, and the bellows only serves the purpose of delivering enough air to make the lung stay distended with an open thorax. Breathing is slow, and a regular rhythm is maintained: inspiration, expiration, interval, inspiration, expiration, interval, etc.

The pressure prevailing over the new mouth, that is, at the end of the cannula, determines the character of inspiration and expiration. This is the same as in any positive differential pressure apparatus of the classical type, except that here the new inside mouth has been substituted for the old outside mouth, and except for the interval, during which, I understand, lung ventilation, not obtainable with apparatus of the classical type, is claimed for the blowpipe method. Let use see whether there really is an interval, for, if there is not, then, of course, all claims for the same will fall also.

I asked Meltzer what the pressure was at the bifurcation, and he told me he did not know, so that I am in the dark on that important point. But the pressures can be approximated in this way: the thorax being open, human lungs would collapse unless the inside pressure were held up to at least 5 mm. Hg, 3 mm. being pneumothorax and 4 mm. being still dangerous. But as the flue from the new mouth to the old mouth leads to open air, it acts as a leak, it lowers the pressure. The cross-sections of both channels being equal, an average pressure between open air (that is, no mm. Hg, or zero pressure), and the pressure coming from the cannula must exist at the new mouth, and if the lung pressure is to be 5 mm., then the cannula pressure must be 10 mm. in order to yield an average of 5. Throughout the operation it is not permitted to sink below that level, except for artificial respiration. Now inspiration takes place.

When expiration sets in the air comes from the bronchial tree under 5 mm. pressure plus the physiological expiratory effort of at least 3 mm., therefore under a total pressure of not less than 8 mm. At the bifurcation of the trachea the outgoing tidal flow meets the air coming under pressure from the opposite direction through the cannula. The direction of flow of the air coming from the lungs prevails, and both quantities together run outbound into the long, narrow flue which, as stated, is only from 2/32 to 3/32 of an inch wide and, furthermore, contracted at the glottis, also more or less clogged with soft and dried up mucus. Thus, what is left of the trachea is too narrow a channel for the total quantity of air to pass out unchecked. A back pressure is set up in the flue against which expiration has to be effected. (The open side outlet on the cannula prevents its becoming excessive.) The back pressure will last until the thorax has reached its position of rest. The result of this is

that an active expiration takes place, and, further, that when the excursion of the thorax has come to an end, which ordinarily would be the end of the expiration, the lung has not yet come to the end of its expiration, but continues to collapse during the now following interval. For, when the pleural cavity is open, the movements of the lung depend not only on the action of the ribs and diaphragm upon them, but more particularly on the intratracheal pressure. The rate of progress of the continuing collapse of the lung is therefore in conformity with the gradual falling off of the pressure at the new mouth, while the average pressure is reestablishing itself between the cannula pressure and open air, preceding the next inspiration.

Consequently, it seems to me, there is no interval at all existing, but only a long drawn out expiration, of which the apparent interval is a part. The current of air during the apparent interval is from the lung towards the flue and not from the cannula into the lung; in other words, during the apparent interval the air flows out of the lung and not into the lung. Fresh air reaches the alveoli in the blowpipe method, therefore, only during inspiration, the same as in the classical type of apparatus. As already shown, inspiration and expiration are active, so that all the characteristics of the breathing in the differential pressure apparatus are present, without any additions or omissions, and, consequently, the blowpipe method appears to be a positive differential pressure system.

Dynamic Diffusion.—The effect of the eddy-currents of air which, it is claimed, are set up in the blowpipe method at the bifurcation has been called by Meltzer dynamic diffusion. Of itself it seems to be insufficient to properly arterialize the blood.

Talking about the lung ventilation by the blowpipe method of a curarized dog, Meltzer and Auer say:[7] "If the glass tube" (meaning the cannula) "is a little too wide or a little too narrow in relation to the lumen of the trachea, the lungs acquire easily a slightly cyanotic appearance. But then, a disconnection of the tube from the pressure bottle for two seconds, which means a momentary collapse of the lungs, restores immediately the pink color of the lungs, and a repetition of this procedure once every three or four minutes is sufficient to maintain the life of the animal in a satisfactory fashion for many hours, although, under these circumstances, the blood pressure is subject to frequent variations."

That is equivalent to saying that cyanosis will always occur, because the diameter of the trachea cannot be measured before the operation, and, consequently, only by the merest accident can the cannula be of just the right width, and as a general rule will be what Meltzer and Auer found it, a little too wide or a little too narrow.

On a curarized dog, the excursions of the thorax and the diaphragm cease altogether; there is neither inspiration nor expiration, and consequently almost complete stagnation of air in the lungs, except for the slight vibratory movement set up in the lung by the beating of the heart. This, then, is where dynamic diffusion could show its sufficiency; but once every three or four minutes the lungs must be deflated, the carbonic dioxide must be forced out. Dynamic diffusion must be assisted by respiration, for that is what deflation and reinflation mean.

Again, Meltzer's statement that by means of continuous intratracheal insufflation a dog cannot possibly be killed by ether, is proof positive that there is only a periodical exchange of gases going on between the main bronchi and the alveoli, for the insufflation of ether is as continuous in the blowpipe method as the insufflation of air. Therefore, if all, or most, of the ether reached the alveoli, the dog would certainly be killed. A great deal of it must, from where it leaves the cannula, be going right back up the flue, without taking any effect whatever, which means that a great deal of the air blown in must also be going the same way without, from the standpoint of lung ventilation having done any good.

By the courtesy of Dr. Meltzer I had an opportunity to operate by the blowpipe method on a dog, he himself very kindly superintending and directing the manipulation of the apparatus by his own man. It worked well on the animal. All through the operation artificial respiration was performed, at the average rate of 6 per minute, and dynamic diffusion was not relied upon. Simultaneously the number of spontaneous respirations of the animal decreased to about 10 per minute.

Apnea.—There is good authority for the assumption that the decreased number of spontaneous respirations per minute in the blowpipe method is not due to the altered chemical composition of the blood, in which it has an over-supply of oxygen and only about one-half its normal supply of carbon dioxide (apnea vera), a composition which dynamic diffusion is supposed to bring about, but that it is due to vagus reflexes (apnea spuria).

Luciani and Bordoni experimented[13] in 1887 on birds, using continuous tracheal insufflation with open thorax. The air was sent in by way of the trachea, through the lungs and out to open air from the abdominal air bags of the birds. So there was real circulation of air and consequently real ventilation. They found, among other features, firstly, apnea setting in coincidently with the beginning of the ventilation, before there had been time to wash out any CO_2; secondly, no apnea when the vagi had been severed; thirdly, imperfect apnea when oxygen was used for ventilation instead of air and the vagi were intact. Therefore, it may well be that the slowing up of respiration in the blowpipe method is not due to beneficial effects of dynamic diffusion upon the chemical composition of the blood, but rather to its harmful influence upon the nervus vagus, harmful because vagus reflexes affect not only the lungs but also the heart. I have no means of knowing what experiments may have been made by Meltzer to elucidate these conditions. Certainly, full light upon them is needed for the use of continuous intratracheal insufflation on human beings.

Inbound Air.—Nor is the cutting out of the upper one-fourth of the dead space harmless.

Bloch of Freiberg, who has made a painstaking investigation of the physiology of nasal breathing,[16] finds the rise in temperature of the inbound air between nostrils and pharynx, that is only about half the distance cut out in the blowpipe method, to be 5/9 of the difference of its temperature and blood heat, on an average about 15° C. (27° F.). The temperature of inbound air at the pharynx is uniformly about 25° C. (77° F.) for nasal breathing. For mouth breathing the warming up averages

*This view is further confirmed by an experiment mentioned by Dr. Meltzer in his paper, read on February 17 inst. He blew finely powdered charcoal into the afferent air and found very little of it in the alveoli, but most of it deposited on the walls of the flue.

about 6° C. (11° F.) between teeth and pharynx. At the same time the air is humidified to 2/3 of the point of saturation at the higher temperature. Between pharynx and bifurcation the temperature is further increased.

The velocity of the afferent air must also be taken into consideration. The cannula has only one-half the lumen of the trachea, delivers, therefore, only one-half the quantity of the air ordinarily inspired, if the air flows in the cannula with the same velocity that it normally has in the trachea. A larger quantity can be obtained only by an increased velocity. In order to obtain the normal tidal flow the velocity would have to be doubled. Probably the velocity is somewhere between normal and twice normal. The air flows, therefore, with greater velocity than in ordinary breathing, and, in addition, it is not only not tempered, but is laden with the cold vapors of ether. In this condition, at the point where it comes from the cannula, it strikes a point that physiologically is little adapted to be so struck, and not for a moment, but anywhere from one hour and longer continually.

Pressure.—During my above-mentioned operation with the help of the blowpipe method on a dog a bellows was the source of air compression. My assistants made the following observations: The pressure fluctuated continually on a mercury gauge from about 12 mm. to 20 mm., with occasional spurts to 25 mm. and over, and falls to zero from five to eight times per minute, whenever the attendant took his thumb off the opening of the side-tube. The fluctuations were so rapid that it was impossible to read the gauge accurately. These great fluctuations were not communicated unchanged to the trachea, because between gauge and trachea another side-tube had been arranged which led to open air and could arbitrarily be closed, more or less, with a thumb-screw. The shock of the fluctuations was thus somewhat cushioned, but the fluctuations themselves were nevertheless reproduced inside of the trachea as they occurred, though between what limits is not known. But it is known that very slight changes in intrabronchial pressure result in very great changes in blood pressure[19] and a careful determination of just what is here going on in the trachea would be useful.

It is true that surgeons have demanded that their intrathoracic apparatus should enable them to make quick changes in intrabronchial pressure. Kuettner wants this for surgical reasons,[14] and Friedrich for diagnostic reasons.[15] But all of these surgical demands require sustained, not fluctuating, pressure, and gradual sustained variations of pressure, changes quite unattainable with bellows.

Another feature of the blowpipe method that must necessarily be changed for its use on the human being is the present way of raising the pressure in the lung when closing the thorax, so as to fill it and bring it back into contact with the chest-wall. The physiological condition existing before the thorax was opened is thus restored, and the wound can be fully closed without danger of pneumothorax.

In order to obtain this result in the blowpipe method, the animal is simply choked by closing with the hand what is left of the trachea, that is, by closing the flue, the channel of the outbound air, and leaving open the cannula, the channel of the inbound air. The lungs flare up and are physically distended. In order to avoid the danger of overextending them the choking process cannot be maintained very long, but the hand must be taken off and the pressure be interrupted. During this interruption the lungs go down and produce again just what it was intended to avoid, the air space between pulmonal and costal pleura which was present while operating.

But that is not all. It will be remembered that the animal is breathing spontaneously. If by inadvertence or inexperience the interruption of the choking should not be carefully timed in relation to one respiration, or, if the choking should have to extend over several complete respirations and should not be interrupted properly, then an expiratory effort may take place against the closed outlet of the trachea. A true Valsalva, here still increased by the continuous inpumping of air, will then occur, one of the two conditions: "by which the respiratory fluctuations of intrathoracic and intraabdominal pressure will exert their extreme influence upon the circulation of the blood or rather upon its entering and leaving the thoracic cavity. If after a deep inspiration the glottis is closed and then a strong and persistent effort is made at expiration, the pressure thereby exerted upon the heart and the intrathoracic blood vessels can lead to a momentary stoppage of heart actions and circulation. The veins of the throat and face swell up, the capillaries of the lung are emptied, the aortic system is overloaded, the heart sounds cease and the arterial pulse disappears" (Luciani).[13] Luciani adds this warning: "The experiment is not without danger, especially for old people, and for those whose cardiovascular system is not strong or of normal function."

In an exploratory thoracotomy on a patient, performed recently at the German Hospital, the pressure stood for almost fifteen minutes at 12 mm. Hg, when closing up. Certainly, the patient could not have been choked for a quarter of an hour. Again, the pressure was applied after the thorax had been almost completely closed, when the lungs were no longer visible. What guides are there under such circumstances in the blowpipe method to indicate that sufficient pressure has been applied, but not too much? In the blowpipe method it is not known what pressures prevail in the trachea. No means are provided for gauging them. They are uncontrolled and of accidental magnitude; their regulation, such as there is, is entirely by guesswork. It would certainly be desirable to have at least their upper limit accurately determinable. For, the lungs can be overextended, and if that should happen and be continued for a quarter of an hour, interstitial emphysema would be the unavoidable consequence.

It will be said that so long as the thorax is open the appearance of the lung before him, and not the gauge, tells the surgeon what to do; and in the end it will probably amount to the same thing, whether to the attendant, manipulating the air, the one calls out, "More, more," and "Less, less," or whether another simply commands "Six," or whatever other number of millimeters may be required; both will get what they want. But the latter surgeon has the advantage, after he has once observed the behavior of a particular lung under various definite pressures, that in the course of the operation, by a short word of command, he can get instantly what is required at that moment, while the other one, using the blowpipe method, will have to go again through his more and less, every time he needs a change. Moreover, in keeping his records

of, and in communicating to others the results of, his operations, the one employing the blowpipe method cannot be scientifically accurate, but can talk only in generalities.

The Probable Appearance of the Final Continuous Intratracheal Insufflation Apparatus.—By the time the blowpipe apparatus is perfected for use on the human being, it will quite likely look no longer so simple as it does at present in the shape in which it is applied to animal experimentation. A number of features will have to be changed and others will have to be added. The cannula down the trachea cannot remain a rubber tube, but must be made of metal, probably with a removable mandril and a special mouthpiece. The outfit for anesthesia cannot be left quite so remarkable in its simplicity. To send the inbound air directly through the ether bottle, where it picks up an uncontrolled amount of vapor, will hardly do. It is bad enough that it cannot be definitely stated, how much of the ether sent in is absorbed by the blood. But if, in addition, it is not known, either, how much ether per minute is regularly sent in, that, to me at least, appears risky. Suppose something should happen during the anesthesia, how would it be possible to prove that an overdose of the narcotic had not been administered? Meltzer says that cannot happen with the blowpipe method. But the unexpected always happens, and even if a dog cannot possibly be killed by uncontrolled amounts of ether, maybe that not all human beings are equally resistant, and that some of them will succumb. As Tiegel says: "Dogs do not drink, nor do they smoke or keep late hours." Every surgeon will, without further argument, agree that provision must be made, when operating on the human being, for a controlled anesthesia, as far as that is obtainable in the blowpipe method. In addition, an oxygen tank will probably be needed, which will add to the complication of necessary connections. Next comes apparatus for the warming up and humidifying of the inbound air, and perhaps, also, a filter to take out the dust. Then a tank, etc., is needed between the bellows and the lung for equalization of flow of air. The muscular effort of the foot of the man working the bellows is not a sufficiently reliable governor, nor is what is left of the trachea a sufficiently large receptacle. The bellows itself is an unreliable mechanism. Matas has spent years in experimenting on pumps to take the place of the bellows in his insufflation method for intrathoracic work.[17]

Again, reserves are needed and substitutes. They should be provided in such a way that they do not entail undesirable duplication of parts. They are required, because the operation must not be interrupted, if something mechanical should fail to work properly during its course. Such happenings usually occur at critical moments, and, if it then is necessary to hunt first for the seat of the trouble, the patient will probably be dead before it is located.

Reserves of the Universal Differential Chamber.—In my universal differential chamber,* if something should go wrong with the machinery, the two gauges, one for vacuum and one for pressure, indicate at once just what has happened. A quick turn of valve handles, consuming less time than it takes to tell about it, and everything is serene again. Ordinarily the blower and the suction pumps are running at the same time. Should the blower be short-circuited, and thus the positive pressure have been cut out, then we continue with negative pressure. The suction pumps for the latter are divided into two independent units, each set in motion by another source of current, and thus each a reserve for the other one. Should, at another time, instead of the blower, both of these suction units fail to work, destroying the partial vacuum, then we continue with positive pressure. Thus the machinery producing the negative pressure is a reserve for that producing the positive pressure, and vice versa. Should all power fail at one and the same time, then there is still a hand-driven blower in reserve to fall back upon. That something should happen to my chamber proper, is almost inconceivable. It cannot happen to the iron work. A tear in the balloon material could hardly be detrimental, because there is, firstly, enough air delivered to take care of a leak, even a considerable one; secondly, the exhaust pipe can by means of the valve be closed or partly closed, thus turning the leak into an exhaust opening, and, finally, rolls of widest adhesive plaster are always at hand with which to close a tear.

Such security as I have in my apparatus appeared to me worth paying for. It makes me forget that I am working with apparatus.

Some Advantages of Continuous Intratracheal Insufflation.—The blowpipe apparatus shares the advantages of its type of positive differential pressure apparatus, namely, that it can be used in the same operating room, no matter how cramped, where the surgeon performs his other operations, and also upon the same operating table. Both these advantages are more apparent than real, because, firstly, as regards the table, for most intrathoracic work a special table is required, one that cannot only be turned around its transverse axis (Trendelenburg posture), but also around its longitudinal axis;[15] and, secondly, as regards the operating room, our regular ones are usually so crowded with the daily routine work that there would hardly be sufficient time left to use them for intrathoracic operations requiring special paraphernalia. It will certainly be much better to have additional facilities for intrathoracic operations, and to have not only one, but two additional operating rooms, one for aseptic and one for septic operations, each with a separate outfit.

Again, the blowpipe apparatus, for animal experimentation, composed of rubber tubes and glass and a bellows, might suggest the idea that it could easily be carried in a grip and be taken to the residence of a private patient. But, unless the patient is positively untransportable, he should always be taken to a hospital, because the asepsis required in intrathoracic operations is so exacting that it is almost impossible of attainment under conditions ordinarily prevailing in residences. So this advantage, too, is more apparent than real. However, a real advantage of the blowpipe method, one which it also shares with others of its type, is the freedom of movement it allows the surgeon when he has to operate in the upper region of the chest. In the classical type of apparatus the necessary means for air-tightening around the neck of the patient make that class of operations somewhat unhandy, though quite feasible. I contemplate using the blowpipe type on occasion in such cases, when it has been perfected.

Some Further Disadvantages of Continuous Intratracheal Insufflation.—Frequently the surgeon will find himself facing an operation, where he knows beforehand that the pleura is in danger of being torn. If an apparatus of the classical type is

*See *Jour. Am. Med. Assn.*, 1909, page 1978.

at hand, it is in such cases a great nerve tonic for the surgeon to operate with the apparatus, but, of course, so long as everything goes well, without differential pressure. Should danger arise, the command, "Pressure, 5!" (meaning 5 millimeters) will end it instantly. The operation is then continued under differential pressure. With the classical type of apparatus the operation proceeds unaltered so long as the pleura remains intact. With the blowpipe method it means intubation all through the operation, or else, intubation with an open pleura.

It can also happen that the extent of the disease proves more far-reaching than anticipated, and that it is found to involve the pleural cavity. With the classical type the apparatus is in that event simply moved up to the operating table, or vice versa, and the head of the patient is put through the opening into the pressure apparatus; it is only necessary to move the patient longitudinally on the operating table. In the blowpipe method it means intubation during the course of the operation.

Another and a very important disadvantage of the blowpipe method is this: that it cannot be used in the after-treatment, a consideration proving, what was pointed out once before, that the blowpipe method and apparatus are not all-sufficient, but that other differential pressure appartus would be needed along with it.

Classical Type Apparatus All-sufficient.—It should be clearly understood that there is nothing in thoracic surgery, however extreme, attainable by means of the blowpipe method, which cannot also be done with less complication and greater safety with the classical type of apparatus. Reference is here had to operations in which the thorax being widely opened, the diaphragm and ribs can hardly act on the lungs.

As early as 1904 Sauerbruch published[18] results of experiments performed in his first negative chamber, in which he gradually resected the entire thoracic walls, and the animal lived. He has also in his negative chamber cut away, on a rabbit, all the muscles of thorax and abdomen, including the diaphragm, that in any way affect the lungs. According to Hultkrantz,[13] the excursion of the thorax contributes about two-thirds, and of the diaphragm one-third to the quantity ordinarily inspired. The lungs stood motionless and distended, like inflated bags, without any active or passive movement. Functionally they were entirely cut out. In this physiological experiment, if it is intended to keep the animal alive for some time, the lungs are slowly deflated and slowly reinflated, in the classical type of apparatus, by use of the means provided for artificial respiration.

But these extreme cases are governed by entirely different considerations, viz., the reflex effects of the finest sensory fibers, and these considerations have no connection with apparatus and are, therefore, identically the same for all the types, classical, emergency, or otherwise. These reflexes, probably brought about by the sudden contact of the pleura with open air, cause a rapid sinking of the blood pressure and acceleration of the pulse, and if not correctly handled, may lead to immediate death.

In order to be able to speak from my own knowledge, I have performed recently at the Rockefeller Institute in my chamber, which, as stated, is of the classical type, two operations of that character on dogs. I have excised the sternum and then cut transversely, between the fifth and sixth ribs, to within one inch of the spine on either side. Thus the thorax fell apart in four directions, and there was a wide space between it and the lung. The first time I made the intercostal division all at once. The thorax fell apart and exitus followed soon.

The second time, after excising the sternum, I performed the intercostal incision slowly, a few inches at a time, to within one inch of the spine on either side, at the same time putting the animal under deeper narcosis to exclude, or at least minimize, the pleural reflexes, and also performed artificial respiration with the apparatus at the rate of two per minute, between the limits of 15 mm. and 2 mm. Hg.

In parenthesis, attention is called at this point to the advisability of avoiding in such cases the lowering of the pressure to 0 mm. Hg (atmospheric pressure), in other words, of avoiding the complete destroying of the difference in pressure between the inside and the outside of the lung. The collapsing of the lung is not sudden, but rather slow under the gentle pressure of the elasticity of the lung tissue. Therefore, a sudden reduction of the intrabronchial pressure to zero and subsequent immediate restoration of the pressure to its previous level, as practised in the blowpipe method, has little beneficial effect upon the lung, but a very harmful effect upon the heart.[19]

If the lung is really permitted to reach the pneumothorax stage, the danger arises which Hermann has pointed out,[20] that the smallest bronchi collapse and stay collapsed, when the lung is put again under pressure for reinflation, leaving large spots of the lung atelectatic. The danger is obviated by retaining some difference in pressure.

Reverting now to my physiological experiment, the only one I have taken the time to indulge in. The animal lived. When sewing up, thinking all danger past, I stopped the artificial respiration, and was working with a constant differential of 7 mm., the animal breathing spontaneously, when it suddenly collapsed. Gums white, respiration nil, heart beats ebbing away. Artificial respiration, 4 per minute; heart massaged. No anesthetic. During the artificial respiration, the epiglottis was well drawn forward. The animal came completely around, and left the table alive. Naturally, such far-reaching divisions of the thoracic walls will rarely happen in operations on humans.

Surgery Ready Now for Intrathoracic Work.—Like everything else, apparatus for thoracic surgery is an evolution. For one hundred years many minds have been busy elucidating the intricate relations between lungs and heart, between respiration and circulation, upon which such apparatus necessarily must be based. Meltzer has apparently thought that by going back fifteen years and starting over again from where the art was at that time, he could succeed by thus turning back to first principles in going his own way, and find a new solution of the problem.

He has given us only an additional endorsement of the differential pressure principle, and, unfortunately for him, his apparatus is beset with the troubles of fifteen years ago, troubles which later thinkers had succeeded in ferreting out and had managed to avoid in their apparatus. Gradually, step by step, the classical type of apparatus has been developed and is now in such a state of perfection that the life of humans can be entrusted to it without hesitation. Green and Janeway, also Robinson, myself, and, maybe, others on this side of the Atlantic, of whom I do not know, have such

apparatus. We are ready for work and have done work on the human subject with our apparatus. There is absolutely nothing in the way of intrathoracic operations that is excluded from the sphere of this classical type of apparatus. Exploratory thoracotomy can be performed to-day with the same degree of safety as exploratory laparatomy, and if proper preparations have been made, can be promptly followed up with the indicated operation.

Conclusions.—1. Intrathoracic surgery cannot be done properly and safely without differential pressure apparatus.

2. Negative and positive differential pressure are, it seems, not identical in their effects upon sick human beings. Whether they are or not, must still be established, and indications be found for their use. This is rendered feasible by the universal differential pressure chamber.

3. Continuous intratracheal insufflation as practised by Meltzer and Auer appears to be a positive differential pressure system.

4. Its weak points are the use of the human trachea as a vital part of the apparatus; the possibility of aspiration at the beginning of the operation, with subsequent pneumonia, and of interstitial emphysema at the end of the operation, as a consequence of its employment; also the required deep anesthesia. Intubation reaching below the glottis has been found to give rise in the human trachea to immediate copious secretion of mucus.

5. Sudden complete interruption of the prevailing differential pressure, followed immediately by its equally sudden restoration, as practised in continuous intratracheal insufflation, is liable to hurt the human heart. Very slight changes in intrabronchial pressure give rise to very great changes in blood pressure.

6. Continuous intratracheal insufflation apparatus is not adapted for use in the after-treatment, nor is it otherwise all-sufficient. Those employing it need some other type of differential pressure apparatus in addition to it, in order to be prepared for every emergency.

7. The safest method of general anesthesia is the one used in our every-day surgical work, the inhaling of the narcotic with spontaneous respiration and with mouth and throat left unencumbered. This method is the one used in the larger differential pressure chambers.

8. In surgery, when entrusting human life to the safe working of mechanical apparatus, it is wise to have substitutes on hand, in order to be prepared for accidents. In continuous intratracheal insufflation everything depends, at present, upon the one cannula and the patency of the trachea.

9. As far as the patient is concerned a differential pressure system leaving mouth, throat, and trachea unencumbered, appears preferable to one requiring intubation.

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EXPERIMENTAL INTRATHORACIC SURGERY BY THE MELTZER AND AUER METHOD OF INTRATRACHEAL INSUFFLATION.

By ALEXIS CARREL, M.D.,

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During the past few months I have performed some operations on the thoracic viscera by using the method of Meltzer and Auer. The purpose of these experiments was to find out new methods for the future surgery of the heart and of the aorta. I attempted to improve the general technique of intrathoracic operations and to develop procedures which could be used in the treatment of aneurysms and of certain heart diseases. This study was rendered possible to me by the method of Meltzer and Auer. In the extensive operations on the aorta and the heart it is necessary that every detail of the technique be adapted to the conditions created by the opening of the pleural cavities, the handling, and the temporary disturbance of the functions of the organs. The respiration stops often whether spontaneously or under the influence of thoracic dislocation. In its extreme simplicity, the apparatus of Meltzer and Auer does not modify at all the ordinary operative conditions. Besides, it presents the very important advantage of permitting the respiratory exchanges to continue, even if the respiratory movements have stopped or become inefficient.

The apparatus I used is composed of only a foot bellows, a rubber tubing connected with an ether bottle and a manometer, and a small intratracheal catheter.

I tested, at first, the method in some comparatively simple operations such as resection of pulmonary lobes, extirpation of a segment of the middle part of the esophagus followed by circular suture, and dissection of the mediastinum by opening of the two pleuræ and the pericardium. The chests of a few animals were opened by a half circular transverse incision, with section of the sternum. The upper and lower parts of the thorax were strongly retracted in such a way that the ribs and the diaphragm could hardly act on the lungs, which were half inflated and almost motionless. Nevertheless the respiratory exchanges remained satisfactory. All the animals on which operations of this class were performed recovered without accident.

I began afterward to study a technique which could possibly be used in the treatment of aneurysms

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of the thoracic aorta. The ordinary methods for the suture and transplantation of vessels had to be modified. The aortic wall is very friable. It is easily cut by the threads, and hemorrhage or thrombosis occurs. Large silk threads must be used. On the ascending aorta, the wall of which is especially friable, I employed the stitches advocated by Jaboulay for arterial anastomoses. The ordinary technique of vascular sutures must be adapted to the anatomical conditions of the thoracic aorta in order to be safe. The aortic circulation cannot be interrupted for a long time without occurrence of nervous complications. When the descending aorta is clamped for more than ten or fifteen minutes, the posterior limbs become paralyzed. It seems that the clamping of the ascending aorta cannot be continued without danger for more than thirty seconds. It was, therefore, necessary to find out a method for diverting the blood during the long plastic operations. The diversion of the blood can be produced in two different ways—by temporary intubation of the aorta or by an artificial collateral circulation. It is a central or lateral diversion of the blood.

The central diversion consists of tubing the segment of the aorta which is to be resected. The vessel is laid open by a longitudinal incision and a paraffined tube is inserted into its lumen and temporarily fastened. This small operation involves only a short interruption of the circulation. Then the wall of the aorta can be extirpated and replaced while the circulation goes on through the tube. When the operation is completed, the tube is removed through a small incision of the wall of the aorta.

The lateral diversion consists in establishing a communication between the left ventricle and the descending aorta, or between two parts of the aorta. I have used only the first method. The anastomosis between the left ventricle and the descending aorta is made by means of a paraffined rubber tubing or of a large jugular vein preserved in cold storage. One end of the vessel or of the tube is inserted into the apex of the left ventricle and fastened. The other end is inserted into the descending aorta. The ascending aorta is clamped. Then the blood goes directly from the left ventricle to the descending aorta. The direction of the blood stream is reversed through the upper part of the descending aorta, which acts temporarily as an ascending aorta. There is, therefore, no danger of anemia of the brain. But the operation is still very dangerous because the details of the method are not sufficiently worked out. The mortality was heavy. Before being safe the technique must be considerably improved. Nevertheless, I succeeded twice in anastomosing the left ventricle to the descending aorta and in reversing the circulation through the upper part of the descending aorta, after clamping the arch of the aorta just above the heart.

In spite of the lack of accuracy of my technique, some of the animals which had undergone aortic operations remained in good health. The anatomical and clinical results could be observed after a few weeks or a few months. The sutures, anastomoses, and transplantation succeeded as well on the thoracic aorta as on the other vessels. A dog, the ascending aorta of which had been incised and sutured by Jaboulay stitches, died two months and a half after the operation. It was found that the wound had healed perfectly. The scar was very small. On three other dogs, the descending aorta had been severed transversely and united again by continuous through-and-through sutures. One of them was chloroformed two months and a half after the operation. The anastomosis was found normal, without dilatation or stenosis. The other dogs are still living in good health three months after the operation.

A small piece of the upper part of the descending aorta of a dog was resected and replaced by a piece of jugular vein preserved in cold storage. During the operation, which lasted twenty-four minutes, the blood reached the lower part of the aorta through a paraffined tube. The dog remained in good health. Twelve days after the operation, he died suddenly. The accident was due to a fault of technique in the preservation of the vein in cold storage.

Three months and twelve days ago, a segment about three centimeters long of jugular vein preserved in cold storage was transplanted on the descending aorta of a small dog. The animal is still in excellent health and there is no modification of the femoral pulse.

These results show that positive results can be obtained in plastic operations on the thoracic aorta. But, in order to be safer, the technique of the diversion of the blood must be improved.

I attempted afterward to find some methods which could be used in the treatment of certain diseases of the heart. This work is still in its beginning, and has given very little definitive results. Nevertheless, some of the operations were successful. Cardiotomy followed by suture with large silk thread does not present any danger. The opening of the heart and the introduction of the finger into its cavity does not interfere at all with the health of the aimal. The resection of a small part of the wall, followed by suture, is a little more dangerous, because the suture is made under tension. The threads may tear the wall.

I tried to develop an operation which could be used in certain cases of mitral insufficiency. It consists of producing a slight stenosis of the upper part of the left ventricle. It can be obtained by a partial cuneiform resection of the wall of the ventricle just below the coronary artery. A dog which has undergone this partial ventriculectomy a few weeks ago is still in good health.

In case of mitral stenosis, it would be easy to make an incision of the valve. But it could probably not produce a very good result. It would probably be better to establish an indirect auriculoventricular anastomosis by a vein implanted on the left auricle and ventricle. I am trying to develop the technique of this operation.

In certain cases of angina pectoris, when the mouth of the coronary arteries is calcified, it would be useful to establish a complementary circulation for the lower part of the artery. I attempted to perform an indirect anastomosis between the descending aorta and the left coronary artery. It was, for many reasons, a difficult operation. On account of the continuous motion of the heart, it was not easy to dissect and to suture the artery. In one case I implanted one end of a long carotid artery, preserved in cold storage, on the descending aorta. The other end was passed through the pericardium and anastomosed to the peripheral end of the coronary, near the pulmonary artery. Unfortunately, the operation was too slow. Three minutes after the interruption of the circulation, fibrillary contractions appeared, but the anastomosis took five minutes. By massage of the heart, the dog was kept alive. But he died less than two hours after-

wards. It shows that the anastomosis must be done in less than three minutes. Perhaps this can be obtained by using another technique, a tube of Payr, for instance.

These experiments must be considered only as a first step toward the plastic surgery of the heart and of the aorta. It is very probable that some diseases of these organs can be cured by surgical methods when an adequate technique will be found. But I am very far from saying that the operations I have described will be of practical value under their present form. I have performed only thirty-five operations on the thoracic organs. As these operations belong to many different classes, the technique of each one has not yet been sufficiently worked out. No complication followed the use of the method of Meltzer and Auer. Very extensive operations were rendered possible by the employment of their apparatus. It is certain that the method of Meltzer and Auer, by its simplicity and efficiency, is a great advance in the experimental surgery of the thoracic organs.

THE VALUE OF CONTINUOUS INTRATRACHEAL INSUFFLATION OF AIR (MELTZER) IN THORACIC SURGERY;

WITH DESCRIPTION OF AN APPARATUS.*

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During the past year Meltzer and Auer have described a method of artificial respiration which they call "respiration by the continuous intratracheal insufflation of air"; they have shown that by this method, animals could be kept alive for many hours when one or both pleural cavities were widely open. A small tube was passed through the larynx into the trachea almost to the bifurcation, and by means of a foot bellows air mixed with ether was continuously blown into the tube under a pressure of 15 to 20 mm. of mercury. In the animals the lungs remained distended, and the excess of air passed upwards in the trachea and out through the larynx and mouth in a continuous stream. The animals remained alive and in good condition even when deeply under the effects of curare. Meltzer and Auer recommended this method as one that might prove to be of great value for operations within the thorax in man. Carrel and the writer then made use of the method for experimental intrathoracic surgery in animals. The writer had the good fortune to witness many of the experiments of Meltzer and Auer at the Rockefeller Institute for Medical Research. Through the kindness of Dr. Meltzer I was permitted to operate upon a large number of animals and to test the method for operative work in the thorax. A considerable number of operations was done on dogs which showed that the method was a very safe and simple one.

These experiments, in which I was assisted by Dr. H. Neuhof, will be published in detail later, but they led me to the conclusion that the method might be a very simple one for human surgery. In the following short paper I shall consider briefly the theoretical objections to and advantages of the method from the standpoint of its use in the human being, the practical aspects and the general technique of the method, and finally I shall describe an apparatus which I have devised for use in operations on man.

To be developed to a high extent, intrathoracic surgery must become the property of the many and not of the few. This will take place when a method has been discovered which will make it possible for any surgeon of experience to do operations within the thorax—as far as the anesthesia and the dangers from pneumothorax when the pleural cavity or cavities are opened are concerned—as safely as in other parts of the body. The apparatus must be a simple and inexpensive one so that it can be acquired by all. The negative pressure chamber of Sauerbruch and the positive pressure apparatus of Brauer and their modifications have been proven very satisfactory and of great practical value in intrathoracic operations upon man, but the apparatus is complicated and expensive, and therefore only few surgeons and hospitals possess such apparatus. The differential pressure chamber of Dr. Willy Meyer represents the most improved form of differential pressure cabinet, but the same objections must be made to it. The apparatus is cumbersome and expensive. It cannot be called simple. The apparatus required for Meltzer's method is certainly very simple, the method of operation is simple and easily learned. It has been shown to be very efficient for intrathoracic operations on animals. It remains to determine whether the method is as simple and safe for use on sick human beings.

From this standpoint, the following objections might be raised against the method: 1—That the introduction of a tube through the larynx into the trachea in human beings might be harmful, and its presence in the trachea for a period of time might be dangerous. 2—That the continuous current of air might injure the mucous membrane of the trachea or cause grave injury to the lungs. 3—That the distention of the lungs might be harmful, might cause interstitial emphysema, or predispose to pneumonia.

1. *What harm can be caused by the presence of a tube in the trachea?* It is well known that a long tracheotomy tube can be worn in the trachea for many months without danger. Anyone who has had any experience with bronchoscopy knows that a bronchoscopic tube can be kept in the trachea for considerable periods of time without danger to the patient. In the search for a small foreign body in a bronchus I have more than once had a rigid Killian tube in the trachea for 15 to 30 minutes without harm. The tube that is introduced in the method of Meltzer is of soft rubber which does not fill up the tracheal lumen nearly as much as the bronchoscopic tube. I believe we must avoid all theoretical prejudices and arrive at the conclusion that with the proper precautions the introduction and presence of a rubber tube in the trachea is free from danger.

2. *Will the continuous current of air be harmful?* The experiments of Meltzer and Auer, of Carrel, and of my own have shown that no injury was done to the dog's trachea in our experiments. From this it does not follow that the human trachea will be unharmed—especially the possible diseased trachea. I desire to call your special attention to the fact that in the animal experiments no care was taken to keep the air that was blown into the trachea either warm, sterile or moist. Notwithstanding the

*Read at the meeting of the N. Y. Academy of Medicine, February 17, 1910.

crudeness of the technique no apparent injury was done to the tracheal mucous membrane. If the method of insufflation was used in the human being, the air should be sterile, warm and moist, and in what follows I shall describe a very simple device by means of which all of this can be accomplished. The pressure of the air in the trachea should not be harmful. The pressure is equal to about 1-4 to 1-3 of a pound to the square inch, which is far within the danger zone. Dr. Meyer has stated in one of his publications, that workers in mines and in the foundations of bridges and high buildings often work for hours under a pressure of thirty or more pounds to the square inch.

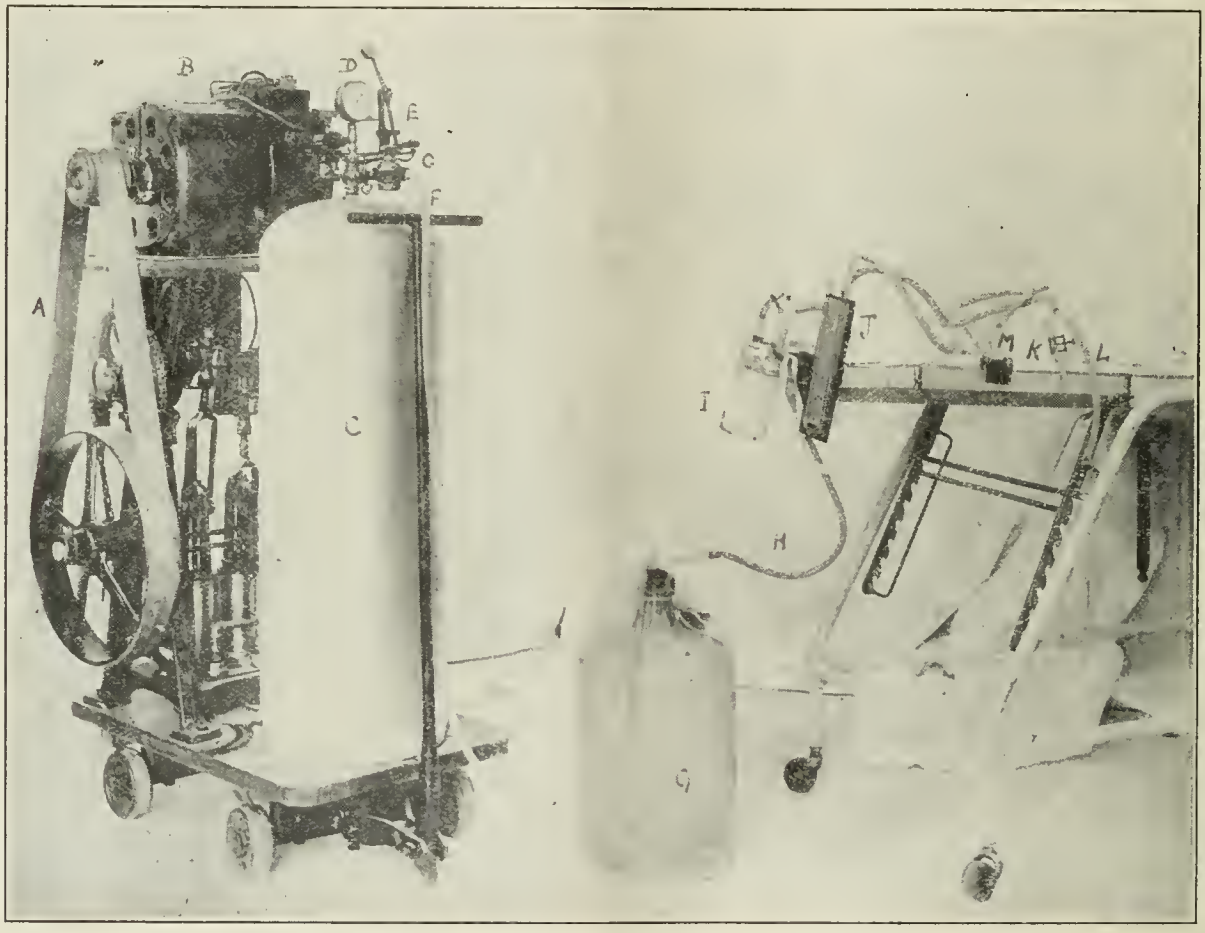
3. *Will the distention of the lungs be dangerous?* The degree of pressure will probably be safe for the reasons just stated. The pressure will probably not be much greater than that upon the lungs during expiration in a Brauer positive pressure apparatus. In animals, the continuous pressure has done no harm, but in man it will no doubt be advisable to collapse the lungs for a moment every five minutes or less. This can be accomplished by a simple manoeuvre. If the method was used in human surgery the current of air should be kept at a low pressure until the chest is open and then the pressure should be raised enough to moderately distend the lungs.

So far, the insufflation method has not yet been used in operations in the human being, but its very great efficiency in animal experiments would indicate that it might be equally valuable in man. It is only with much reserve that the results of experiments on healthy animals can be applied to sick human beings under our care, and every safeguard should be taken before a new method is tried on a human being. After careful study and much thought on the subject, I have laid out the following plan of procedure for the human being, and have devised an apparatus for the purpose:

The tube for introduction should be fairly rigid with an opening at its end like that in an ordinary rectal tube. It should contain an obturator which is to be removed as soon as the tube is in place. The obturator should be elastic and should have the proper laryngeal curve. This will make the introduction of the tube more easy and will prevent mucus from entering the tube while it is passed into the trachea. An appropriate laryngeal forceps should be on hand as it may be required. It may be advisable to anesthetize the larynx with cocain before the introduction. The patient is anesthetized and the mouth kept open by a mouth gag. One finger of the left hand is inserted into the mouth and the epiglottis pulled forward. The tube is then passed over the finger into the larynx and is pushed forward slowly until an obstruction is reached—which signifies that the end of the tube is at the bifurcation. The obturator is then withdrawn and the tube pulled out for about one inch. The tube is then threaded through a special gag made for the purpose, and the tube fixed to the gag. The tube is now ready to be attached to the air pump.

The gag which I have devised and which is being made for me, is held against the upper teeth by a head band, so that the lower jaw can be opened at will and the mouth cleaned out.

The insufflation apparatus which I have devised



Apparatus for the intratracheal insufflation of air in the human being. The apparatus is set up ready for use.

for hospital use is an automatic one.* It is mounted on a small truck so that it can be easily transported. A triple expansion pump (A) driven by an electric motor (B) delivers the air into the tank (C) which has a pressure gauge (D) and is connected with an automatic cut-off (E). The cut-off can be set for any pressure up to 60 pounds. A pressure regulator keeps the air which enters the tube (F) at a constant pressure. The air passes through the tube (F) into the bottle (G) which contains hot sterile water. The air bubbles through the water and is filtered, warmed and moistened. The tube (H) carries the warmed sterile air to the ether bottle (I) to which it is connected in such a manner that the air must either pass over the ether vapor and carry ether with it, or some of the air passes through the ether bottle, or all passes outside of the latter. By this means the air carried into the patient's trachea is either saturated with ether vapor, or contains only a small amount of ether or none at all. To one part of the tube (H) a tank of oxygen is connected so that the patient can be given oxygen in addition if desired. The tube from the ether bottle is connected to the manometer (J) by a side tube and has a Y ending. To one end of the Y endpiece is attached the safety vent (K) which is opened whenever the lungs are suddenly to be collapsed, and to the other end the tube (L) which is connected to the intratracheal tube.

A detailed description of the apparatus and its working will be published in the near future, but the following few statements will suffice for the understanding of its management. The motor is connected with the source of electricity and the tank filled with air. The stop cock (O) is then partially opened and the air allowed to bubble through the water bottle and finally to escape by the tube (L). The pinch screw on the tube (K) is then opened or closed until the manometer registers a pressure of 20 mm. The tube (L) is then united to the tube in the patient's trachea by means of a connecting tip. The apparatus is now working and the operation can be begun. By screwing down or unscrewing the pinch screw on tube (K) the pressure of air entering the trachea can be raised or lowered. Whenever the pressure gauge shows that the pressure in the tank has fallen to 10 the motor is started again and the tank refilled. The air in the tank has to be replenished every 15 to 20 minutes. The apparatus above described is larger and more bulky than required and I am having a much smaller apparatus constructed. An ordinary foot bellows can be used, but I believe that an automatically working apparatus is better for hospital use. I have had a wheel and handle attached to the pump so that the pump can be driven by hand if the current should give out or the motor be out of order. The entire apparatus will cost less than $100. If, however, a bellows be used as was used by Meltzer, and later by Carrel and by myself in our animal experiments, the entire apparatus should cost less than $25. It can be carried around in a hand bag.

I have great hopes that Meltzer's method of respiration by continuous intratracheal insufflation will be found of great value in operations on patients where the thoracic cavity has to be invaded. Much careful investigation is required before any positive statements can be made, but there is every justification for its trial on the human being. The positive and negative pressure chambers were recommended for human surgery because they had worked well in operations upon animals. With the insufflation method of Meltzer the thorax of dogs can be opened with impunity as far as the dangers from pneumothorax and sudden collapse of the lungs are concerned. If the method works as well in human beings as it does in animals, then we have at last a simple method by means of which the intrathoracic viscera will be brought within the domain of the surgeon.

The method may also be of great value in the treatment of asphyxia of all kinds—chloroform and ether asphyxia, opium poisoning, asphyxia neonatorum, coal gas poisoning, perhaps drowning, etc. We have resuscitated dogs after all respiration and heart action had ceased for several minutes by means of intratracheal insufflation. I have kept a patient with myasthenia gravis who had stopped breathing alive for five hours by means of intratracheal insufflation of air and oxygen. The patient was deeply asphyxiated when I was called to see her in the hospital ward, and her heart action could only be faintly heard. Without difficulty I passed a tube into her trachea through the larynx and began intratracheal insufflation. Within a few minutes the patient's color was pink and rosy and the heart action was re-established. For almost five hours the patient was kept alive with a good pulse, although she never once made a respiratory effort during that time. This is the first and up to the present time the only case in which the method has been used in the human being.*

*I desire, in this place, to express my acknowledgment and thanks to Dr. S. Yankauer of this city, whose help and suggestions were invaluable to me.

*Since the above was written, we have operated upon a patient with a pulmonary abscess, and have done the thoracotomy under the insufflation method. The operation was performed by Dr. Lilienthal at Mt. Sinai Hospital. From the standpoint of the method, the operation was very satisfactory. The anesthesia was easy and little ether was required; the patient's condition remained good during the entire operation; there was an entire absence of mucus in the trachea; the heart action was unchanged when the chest was opened; the lungs could be distended and collapsed at will; when the tube was removed after the pleura had been closed, the breathing was normal in character; recovery from the operation was prompt. The full details of this case will soon be published.

CURIOUS ARRANGEMENT OF THE CAPSULE OF THE LENS AFTER THE SIMPLE EXTRACTION OF CATARACT.

By DR. JUAN SANTOS FERNANDEZ,

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THE discission of the capsule of the lens in cataract operation has been amply studied and has caused the invention of various instruments, from the commonly used needle of De Graefe to the forceps of Foester. All have the same object, that of rupturing or opening the anterior capsule or of tearing away a portion of it, in order to make certain of the delivery not only of the lens, but of the cortical masses that precede or follow it.

It has also been attempted to perform the discission with the point of the knife, at the time of making the keratotomy. Knapp, Gayet, and Galezowski were the first ones to adopt this method, although the first mentioned did not follow it long, for he now invariably uses the peripheral discission with the cystotome which at his hands gives most excellent results. In surgical practice habit holds

an important place as well as confidence. For the past fifteen years we have made the discission by means of the knife and have not repented so doing.

We do not pretend to say that the method is without disadvantages in some circumstances, but the same may be said of all methods. We believe that it should not be condemned, if for no other reason because with it we can operate with greater speed. Speed in an operation, the *cito* of the ancients, may not be an indispensable requirement, but should always be recommended. The body is thankful to the least possible amount of torture, or if not of torture at least of being touched or handled. Besides the discission with the point of the knife, while doing away with one of the steps of the operation, avoids one possible danger, the introduction of new instruments, which, with the least lack of care, may infect the interior of the eye or may produce some traumatism in a region so delicate.

We know very well that in nervous patients, in those with shallow anterior chamber, or where the level of the anterior surface of the lens is deeper, this procedure offers a slight difficulty, if one is not accustomed to direct the point of the knife towards the capsule; but generally it can be reached, and most of the time the rupture is larger than with the cystotome, so much so that we have never felt obliged to repeat the discission, as we have had to do sometimes when we used the ordinary cystotomes. We have at once made the tear of sufficient size to allow the delivery of the lens. The greatest obstacle we have met has been that sometimes, on account of the hardness of the capsule, the knife was not sufficiently slanted to enable its point to become disengaged, thus preventing its being passed through to perform the counter puncture. However, by drawing the knife slightly backwards or placing it sidewise, the difficulty ceases and the corneal section can be finished.

The fact we allude to, although observed in one of our patients, was in one not operated upon by us, but by a notable foreign colleague. He consulted us some time after having been operated upon. He informed us that he noticed some reduction of the visual field, although his acuteness of vision was perfect after his aphakia had been properly corrected.

Our patient was a man of 46 years, with a myopia of 7 d. spherical, and a slight posterior staphyloma. At the operation a simple extraction of the right eye had been performed. De Graefe's knife had been used to perform the capsulotomy. After the pupil was dilated we examined him and saw in the middle of the anterior capsule an orifice that was the cause of the lessened visual field.

We recommended our patient to wait until the other eye was operated upon, because even if the same thing should occur in this eye, the reduction of the visual field would be insignificant, as he would then be in possession of binocular vision. Before he could be operated upon the patient died. We have mentioned this case to demonstrate how rare this accident is, as in nearly 20 years that we have been practising the discission almost exclusively with the knife, we have not observed it in one of our patients. Besides, the slight reduction of the visual field is not a serious inconvenience, considering that the patient had perfect vision and the prospect of improving, had the other eye been operated upon.

LUMBAR ANALGESIA.

By MAX BREUER, M.D.,

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The demonstrations of the Bucharest surgeon, Jonnesco, in New York and elsewhere will undoubtedly revive the interest in lumbar analgesia, with which procedure American surgeons are not as familiar as they might be. When I read a paper in the Buffalo Academy of Medicine four years ago on this subject, there was no discussion to speak of, not from lack of interest, I am sure, but because nobody present had any experience in the matter. At that time I reported my first cases of lumbar analgesia. My further experience with this method of operating, which at my suggestion has been taken up by Dr. Mansperger at he German Deaconess Hospital, entitles me to say that lumbar analgesia, which is a popular method in France and Germany—some European surgeons have reported 800 and 1,000 cases and the number of cases on record is over 50,000 to-day—has come to stay. I do not think, however, I may be too conservative, that lumbar analgesia should or ever will replace general anesthesia, but if for some good reason general anesthesia is contraindicated or if it is dreaded by the patient, the lumbar analgesia, as worked out in Bier's clinic, is a very useful, and, in the hands of a competent man, a safe procedure. A line drawn across the umbilicus gives the limit of the field of operation which it is safe to anesthetize, although one is able by exaggerated Trendelenburg position to reach higher nerve roots from the lumbar subarachnoidal puncture. The demonstrations of Jonnesco and his publication in the *Deutsche medizinische Wochenschrift*, December 9, have not convinced me that it is really safe to go further, unless one is willing to take risks for good reasons. Bier and Rehn have declared Jonnesco's advanced method as dangerous.

The lumbar analgesia is particularly indicated in patients suffering from cachexia phthisis, Bright's disease, heart lesions, senile changes, etc., and is life saving, I believe, if one has to do a major operation during shock after accidents. The procedure is contraindicated in septic cases and advanced arteriosclerosis. The analgesia lasts, in my experience, from 50 to 70 minutes and is complete, if the technique is correct. Only the best material should be used and stovaine in 0.04 doses is a reliable drug, as I have found out in my cases. Bier uses of late, as I saw in Berlin this summer, tropococaine. One ampule contains 1.3 cm. of a 5 per cent. tropacocaine solution with the addition of 0.00013 suprarenin. The point of puncture is between the first and second, or between the second and third lumbar vertebræ. Absolute asepsis is of course indispensable. The selected area is painted with tincture of iodine. The patient sits on the operating table sideways, his feet resting on a chair, and has to bring his spinal column into an extreme curve. An assistant pressing his flat hand against the stomach will help him to accomplish that. Ethyl chloride spray, or, if you prefer, a small dose of morphine subcutaneously will add to the patient's ease. After straightening out as much as possible all lateral deviations of the spinal column, the needle is put through the skin only, as closely as possible to the lower vertebræ. The patient usually straightens up

at this moment. After he has resumed the right position, and after you have convinced yourself, looking from above downward, that the needle is in the median line, the stylet is removed, and the needle, pushed forward and slightly upward, will enter the canal 3 to 5 mm. wide, between the two halves of the cauda equina. The proof of the proper puncture of the subarachnoidal space is the appearance of the cerebrospinal fluid in a stream, not in drops. In case of failure retract the needle and bring it forward again, trying to reach the median line. After injecting the drug, aspirate some liquor and inject again, otherwise you will lose the drug remaining in the needle. In the canal mentioned the drug can circulate freely and reach the nerves of the cauda and the roots of the branching off nerves. As the nerves in the cauda are strictly separated in sensory and motor nerves, the posteriorly located sensory nerves are the ones to be reached and, therefore, the point of the needle should stop immediately when the liquor flows. The technique is not quite easy in cases of spinal deformity. By deviating with the point of the needle, one is apt to inject the drug between the nerves of the cauda, which produces an unsatisfactory, usually semilateral, analgesia and that may be exactly the side not desired. If an abdominal operation—appendectomy, herniotomy, adnex operation—is conetmplated, a moderate Trendelenburg position is indicated; in operations lower down the horizontal position is preferable. The results in my hand have been delightful; after-effects, headache or backache were hardly noticed. I believe nobody, who has seen a prostatectomy performed in lumbar analgesia will want to do this operation again under general anesthesia. The patient does not need to miss a meal and has a far better chance for recovery. Mackenrodt of Berlin, one of the boldest and most skillful gynecologists, reports the lowering of the death rate in his radical operations for advanced cases of carcinoma uteri with removal of pelvic glands by 9 per cent., since he adopted lumbar analgesia. The most advanced cases of carcinoma uteri are as a rule sent to him. He has not seen any undesirable after effects from his last 200 cases of lumbar analgesia, but he does not think that stovaine is as safe as tropacocaine. Bier himself has declared himself in favor of tropacocaine. In my own observation I failed to see any disturbance of respiration, the pulse usually fell off in numbers, not much in quality.

One man, operated upon for abscess of the vesicula seminales, asked for his dinner when being taken from the operating room. A paralysis of the abducens, which disappeared fully after three weeks, developed in that case only. In pus cases I would refuse to use lumbar analgesia, not on the strength of this one case, but from the study of the literature. If the proper technique is applied, the right instrument and the right drug, there ought to be no failures.

Ectopic Pregnancy.—Hunter Robb says that death from ruptured ectopic pregnancy is the result of shock rather than hemorrhage. He advises against immediate operation if the patient is in a state of shock.—*The Ohio State Medical Journal.*

Specific Diseases Transmitted from Animals to Man.—The most frequent of these are tuberculosis (?), pleuropneumonia (?), anthrax, septicemia, glanders, trichinosis, foot and mouth disease of cattle, tenia or tapeworm, and actinomycosis. These diseases belong to the department of pathology, and are in no sense chemical.—Bartley in *The Long Island Medical Journal.*

Shock in Early Life.—Pisek says that the young organism with its unstable nervous organism and low resisting powers is particularly susceptible to shock. The younger the individual the greater is this susceptibility. In the newborn the blood, too, is still in a transitional form and the supporting powers of this vital fluid are easily undermined.—*The Post-Graduate.*

The Different Aspects of Infantile Surgery According to Age.—Kirmesson remarks on the two great groups of surgical affections that are frequent in childhood and infancy, the affections of the locomotor apparatus and the congenital deformities, such as hare-lip, spina bifida, club-foot, and imperforate anus. Many forms of suppuration are also frequent in infants, such as suppurations of the umbilicus, erysipelas, and skin affections. Among children under five years of age dislocations are rare, while after that age we see them of the hip and wrist. In infants we get fracture of the femoral diaphysis from slight causes, and fractures of the leg and arm are rare. In early infancy the epiphysis is elastic and cartilagenous, and yields to violence; in childhood and adolescence are seen most of the traumatisms of the epiphysis. Invagination of the intestine is peculiar to infants, appendicitis occurs only later in childhood. Hernia is strangulated only in later childhood, most obstructions in babies being spasmodic and relieved by chloroform. Over five years osteomyelitis involves the tibia; under it the lower end of the femur. Tuberculosis in infants involves a single point; later it may be multiple or general. So we see that each age has its favorite diseases and locations for pathological lesions and accidents.—*Le Bulletin Médical.*

Contagion of Tuberculosis by Dry Dust.—P. Le Noir and Jean Camus have made interesting experiments to ascertain the infective value of bacilli contained in dry dust of sputum. The opinion derived from researches made by various authors has led to very great difference of opinion on this subject, some thinking that only wet sputum was dangerous, others that the breathing of particles of dry dust from rooms where tuberculous patients have lived was equally dangerous. The authors took a single tuberculous ward in the Hospital St. Antoine as the place of experiment, and here they placed three colonies of guinea-pigs in different locations. One entirely unprotected was placed on the floor; another, protected by wire netting, so that it could not be touched by the patient, was also placed on the floor; a third was placed just under the ceiling, and was fed from a ladder. Of the entire number of animals used in the experiment, ten in all, four were infected, the lesions being abdominal. The authors believe that the danger from tuberculosis of dried dust in the air is indisputable. The hospital conditions of tuberculous patients are very imperfect, and although there is little danger in the contact for a few minutes or hours with these patients, to live with them is not without danger. They are also a source of danger of reinfection to one another. The danger is still greater in the homes of the poor, where hygienic measures are wanting, than in a properly conducted hospital.—*La Presse Médicale.*

Cuneiform Lacunæ, or Erosions Called "Chemical" of the Teeth, a Manifestation of Abortive Mercurial Stomatitis.—G. Milan describes certain erosions, or ivory ulcerations occurring in syphilitic patients under the influence of mercurial injections. While the mercurial treatment is going on, the patient becomes sensible of pain on breathing cold air, drinking cold or hot liquids or similar actions, which increases with the treatment and stops when the mercury is no longer used. Examination shows that there are grooves on the teeth from side to side, in which the ivory is absent, the sensitive portion of the tooth being exposed along the edge of the gums. The bottom of the cavity is white, shining, hard, and polished; it is triangular in shape and different in appearance from caries. The front teeth are more frequently involved than the others, and the labial surface than the other faces. The persons attacked by this lesion are adults from 20 to 50 years of age, and in good health. Various theories have been evolved to account for this lesion; that of chemical action and of too severe brushing of the teeth are given. The author describes a case which conclusively shows that the condition occurs under the influence of mercury and ceases when its administration is stopped. The author believes that it occurs in persons who use good hygiene, and takes the place of the ordinary stomatitis of dirty people. Preventive treatment consists in frequent brushing, and careful administration of mercury, stopping when tenderness of the teeth appears.—*Le Progrès Médical.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery

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A SAFE AND SANE FOURTH OF JULY.

IT appears somewhat early in the year to discuss the Fourth of July, but, coming events cast their shadows before and therefore it may be as well to take time by the forelock. True it is that a vast quantity of ink has been spilled in reprobating the doings of past Fourths and perhaps little or no attention will be paid to lucubrations on the subject either in this or other journals. The most hopeful symptom of the situation is that in all parts of the country individuals are beginning to recognize that the manner in which the freedom of America is celebrated demonstrates the fact that a proportion of the inhabitants are not capable of using their freedom in a sensible way. The medical as well as the lay press has oft and with emphasis deprecated the action of those ill-advised persons who make day and part of the night hideous by the noisy and foul smelling pyrotechnical apparatus which they discharge on the public streets. American cities are noisy enough in their everyday routine, and the pandemonium which takes place in the beginning of July must be a culminating point in the nervous strain to which many of its neurasthenic citizens are subjected. The wise and those who are able flee the cities of America on the most auspicious date in the history of the country as from a pestilence. Although the strictures which have been passed in medical and lay journals concerning the riot of noise and the bloodshed which occur annually may not seem to have borne fruit, yet it is likely that these appeals to common sense have carried some weight, at least with the more sober inhabitants.

A perusal of an article which appears in the *Forum* for March of this year, written by Mrs. Isaac L. Rice, lends strength to this view. Mrs. Rice points out that the Society for the Suppression of Unnecessary Noise through its president has corresponded with men of eminence in all lines of life whose patriotism cannot be questioned and who have responded with surprising unanimity in favor of observing a safe and sane Fourth. Mrs. Rice is of the opinion that a most potent factor in this direction has been the set of tables of Independence Day casualties prepared by the *Journal of the American Medical Association*. As a striking object lesson on the menace to life and limb of the Fourth are placed side by side with the casualty list the deaths and injuries which resulted from seven famous Revolutionary battles. The following is the table:

Battles.	Killed and Wounded.	Celebration.	Killed and Wounded.
Lexington	83	July 4, 1903	4,449
Bunker Hill	449	July 4, 1904	4,169
Fort Moultrie	37	July 4, 1905	5,176
White Plains	100	July 4, 1906	5,466
Fort Washington	149	July 4, 1907	4,413
Monmouth	229	July 4, 1908	5,623
Cowpens	72	July 4, 1909	5,307
	1,119		34,603

A pungent commentary, indeed, on the advancement of civilization in this favored New World is this table, a careful study of which we would recommend to the Mayor of New York City, who is reported to be disposed to let the children and hoodlums have their fling on this great day. According to newspaper report, he has rescinded the order of the Fire Commissioner prohibiting the sale of explosives around the Fourth, and has consequently assumed responsibility for all the deaths and maiming, as well as for the destruction of property resulting directly and indirectly from this noisy and murderous celebration.

GOLF AS A FACTOR IN THE PUBLIC HEALTH OF A COMMUNITY.

THAT the playing of golf is a factor of considerable importance as regards public health is an argument which affords no scope for discussion. Perhaps it will be allowed on all hands that the game from every conceivable standpoint is healthy. It is suited to persons of all ages. The young find in it a sufficiently strenuous game, bringing into action possibly as many muscles as any sport, with the exception of rowing. For the middle-aged man or woman it is an ideal game, seeing that it does not necessarily make too great a call upon the physical powers, while it is preeminently of all outdoor diversions the one which requires the greatest skill—in fact, trains the mental faculties quite as much as it does the physical. For the old, again, it is almost the only open-air game which can be played with zest and at the same time in a leisurely manner; and, lastly, it acts as an incentive to exercise when otherwise exercise might not be taken. For professional men it is the only game. How did such men living in New York, London, or other large cities spend their hours of leisure before golf came into vogue? Indeed, what did many of them do with their long vacations? Answers to these questions are not easy to give. Maybe they went for a walk in the afternoon in fine weather, perhaps during the longer vacations they went abroad or into the country and fished or hunted. But there is a very large number of men who care not for fishing or hunting. The professional man of the city, the physician, for instance, not infrequently, unless he be one of those fortunate or unfortunate men who are always busy, has hours of leisure in which he absolutely is at a loss how best to occupy his time. A wise man admits to himself—and, better still, acts on the admission—that he needs healthy relaxation at intervals. The strain and stress of city work, and especially of such work as falls to the lot of the physician, is long continued, too much so for the ordinary individual. Furthermore, it is not rational to labor in this fashion. The man who does so in the long run

breaks down, or even if he keeps going does not accomplish work equal to that of the man who indulges in play occasionally. In the neighborhood of every large city there are golf courses, which are as a rule easily reached. Thus the overworked physician has the opportunity, whenever he can spare the leisure, for playing a game which combines fresh air, good exercise, mental training, and congenial society. It has been aptly said of golf that it is the game which tries weak humanity the most, it lays the soul bare and reveals a man's true nature. Accordingly, it is an excellent school of discipline—another point in its favor.

For Americans in particular golf is, or at any rate should be, an untold boon. In a general way the American after the age of twenty-five or earlier gives up games entirely. He regards them as childish and sets himself to the stern business of amassing riches and in doing this often, more often than not, loses his health. He is likely to become dyspeptic, irritable, and a creature of nerves. He will work unceasingly for ten months of the year and then for a holiday will rush to Europe with his womankind and be dragged about sightseeing, almost as arduous toil as the practice of his profession or business. Golf affords him the chance of getting wholesome exercise in the fresh air at least once in the week, and there are few who have tried it but will say that they are better physically and mentally for the invigorating change from the dull routine of work. Much might be said also of the immense benefit that golf has exerted on the women of America. It is quite as well adapted to women as to men and is by far the best game for the so-called weaker sex which has ever been introduced. The more energetic games, as lawn tennis, are not at all times to be recommended for all women; but it is seldom that golf has any effect but a good one. It goes without saying that a game which tends to render a woman constitutionally and physically stronger is for the good of the race at large.

Professional and business men of this country, although golf has made amazing strides, do not participate in the game to the extent that their British brethren do. This statement applies with more truth to physicians than to members of other professions. In London and in the great cities, physicians from the highest to the lowest, from Harley street to Whitechapel, play golf whenever they can get away, and who shall deny that thereby they show wisdom? In any event there is no doubt that golf is a great and increasing factor of the public health of a community.

MAN AND THE FLY AS TYPHOID CARRIERS.

With a better understanding of the very considerable proportion of apparently healthy persons in every community who are persistent or occasional harborers and disseminators of the typhoid bacillus, comes a clearer appreciation of the highly dangerous qualities of human excreta. While sufficient work has not as yet been done to give us exact information as to the percentage of such "carriers" in the general population of this country, still the findings of the board which has been investigating typhoid fever in Washington, D. C.—that three in one thousand healthy persons with no history of previous typhoid were found to be such "carriers"—are highly illuminative. This proportion for the city of Washington is probably not far from correct for the country at large, especially since it closely approximates the ratio found to exist in Germany in the same classes of persons. The German investigators, moreover, found that among healthy persons who gave a clear history of having had typhoid fever, two per cent. were "carriers" of the typhoid germs.

With any such proportion in the general population of healthy human beings serving as reservoirs of typhoid germs, as indicated in the investigations above mentioned, the general prevalence of typhoid fever in our military camps in the Spanish War is no longer difficult to understand. It will be remembered that not a single regiment in all our armed forces escaped unscathed, and that it seemed frequently absolutely impossible to trace the infection back to any antecedent case. We can now understand that probably every new regiment contained on recruitment a half dozen or more unsuspected harborers of the typhoid germs, whose excreta soon specifically infected all the latrines throughout the camps.

Inasmuch as at the present time there is no ready method for the detection of these typhoid carriers, a logical deduction from our knowledge of their common existence is that all aggregations of human excreta, as found in the privy pits of country resorts or in the latrines of camps, must hereafter be considered from a broader sanitary standpoint and regarded as not only undeniably offensive but as most probably infectious. With such an efficient system of sewage disposal as is possessed by most cities, the matter of the infectivity of human dejecta is not of as much sanitary significance, but under less prompt and complete conditions of removal it assumes great importance. The general necessity for the destruction, removal, or disinfection of masses of human excreta, whether known to contain the discharges from sufferers with typhoid fever or not, must therefore be accepted as a fundamental sanitary requirement. And this is especially the case during the warmer months when the pestiferous fly is active in serving not only as an intermediate vehicle but as a host of typhoid germs. Now comes an English army surgeon who reports experiments made by him upon flies reared artificially from eggs laid in human fecal matter infected with typhoid. These flies, after emerging from the pupal state, were promptly removed from the infectious material in which they were hatched and upon which they had fed as larvæ, and were subsequently fed on clean food under clean conditions. Several of these flies were killed daily, their bodies thoroughly flamed to destroy germs on their surfaces, and their intestines teased out, macerated, and nutrient media inoculated therefrom. In nearly every case these cultures developed typhoid growth, the last remaining fly giving it on the sixteenth day after removal from the typhoid material. Clearly, flies, like human hosts, may long preserve these germs in their intestinal tracts—and their mode of

development and filthy habits of feeding make them much more liable to acquire such dangerous infection, while the elimination of the latter in the dejecta as "fly-specks" enables it to remain unnoticed where human excreta would be readily apparent through sight and smell. Nor do we know as yet the full period of time through which typhoid infection may persist in the fly intestine. Undoubtedly it is longer than the sixteen-day period already determined, and it is perhaps not too much to assume that infected flies, after hibernating during the winter, may perhaps emerge in the spring already capable of transmitting the infection hidden away within their bodies. It is also certain that where masses of excreta are exposed to flies their destruction or disinfection should occur at no longer intervals than the seven to ten-day period which elapses from the deposition of the egg to the emergence of the adult insect. When such masses suffer belated disinfection, the broods of flies which have already hatched out in their filth and are suffered to escape are probably perpetuating the infection and able to scatter it broadcast through new fields of activity.

From the above we can draw many lessons and morals. Among them, we may admit that the Biblical quotation, "A man's foes are they of his own household" has a special applicability to the typhoid question. Another that the fly, whose character as a disease carrier constantly becomes blacker on closer investigation, is one of the worst enemies with which the human race has to contend.

Metallic Sounds in Intestinal Obstruction.

Though auscultation of the thorax is probably the most commonly used of all diagnostic methods, auscultation of the abdomen is a part of physical examination the value of which is not so generally appreciated. In certain cases, however, the recognition of various sounds in the abdomen, either arising spontaneously or produced by the aid of percussion, is of distinct value and often a great aid in the diagnosis of disease. In determining the size of an organ, especially of the stomach, there is probably no method, excepting the *x*-ray, which gives results of as uniform accuracy as does the simple procedure of auscultatory percussion. The systolic bruit and snapping sounds accompanying aneurysm are of prime importance in diagnosing disease of the abdominal aorta. There are, too, various intrinsic sounds in the intestines, which if properly appreciated are of some importance. The common borborygmi or gurgling sounds occur where there is meteorism accompanied by active peristalsis, and are especially pronounced in the later stages of intestinal obstruction. In the *Münchener medizinische Wochenschrift* for February 1, 1910, Wilms describes some peculiar metallic sounds produced in the bowel which he believes to be of high diagnostic value. He has noticed that when a loop of the colon, and especially of the cecum or the sigmoid is distended to a certain tension, and the abdominal wall over it is percussed, a peculiar high-pitched metallic ring is produced, which is easily distinguished by means of the stethoscope. Studying further into the question of this metallic sound he discovered that it may also be produced spontaneously when the bowel is distended, contains a certain proportion of fluid and gas, and is in active peristalsis, this sound being produced by the shock of the gas bubbles striking against the tense gut wall. The conditions requisite for the appearance of the phenomenon are met with in the early stage of intestinal obstruction, and Wilms considers that, in the absence of postoperative meteorism, their presence indicates an immediate exploratory laparotomy. He has made use of the phenomenon in a considerable series of abdominal conditions, and claims that it is thoroughly reliable as a pathognomonic sign of intestinal obstruction.

Posture in the Recognition of Tricuspid Disease.

The diagnosis of involvement of the tricuspid valve is often far from simple, especially in cases of mild disease or relative incompetency, in which the murmur appears only under certain stress. In such cases change of posture or exercise may bring out a murmur previously unheard, and such procedures are carried out by every careful diagnostician who suspects a lesion of this valve. In the *Archives of Diagnosis* for January, 1910, Heinrich Stern describes a posture which he says has not previously been described and of great aid in diagnosing the condition. To quote Stern's own words, he has "found that it is often possible to induce the murmurs which are characteristic of tricuspid disease when they have been absent, and to accentuate them so that they are better audible and distinguishable in case they be present, but are vague and indistinct. We generally examine the heart while the individual is in the erect or recumbent position, and the more painstaking of us examine our patients by utilizing both postures. When a patient is on his back and there is any tendency to distention of the jugular veins, it will be evinced there and then. By lowering the head of the patient, while he is still on his back, the jugular veins become more distended, as a rule, and may begin to pulsate. Distention of the vein, or its pulsation, will increase in direct ratio to the lowering of the head, but when a certain point is reached, which is dependent upon individual factors, the pulsation diminishes more or less and the engorgement may also recede. This lowering of the head, which in reality is but an extension, a stretching of the muscles of the neck, the veins, etc., is reflected in the tricuspid area, where now murmurs are noticed that were not perceptible before or which had been quite indistinct." As the posture produces an increase of the tricuspid incompetency, and may induce dyspnea, cyanosis, and pulsation of the liver, it is important that it be maintained only so long as is absolutely necessary. For this reason the examiner "must be ready to proceed with the examination, stethoscope attached to the ears, at the very moment the patient has assumed the posture. He should stand behind the patient, somewhat to the right of the head of the latter when an examining table is utilized. In case the examination is made in bed, the physician should be sitting at the right side of the head of the patient, who has been placed across the bed. In both cases the head of the patient should be supported by either the left hand of the examiner, or in advanced cases by both hands of an attendant. It should not be dropped at once over the edge of the examining table or bed, but should be brought down very gradually and be immediately elevated as soon as the dyspnea and the venous engorgement become excessive."

News of the Week.

A New Theory of Beriberi.—At the meeting of the Far Eastern Tropical Medical Association in Manila last week, Dr. Henry Fraser, director of the Straits Settlements Institute of Medical Research, offered the theory that beriberi is due to a lack of phosphorus in the food. The steam milling rice process, he said, is at fault, because the high polish which produces the best quality of white rice removes the phosphorus contained in the pericarp. He had found that the use of the cheaper grades of unpolished rice, or the mixing of white rice with the polishings, restores the phosphorus and eliminates beriberi. Dr. Aron of the Philippine Medical School, who had been working independently of Dr. Fraser and experimenting on animals and natives, announced that he had reached the same conclusion.

Endowment of the Chair of Medicine in the University and Bellevue Hospital Medical College.—Announcement is made that Mrs. Helen Hartley Jenkins had given $100,000 for the endowment of the Chair of Medicine in the University and Bellevue Hospital Medical College. The gift is made through Dr. A. Alexander Smith, and in recognition of the long friendship existing between the donor and Dr. Smith, and of the interest of the donor's father, Marcellus Hartley, in New York University. Mr. Hartley was a member of the university corporation from 1895 until his death and a member of the Committee on the Medical College from the time of the consolidation of the two medical schools. The foundation will be named the Marcellus Hartley Chair of Medicine.

The College of Physicians and Surgeons.—Closer relations are being established between the medical department of Columbia University and the Mt. Sinai and German Hospitals in New York. The following members of the staffs of the hospitals have received appointments in Columbia University. From Mt. Sinai Hospital Drs. Brill, Libman, Gerster, and Berg, and from the German Hospital, Drs. Kammerer, Stadtmüller, and Hensel.

Cornell University has decided to change the curriculum of its medical department so that but one year will be spent at Ithaca and three in New York instead of two years in each city as is done at present.

New York Polyclinic Medical School.—At a recent meeting of the faculty of the New York Polyclinic Medical School and Hospital, Dr. M. D. Lederman was elected Clinical Professor of Laryngology and Rhinology.

The Forsyth Dental Infirmary is soon to be incorporated in Boston as a result of a donation of $2,000,000 made by Mr. Thomas A. Forsyth of that city. The infirmary is to be located in Hemenway street in the Back Bay, is to be thoroughly equipped and manned for modern dental surgery, and is to be free to any child under sixteen years of age. The purpose of the clinic is to give free care of the teeth to every child in Boston.

The New York State Board of Health is planning a systematic campaign against communicable diseases. The plan is to divide the entire State into districts, in each of which will be appointed a competent physician to act as sanitary supervisor under authority of the State Board of Health.

Charitable Bequests.—By the will of the late Mary A. Duffy of Philadelphia the sum of $200 is bequeathed to the Little Sisters of the Poor and to the Free Hospital for Consumptives. By the will of the late Henry C. Fox of Philadelphia the sum of $5,000 is bequeathed to each of the following institutions: Masonic Home of Pennsylvania, Presbyterian Hospital, Howard Hospital and Infirmary for Incurables, and the German Hospital.

Sanitary Conditions in Paris.—The prophecy of widespread disease in Paris which was made at the time of the recent floods appears not to have been fulfilled. The vital statistics of the city show that its health is better than at this time last year.

The Third International Congress of School Hygienics will be held in Paris August 2 to 7, 1910, under the honorary presidency of the Minister of Public Instruction. Applications for all information concerning: The reports and notices should be made to the General Secretary, Dr. Dufestel, 10, Boulevard Magenta, Paris; concerning the exhibition, to Mr. V.-H. Freidel, Musée Pédagogique, 41, Rue Gay-Lussac, Paris; and concerning the conditions for the voyages, lodgings, and excursions to the Agence Lubin, 36, Boulevard Haussmann, Paris.

Physician Pardoned.—Governor Carroll of Iowa, upon recommendation of the State Board of Parole, has pardoned Dr. J. W. Crofford of Decatur county, who in 1905 was sent to the penitentiary for twelve years for the murder of a patient in his hospital at Lamoni. Newly discovered evidence showing that the man is innocent formed the grounds for the pardon.

The Association of American Medical Colleges will hold its twentieth annual meeting at Baltimore, Md., March 21-22, 1910, in the Hall of the Medico-Chirurgical Faculty, of Maryland. The president of the association is Dr. George H. Hoxie of the University of Kansas, and the secretary-treasurer is Dr. Fred. C. Zapffe of the University of Illinois.

The British Medical Association will hold its seventy-eighth annual meeting in London, July 26 to July 29, 1910. The president's address will be delivered on Tuesday, July 26 and the sections will meet on the three following days. The annual representative meeting will be held on Friday, July 22, 1910. The address on medicine will be delivered by John Mitchell Bruce, M. D., F. R. C. P., of London, and the address in surgery by Harry Gilbert Barling, B. S., F. R. C. S., of Birmingham. The president of the association is Sir William Whitla and the president-elect Mr. H. T. Butlin.

The Providence (R. I.) Medical Society, at the annual meeting held March 2, elected the following officers: *President,* Dr. J. C. Rutherford; *Vice-President,* F. P. Capron; *Secretary,* Frank Mears Adams; *Treasurer,* Winthrop A. Risk; *Counsellor,* Dr. J. H. Akers.

The Jackson County (Mo.) Medical Society has elected Dr. H. E. Pearse *president* in the place of Dr. B. Clark Hyde, who was elected in December but resigned. The other officers are: *Vice-president,* Dr. J. D. Griffith; *Treasurer,* Dr. W. F. Kuhn; *Secretary,* Dr. E. L. Stewart.

The Nye County (Nev.) Medical Society was formed at a meeting held in Tonopah recently. The following officers were elected: *President,* Dr. Sydney Clark; *Vice-president,* Dr. J. R. Cunningham; *Secretary* and *Treasurer,* Dr. C. J. Richards; *Board of Censors,* Drs. W. W. Ashley, R. J. Mapes, and E. S. Grigsby.

The Trumbull County (Ohio) Medical Society at a meeting held at Newark March 2, 1910, elected the following officers: *President,* Dr. D. G. Simpson; *Vice-president,* Dr. H. A. Sherwood; *Secretary* and *Treasurer,* Dr. F. K. Smith; *Censor,* Dr. T. M. Sabin.

County Medical Societies Unite.—At a meeting of the St. Joseph-Buchanan County Medical Society, held recently at St. Joseph, a proposition to consolidate the society with the Andrew County Medical Society was approved, and resolutions to that effect were drafted. The combined organization will meet monthly in St. Joseph, excepting once or twice a year, when meetings will be held at Savannah.

Dr. Frederic Prosch, a French medical missionary in East Africa, died suddenly of fever on February 28. Dr. Prosch had done missionary work in Africa for ten years, during which time his health had been gradually undermined by the debilitating climate, and his collapse was attributed to a weakened condition that could not resist an attack that he might have survived a few years ago. On the day previous to his sudden death he was apparently in good health, having taken luncheon with ex-President Roosevelt.

Obituary Notes.—Dr. John A. Beauchamp of Nashville, Tenn., died suddenly on February 27, 1910, of heart disease, aged 70 years. He was a graduate of the Medical Department of the University of Nashville in 1861. Dr. Beauchamp had been for nearly fifty years on the staff of the Central Hospital for the Insane, having been superintendent of the institution since 1894. He was a member of the Davidson County Medical Society, the Tennessee State Medical Society, and the American Medical Association.

Dr. Mary E. McCarty of St. Louis, Mo., died at her home on March 3, 1910. She was a graduate of the Homeopathic Medical College of Missouri in 1890.

Dr. Frank V. Cantwell of Trenton, N. J., died at his home March 11, 1910, aged 47 years. He was a graduate of the University of Pennsylvania in 1884, and was surgeon to St. Francis Hospital. Dr. Cantwell was a member of the Mercer County Medical Society, the Medical Society of New Jersey and the American Medical Association.

Dr. Richard M. Pancoast of Philadelphia died on March 4, 1910, at the age of 85 years. He was graduated from Jefferson Medical College in the class of 1845.

Dr. Samuel Smith Brecht of Manheim, Pa., died on March 3 at the age of 79 years. He was graduated from Pennsylvania Medical College in the class of 1859.

Dr. Harrison T. Witman of Reading, Pa., died on March 6 at the age of 72 years. He was graduated from Jefferson Medical College in the class of 1864. He served during the Civil War as surgeon in the 195th Pennsylvania Regiment.

Dr. Daniel B. D. Deaver of Wernersville, Pa., died at Okahumpka, Fla., on March 6, at the age of 64 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1861.

Dr. Benjamin J. Throckmorton of McKinney, Texas, died in Dallas February 24, 1910, aged 54 years. He was the son of a former governor of Texas, and was a graduate of the Louisville Medical College in 1888.

Dr. Mandeville Thum of Louisville, Ky., died on March 4, 1910, aged 42 years. He was a graduate of the Kentucky School of Medicine.

Dr. Mathias Cook of Utica, N. Y., died at his home March 7, 1910. He was a graduate of the Starling Medical College in 1864 and served as surgeon in the Civil War and also in the Franco-Prussian War.

Dr. William Diehl of Brooklyn died at his home March 11, 1910, aged 46 years. He was a graduate of the New York Homeopathic Medical College in 1891.

Dr. Louis E. Magnenat of Amarillo, Tex., died at his home February 25, 1910, aged 41 years. He was a graduate of the University of Texas in 1895, and a member of the Potter County Medical Society, the State Medical Association of Texas, and the American Medical Association. He was once on the teaching staff of the University of Texas.

Dr. Frank R. Porter of New Winsor, Col., died at the Loveland Hospital on March 4, 1910. He was a graduate of the New York University Medical College in 1882.

Dr. Thomas C. Stockton of San Diego, Cal., died on March 2, 1910, aged 72 years. He was a graduate of the Bellevue Hospital Medical College in 1868 and was the pioneer physician of San Diego.

Dr. H. E. Baine of Waco, Tex., died at his home March 1, 1910, aged 56 years. He was a graduate of the Hospital College of Medicine in Louisville, Ky., in 1875.

Dr. James Levi Day of St. Louis, Mo., died March 1, 1910, aged 69 years. He was a graduate of Washington University in 1873 and a veteran of the Civil War.

Dr. George E. Ehle of Grand Rapids, Mich., died in the University of Michigan Hospital recently, aged 62 years. He was a graduate of the Hahnemann Medical College in Chicago in 1882.

Dr. R. E. Graham of Columbia, Mo., dropped dead in his office March 3, 1910, aged 40 years. He was a graduate of the University of Missouri in 1894.

Correspondence.

CALLING A SPADE A SPADE.

To the Editor of the Medical Record:

Sir:—It is most refreshing to learn from the March 5 issue of the *Survey* that out in the glorious climate of the Pacific Coast a society has been organized to deal with matters venereal, which boldly calls itself the California Association for the Study and Prevention of Syphilis and Gonorrhea. The association is composed of forty members, one-half of whom are physicians; and a woman, Dr. Frances M. Greene, has been chosen as president. The avowed purposes are to treat venereal diseases as frankly infectious; to habituate the public to hear and speak of them without embarrassment, and thus to drag them into the light, where all men may know and avoid them.

The first public meeting was held in January, and an audience of several hundred men and women listened to addresses by Dr. David Starr Jordan of Stanford University and other prominent men. In conjunction with the assembly was an exhibit, prepared by the Secretary of the State Board of Health. It is interesting to note that no account of the affair appeared in the daily papers, although several reporters were present. One local paper, however, published an account of the meeting.

But a campaign of publicity and education is bound to succeed. There is every reason why venereal diseases should be dealt with in a candid and straightforward manner. All mystery and a world of humbuggery would be swept away by open discussion and timely instruction. Some day, perhaps, young men will know that chastity is compatible with perfect health, and "what every woman knows" will include a knowledge of the significance of venereal disease.

Addison W. Baird, M.D.

New York.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

POOR LAW REFORM AND MEDICAL RELIEF—HUNTERIAN LECTURES ON NEGRO RACES—MIDDLE-EAR DISEASE—PREVENTION OF MALARIA—HOSPITALS—CANCER CHARITY—A QUACK'S APPEAL DISMISSED—OBITUARY.

LONDON, February 25, 1910.

ALL the week questions connected with the Poor Law, including, of course, medical relief under its administration, have been prominent. At the Guildhall the Central Poor Law Conference was welcomed by the Lord Mayor, and its discussions, extending over two days, have exhibited most divergent opinions on nearly all points. The two reports of the Royal Commission had each their supporters among the speakers, and each was as freely condemned by others who had equal experience. A resolution was carried by a large majority to the effect that while approving of reasonable reforms in the present system the conference emphatically condemned the revolutionary proposals forming part of the minority report. A further resolution was carried referring to a committee the recommendations from both reports, with a view of sending to the boards of guardians those which they may conclude should be adopted by the country.

On the second day the conference spent the morning in a long general discussion, which ended without any resolution being adopted. In the afternoon session an address on the "Reform of Poor Law Medical Relief" was delivered by Dr. C. T. Parsons, of the Fulham Infirmary. He advocated the encouragement of the sick poor to seek medical aid at the earliest moment, application to be made direct to the doctor, the necessary inquiry as to the case being proper for help at the public expense to be considered afterwards. All drugs and appliances, he maintained, ought to be provided by the public authority—not, as is too often the case in small districts, at the expense of the doctor, who naturally could not adopt very costly methods of treatment, the result being in some cases that patients were not restored to work and continued a charge on the rates. In the next place, Dr. Parsons insisted on an increase of the emoluments of the service in order to make it more attractive to medical men. He would encourage them to specialize, though in this, perhaps, he would hardly be supported by his brethren, and it certainly seems doubtful whether specialists should take charge either of large districts or infirmaries on the one hand or of smaller ones on the other. Good all-round men would find plenty to do and full opportunity of improvement. Then Dr. Parsons advocated the co-ordination of the Poor Law, Asylum, and Sanitary Services under one body—say a committee of the County Council. There would then grow up in each county a large public medical service, which, if properly staffed, paid, and graded, with promotion according to merit, would attract ambitious men to enter it. The inadequacy of payment at present existing resulted in many evils. An underpaid service of any kind was sure to be inefficient, and in the end expensive, too. Men should be encouraged to do their best work for the service.

Several speakers thought Dr. Parsons had been too severe on the system. Dr. Toogood found the condition of the sick in London far better now than when he entered the service a quarter of a century ago. The nursing to-day was as good as in the general hospitals. A hearty vote of thanks was accorded to Dr. Parsons at the conclusion of the conference.

Dr. John McVail of Glasgow, who was medical investigator to the Royal Commission on the Poor Law, has delivered a lecture on the medical treatment of the poor, advocating the establishment all over the country of medical provident institutions assisted by the State, each managed by a committee representative of the members, the doctors, and the State. The interests of the great friendly societies must be considered and in some cases they could be associated. A merely voluntary system would be incomplete, but compulsion would be difficult. If compulsion could not be insisted on, the State must offer direct and indirect inducements. Dr. McVail did not see why paupers should not obtain medical aid through the provident institutions. The local authority could act through them. Whatever might be done to provide a substitute for the Poor Law would be necessary to avoid anything which would deter or degrade the really deserving unfortunate; the vicious, the idler, and the loafer must be controlled, but apart from the institutions he advocated.

During the week Prof. Keith has delivered the two remaining lectures of his Hunterian course on the characteristics and relationships of the negro races. Their broad and short faces and prominent cheek bones, he said, depended on the robust development of the teeth and muscles of mastication. Their prominent jaws were ascribed partly but not entirely to the size of the teeth. The protuberant jaws gave not only large mouth and palate, but ample passage for air through nose and throat. The small jaws of Europeans were due to an arrest of normal growth providing a place for the permanent teeth. This contracted the pharynx—hence adenoids. The European condition seemed connected with civilization, but how was not known. There was some evidence that the growth of the jaws was regulated by some internal secretion, but not to suggest disuse. The width of the negro's cheek was only apparent; on an average it was less than the European's; the appearance was due to narrowness of the head behind the ears—a characteristic of children, too. The flatness of the negro's nose was also only apparent, due to the cheeks projecting so far beneath the eyes. The European cheeks had receded and left the nose prominent.

As to the brain, the lecturer said our knowledge is too imperfect for an analysis of its features in the negro. It was smaller than the European's, but so many factors influence weight that measurements must not be given too much importance. The outline of the brain chambers of the negro skull was totally different from that of apes and of the Neanderthal race. The final test of the brain's quality was the degree of success with which it could preserve its owner. When black civilization met European competition it might go hard with the darker race. An instructive incident occurred as the lecturer was preparing illustrations for these lectures. He took two brains at random, one a negro's, the other a British sailor's. When slides were made he found that in number and complexity of convolutions the brain of the black was the larger and the more elaborate. But this would not be the case if a number of brains were compared.

With regard to relationship to other races, the manner in which the pygmy tribes were scattered in the Congo was referred to. In South Africa the pygmy negroes were represented by the bushmen—a race which must, said the lecturer, be assigned to the negro race from their physical characters. The bushman stood to the Hottentot as did the Congo pygmy to the true negro. The pygmy was found also outside Africa, but only as mere isolated meshes of a human net spread over the southern half of the Old World at one time. Curiously the distribution of the small negro was coextensive with the larger bodied race. Wherever the large negro is found isolated pygmy tribes are sure to crop up. Kollmann held that the pigmy was the primitive form of man, but the lecturer thought this view was negatived by all available evidence. As to the evolution of the negro, the lecturer regarded the extinct Tasmanians as probably the earliest. Still, this Tasmanian was, from a zoological point of view, a very highly evolved man. The native Australian, though deeply pigmented, was probably a good representative of the stock from which the white man arose. The paleolithic man of Europe resembled the native Australian more than any known race. In Tasmania and Australia fifty years ago there could have been seen side by side comparatively early stages of the division of the primitive human race into negroes and non-negroes. It is a striking fact that in every large area where primitive races are found in the southern half of the Old World neighboring representatives of the Tasmanian and Australian stocks are also to be found.

Middle ear disease was the subject of some practical talk at the Harveian Society last Friday. It arose in a paper by Mr. Gay French, who dealt with the etiology, bacteriology, and complications. As to treatment, he strongly protested against the use of the syringe as well as the insufflation of powders, and advocated free drainage and antiseptic drops. He dwelt on the importance of examining and treating the nasal, nasopharyngeal, and oral cavities. His favorite plan, where possible, is to pass hot air loaded with antiseptics through the Eustachian tube into the middle ear. He showed the apparatus he used for this purpose. The tempera-

ture of the air he recommended was 140° F., the application being made daily for about five minutes at a time. He said that out of eight cases treated for a fortnight in this way he could speak of five cures, and the other three were benefited. He spoke well of fibrolysin in some cases of tinnitus. Dr. William Hill said he thought the author had been too severe on the syringe and he could not see how hot air could act.

Dr. Fitzgerald Powell defended the syringe, which, properly and carefully used, is safe enough. Of course, it may be abused, as may other things. Drs. Stuart Low and Andrew Wylie both condemned syringing. The latter used hot air for deafness, but not for suppuration. Dr. Atkinson enlarged small openings in the membrane and used suction. Dr. Dan Mackenzie had not been fortunate with hot air and remarked that labyrinthine disease was more frequent than commonly supposed and might perhaps be due sometimes to careless syringing.

There was quite a considerable assembly on Tuesday at the Chamber of Commerce when Dr. W. J. Simpson gave a lecture on the prevention of malaria. He told his audience that the discovery of the cause and mode of spreading of the disease had made it much less difficult for sanitarians to devise methods of stamping out the disease. When drainage, reclamation, and so on had done their work, the new methods would enable the residents in the tropics to defend themselves. Their aim must be to exterminate the mosquito within the precincts of their village or town. Its life was particularly open to attack in its larval stage, when it breeds in water. A systematic plan had been successful at Ismailia, the Malay States, etc. The Americans had changed the pestilential locality of Panama into a more healthy district than various places in the United States. Dr. Simpson urged that "no mosquitos, no malaria" should be placarded in every school, church, and public building in malarious countries. The children should be taught to recognize the larvæ and destroy them. If boy and girl scouts in every village hunted for and reported where the larval enemy was found the locality would soon be cleared. No one should go to a malarious country without a mosquito curtain and full instruction how to use it and its importance.

The annual report of King's College Hospital, presented yesterday, referred to the separation of the college and hospital as regrettable but likely to prove of benefit to both. The new hospital would be approaching completion in between two and three years. There was a deficit on the year's working.

Yesterday also was held the annual meeting of the Middlesex Hospital. Here again a deficit was reported—a too frequent occurrence in hospitals. The cancer charity in connection with this hospital does not directly benefit it. The £250,000 received from the Barnato trustees cannot be used for the general benefit of the hospital, but the income from it must be spent in maintaining the new cancer wards. During the year 157 in-patients have been treated for cancer.

Yesterday the Court of Appeal dismissed the application of the man who traded on the public as "hypnotist, bloodless surgeon, and medical and electrical specialist." A jury had awarded £1,000 damages to a man who had given him that amount to teach the business and be his head assistant. Against this verdict he had the temerity to appeal. The Master of the Rolls, in giving the judgment of the court for dismissal, spoke of his having declared he had American and other diplomas and was a duly qualified doctor, and said "a more gross lie could not be imagined. He had no qualification in this country nor in the United States." He had had to confess he had never been across the Atlantic. "There was ample evidence that he was an ignorant, unscrupulous quack, and was not carrying on an honest business." Appeal dismissed.

The death is announced to-day of Dr. Le Rossignol, who was a magistrate of the Royal Court of Jersey and consulting surgeon to the hospital. He was in his sixty-eighth year and had held many important posts in the island. He was a graduate of Aberdeen, 1868, and had taken the science degree in France. He had been president of the Jersey Medical Society.

Dr. Samuel Evans died at Dovercourt on the 6th inst., aged 63. He had been Mayor of Harwich, Admiralty Surgeon, Medical Officer to the Trinity House, and held other appointments.

Dr. Spencer Hughes, late of Bromley, died on the 12th inst., aged 82. He qualified in 1855-1856 and had retired for several years.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

MENINGITIS—THE CAMPAIGN AGAINST TUBERCULOSIS—INTESTINAL PARASITES.

MANILA, P. I., January 31, 1910.

A STUDY of the statistics of the Bureau of Health for the past few years shows that an unusually large number of deaths from meningitis were reported among children; for instance, for the three months ended December 31, 1905, there were 80 cases; 1906, 81 cases; 1907, 151; 1908, 129. During the early part of the same quarter for 1909 it was decided to make autopsies in such cases; the first few showed that the deaths were in reality due to cholera. As soon as it became known that all cases of meningitis were to be autopsied, the number reported dropped and only 29 were diagnosed for the whole quarter, but even these, upon autopsy, proved to be 12 cases of cholera, 8 of beriberi, and 9 of meningitis. The foregoing experience provides additional evidence of the manner in which it is possible for cholera to be tided over from one outbreak to another and shows the necessity of continuing research work with regard to the epidemiology of this disease.

The campaign against tuberculosis in the Philippine Islands is now commencing to take much more definite shape. A large tract of land at San Juan del Monte, which is an elevated site just on the outskirts of the city of Manila, has been secured for the purpose of establishing a station which is to be used principally as a night camp. The intention is to admit persons afflicted with tuberculosis in the incipent stage, who are engaged in earning their living during the day, to go to the camp to sleep at night, where they may be taught the advantages of outdoor sleeping, the manner of disposing of their sputum, and the value of plain, simple food. It is the intention to give lectures at the camp from time to time in the native dialects which will deal with the hygiene of tuberculosis. The public will also be invited. After several months of instruction of this kind it is the intention to send these persons back to their homes and to admit a new set of patients. The former patients will be visited in their homes by nurses, in order to ascertain whether they are carrying out the things which they had been taught at the camp.

An out-patient tuberculosis dispensary has already been established for some months under the auspices of the Philippine General Hospital. The medical service to this clinic is furnished by the staff of the Philippine Medical School. It is now the intention to enlarge this tuberculosis dispensary by combining with the forces of the Bureau of Health, thus bringing many more resources to its disposal. Persons who desire to be admitted to the night camp will first have to be reported upon by the doctors connected with the out-patient dispensary. A nursing service will be added for the purpose of aiding in the clinic and making domiciliary visits.

Since the completion of the first work of examining the residents of the Philippines for intestinal parasites on a large scale, which was carried out under the direction of the Bureau of Health at Bilibid Prison, considerable additional work has been done and some idea of their prevalence in the residents of the Island of Luzon may now be had. Of the more than 3,000 prisoners examined at Bilibad, 84 per cent. were found infected with intestinal parasites. Of these, 60 per cent., or 52 per cent. of the total number of prisoners, had hookworms, 50 per cent. had whipworms, 23 per cent. amebæ, and 21 per cent. harbored some other species of parasite.

The commission which was put into the field at Tay Tay under the joint auspices of the Bureau of Science, the Philippine Medical School, and the Bureau of Health, examined approximately 1,000 persons and found 95 per cent. of them harbored one or more kinds of intestinal parasites and 10 per cent. had hookworms.

Later the Bureau of Health placed a commission in the field at Las Piñas, which is a town located on Manila Bay, almost equidistant between Manila and Cavite, and the site consists almost entirely of sandy soil in contradistinction to Tay Tay, which has a clay soil. The work at Las Piñas was finished September 30, 1909, with the following results: Six thousand were examined; of this number 24.2 per cent. of the males and 8.06 per cent. of the females were found to

be infected with hookworm, or an average of 16.13 per cent. of the population were found to be hosts of this health-destroying parasite. About 90 per cent. of the entire population were found to be infected with some form of intestinal worms and frequently with two or more kinds.

In order that data from an entirely different section might become available, the commission was transferred to Tuguegarao, Cagayan, which is an inland town in Northern Luzon, almost 100 kilometers from the mouth of the Cagayan River. The results up to December 31, 1909, have been as follows: Examined, 1,685; of this number 12 per cent. of the males and 7.1 per cent. of the females were found to be infected with hookworms, or an average of 9.55 per cent. of those examined were found to be infected; 74.37 per cent. were found to harbor some form of intestinal parasites and frequently with two or more kinds.

Progress of Medical Science.

Boston Medical and Surgical Journal, March 3, 1910.

The Rehabilitation of Neurasthenia.—According to Philip Coombs Knapp there has been in recent years a tendency to minimize the frequency of neurasthenia and to emphasize the psychical element in the cases which were once classed under this heading. He says that there are obsessed patients where obsession is in a measure primary who are not neurasthenic. They are often the victims of some congenital or inherited psychopathic disposition; their affliction is often indicative of a considerable mental abnormality, and the outlook for recovery is often more grave than that of the neurasthenic. There are also many neurasthenics who become so from psychical causes and sometimes as the result of their obsessions and phobias. It is too soon, however, to speed the passing of neurasthenia and to call it all ideo-obsessive. There is a true nervous exhaustion, predominantly cerebral, characterized by irritable weakness and ready exhaustibility and when obsessions exist they develop secondarily as a result of neurasthenia. Too much emphasis has been laid on the psychical element in neurasthenic conditions: there is a real nervous exhaustion which demands the best therapeutic efforts on the physical side. These cases should be more deeply analyzed to determine how much is due to physical and how much to morbid psychical processes and whether the psychical disturbance is the cause or the result of the neurasthenia.

The Aftermath of Childbirth.—W. P. Manton shows the reasons why in spite of enlarged experience, exacter methods of observation and improved technique there has not been a decrease in those accidents of parturition which he groups under the term "aftermath of childbirth." He does not advocate the primary suturing of a lacerated cervix but thinks it better to wait until the parts appear more normal and proper instruments and competent help can be secured which is often impossible in general practice at the time that the tear occurs. He is firmly convinced that the less the practitioner has to do with the upper parturient passages immediately following childbirth the larger will be his percentage of good recoveries. There should be intervention only when a vessel is severed. The mere skin suturing of a lacerated perineum is not sufficient; the lower vaginal tissues must be included in the repair work. The repair of the ruptured tissues must be undertaken as soon after labor as possible. Mere inspection of the parts following delivery is not sufficient, a careful digital examination should be made with the forefinger in the rectum and the thumb in the vagina so that the thickness of each lateral sulcus and the supraperineal space should be exactly gauged and the amount and kind of mischief accurately determined. In cases of lacerations higher up from overstretching or the stripping of the vaginal mucosa from the subjacent tissue the repair should be effected at once. The edges of the vaginal wound should be brought together by catgut, while the external skin is closed by silkworm gut, certain sutures of which must be carried far enough upward to include the interlevator tissue.

New York Medical Journal, March 5, 1910.

A Case of Multiple Exostoses Coupled with Syringomyelia.—Clarence P. Oberndorf believes that multiple exostoses is a condition sufficiently rare to be considered worthy of reporting, especially when coupled with another rather infrequent condition, syringomyelia, at the age of eighteen, and with acromegalic symptoms. Among the interesting features in this case were (1) the spontaneous disappearance of the growths; (2) the absence of hereditary influence or rachitis; (3) the absence of any infectious agency; (4) the nervous symptoms which caused the following reflections: A. Were the exostoses the result of a latent morbid derangement in the gray matter of the spinal cord? B. Or were the syringomyelic symptoms due to pressure of an exostosis causing a dilatation of the central canal of the cord? The idea of attributing the exostoses to incipient cord disease, or possibly pituitary glandular secretory disorder, lacks substantial foundation. It is more reasonable to attribute the symptoms to tumors growing within the spinal canal, causing bilateral pressure. This pressure in turn produced the dilatation of the central canal below, involving the posterior horns of the cord and causing syringomyelia. In regard to the multiple exostoses one may generalize as follows: (1) While heredity is striking in some instances, it does not always exist as a factor and when occurring does not throw any light on the real pathogenesis of the disease. (2) The rachitic and tuberculous theories seem insufficient and unsatisfactory. (3) The coexistence of syringomyelia and multiple exostoses recalls and may lead to Charcot's theory that the centers for the regulation of osseous nutrition lie in the gray substance of the cord. (4) That cord pressure symptoms, considering the great number of exostoses in all cases, are exceptionally rare. (5) That even when the location of the growth pressing on the cord can be established, operation is hardly indicated, at least not before maturity, because of possible retrogression of the tumor, the possible future occurrence of existence of tumors at other points in the canal, and the fact that results to date hardly justify surgical interference.

School Dentistry Hysteria.—The object of this paper by S. W. Newmayer is to consider the various phases of dental conditions found in school children, the methods of examination as now practised, the reasons for not obtaining practical results, and the seeming impossibility of the work. The object of this paper is not to belittle the ill effects due to decayed teeth; he expects to see in time new school buildings being erected with arrangements for a clinic room properly outfitted, in which room a physician, trained nurse, and dentist will be in constant attendance. The examination of the mouths of school children would show that 90 to 95 per cent. were in need of attention. All school children should be taught a few simple rules on the care of the mouth and teeth, such as "Use a tooth brush properly daily or more often. Use a simple antiseptic alkaline mouth wash frequently, especially after meals and at bedtime. This need not be one of the expensive advertised mouth washes as plain lime water is as effective. Don't misuse the teeth by biting nuts and other hard substances. Don't pick the teeth with a pen-knife or any sharp instrument. Go to a dentist at least once a year whether you have pain or not." Teach the child early and there will soon be a marked improvement in the condition of the mouth, less carious teeth, and better health.

Recurrent Dislocation of the Patella.—Sinclair Tousey reports such a case which was complicated with chronic hydrarthrosis cured by high frequency currents. The indications for treatment were to cause absorption of the serous effusion in the joint and a return of the serous membrane to a normal condition, and to restore tone to the relaxed ligaments which permitted subluxation. The sole treatment adopted was the application of high frequency currents from glass vacuum electrodes exhausted to a vacuum of 0.001 atmosphere and giving a shower of tiny, almost invisible, sparks when rubbed over the surface. Eight treatments were given, and the knees became stronger after the treatment was stopped.

The Effective Treatment of Pompholyx.—George Edward Barnes says the first purpose of treatment is to free the skin of foreign bodies by passing with sufficient pressure the back of a knife over the diseased surfaces until every vesicle is burst. Then wash with sterile water and soap. A weak solution of lead, zinc, or bichloride of mercury may or may not be applied. The parts should be protected with a dry sterile dressing. As new vesicles appear they should be treated in the same way. When the thick, shiny, parchmentlike skin appears, it can be softened and stimulated by the use of oleum cadini in some simple vehicle.

Journal of the American Medical Association, March 5, 1910.

Blood Cultures in Typhoid Fever.—J. C. Topp remarks on the advance in technic which has enabled us to prove that typhoid bacteremia is constant in the disease by the bile culture media method introduced by Conradi, Kayser, and others, and says that it offers an almost certain means of diagnosis in the early stage of the disease, though progressively less helpful in the later stages. The

findings of the bacillus in blood cultures and the Widal agglutination reaction are in a certain sense complementary to each other, the former becoming less reliable as the disease progresses and the reliability of the latter increasing. The combination of the clot culture with the Widal test greatly enhances the value of the latter. Another advantage of the culture is its definiteness, and still another is in distinguishing typhoid from paratyphoid. In the latter, cultures are as valuable as in true typhoid, the paratyphoid bacillus being distinguished from the typhoid chiefly by its action on certain sugars. Todd gives the technique, with special cautions as to certain points, preferring the drawing of blood from a vein when possible, though the simple ear puncture will be sufficient when the other is not feasible. The medium used by the majority of workers is simple ox-bile or pig-bile sterilized in an autoclave. He uses a 12 or 15 per cent. solution of Squibb's inspissated ox-gall and sometimes adds 1 to 2 per cent. of peptone. When a Gram-negative motile bacillus is found, it may be reported at once as very probably the typhoid bacillus, but further tests should be used, such as gas formation in dextrose media and indol production. The time required for the detection of the bacillus is usually twenty-four hours.

Chronic Arthritis.—E. H. Ochsner discusses the diagnosis and treatment of arthritis deformans or chronic arthritis as distinguished from septic, tuberculous, gonorrheal, and syphilitic arthritis, gout, flatfoot, and chronic articular rheumatism. The principal source of confusion in the diagnosis, he says, seems to arise from the fact that even prominent authors and clinicians fail to differentiate between that form of chronic arthritis which develops subsequent to acute articular rheumatism and true arthritis deformans. He cannot agree with Strümpell that it is impossible to differentiate between the two. He believes that arthritis deformans is a disease as distinct from chronic rheumatism as is syphilis from tuberculosis, and as easily distinguished from it. This is important, as the two types of arthritis call for entirely different treatment. True chronic articular rheumatism is always secondary to acute articular rheumatism, while arthritis deformans, on the other hand, is insidious in its onset and chronic from the beginning and may not reach its development for several years, while it may be limited primarily to one joint, it gradually extends to the others and different joints may be in different stages of the disease at the same time. In chronic articular rheumatism we find the results of an acute and subacute inflammation of the synovial membrane which is lacking in arthritis deformans where the process seems largely confined to the joint cartilages and extraarticular structures. Patients with chronic articular rheumatism are greatly benefited by hot baths, sweats, and Bier's active hyperemia, while arthritis deformans patients are made worse by these measures. The differences in the history of development, the characteristic deformity, and the therapeutic test make a differential diagnosis possible in practically every case. Ochsner sees no evidence of a microbic origin of arthritis deformans, and as little for a nervous origin. The remedies recommended have been numerous, and he thinks that this affords a presumption that none of them is of any special value. To Ochsner, a case of arthritis deformans presents the following picture: We have, he says, to begin with, some factor which causes articular and pariarticular irritation. This in turn causes more or less constant pain, which results in non-nutrition and loss of resistance. If the process is not checked this soon results in a vicious circle, one factor causing the next until the patient finally becomes so exhausted as to be a bedridden cripple and an easy prey to an intercurrent affection. He regards it as a chemical rather than as an infectious process which takes place in the disorder. The first thing in treatment is prophlaxis, and he believes that many cases are aborted by the removal of offending appendices, hemorroids, and other causes of irritation. The treatment that he believes to be most effective in advanced cases is in relieving the pain, which, in its turn, will improve the nutrition, and this, in his opinion, is best secured by absolute immobilization. During his work on tuberculous joints he has discovered that relief of pain in an inflamed joint involved the recognition of two separate and distinct principles: First, an absolutely rigid, close-fitting retention dressing. Second, the application of this dressing with the limb in such a position that the antagonistic muscles surrounding the joint are in absolute equilibrium. If this can be secured by absolute immobilization, pain in any chronically inflamed joint will cease. If contractures are very pronounced and the limb cannot be brought into the desired position without extreme pain, the contractures are broken up and, if necessary, the tendons lengthened by plastic operation, and the limb is placed in plaster-of-Paris dressing in the proper position and allowed to remain there until the pain and irritation have fully subsided. Details of the method for different joints are given. He reports two cases and says that, in concluding, he would like to emphasize the following points: "First, that a clear differentiation is absolutely necessary to the successful treatment of these chronic joint affections; second, that beginning cases of arthritis deformans should be carefully studied, the cause ascertained and removed whenever this is possible; third, that, for the present, at least, it is well to be rather cautious in the treatment of the intermediary cases; and, finally, that even in the very late and apparently hopeless cases the patients can usually be greatly benefited by proper treatment." While the results are not to be considered always a perfect cure, Oschner has had considerable success in bettering the condition, and has several patients who have been bedridden for years now making their own living.

Rabies.—L. Frothingham reviews the history of rabies and the researches which have been made, especially the advances made in our knowledge by the work of Pasteur and his coworkers. The discovery by Negri, in 1903, of the bodies which go under his name brings us probably very close to the origin of the disease and enables us to recognize it without the trouble of inoculation. The effects of proper laws for muzzling dogs in various European countries are mentioned. The statistics of rabies in the State of Massachusetts are given, showing a great increase during the last two years, and Frothingham considers these figures far too low to represent the actual state of affairs. Many other States would show a similar or worse record, he thinks, if figures were obtainable, but they are difficult to secure. He answers the objections of those who deny the existence of rabies and oppose the Pasteur treatment, and shows how the latter has been successful as a prophylactic. After the disease has developed there is no cure, but with prior Pasteur inoculations all but a fraction of 1 per cent. can be saved. The utility of animal experimentation is amply demonstrated by the success of the Pasteur method. The misleading statements of Caroline E. White are noticed. Some of them are absolutely incorrect, like the statement that there are no Pasteur institutes in Germany. Others are misleading inferences wilfully drawn from facts that are directly opposed to the views she advocates. The fact that there is no hydrophobia to speak of in England and no Pasteur institutes is due to the rigid requirement for licensing and muzzling dogs. Their relaxation in 1892 was immediately followed by the reappearance of the disease, and fifty-one persons died in the next five years from hydrophobia. At present muzzles are not required in England, but will be resumed with the appearance of the first case of rabies. Moreover, there is a strict quarantine of six months imposed on any dog brought into the country. It is true to only a certain extent that similar results cannot be produced in this country. We could greatly reduce the disease, if not absolutely abolish it. Even local measures for muzzling will be of value if properly enforced, and an inadequate muzzling sometimes does good by preventing a dog from spreading the disease. If those opposed to animal experimentation, and to Pasteur institutes in particular, would devote their energies to the bringing about of the enactment and enforcement of muzzling laws, they could do great good in eradicating hydrophobia without any more annoyance to their animal friends than we regularly inflict on our draught animals in harness.

Bacillus-Carriers.—Alice Hamilton says we are greatly in need of some method for the detection of bacillus-carriers which is quicker and less cumbersome than the bacteriological examination of the stools and urine. Aside from the difficulties of these, and the time lost in making them, there is the other disadvantage of intermittency in the excretion of typhoid and paratyphoid bacilli which makes it possible for the carrier to escape detection. The agglutination test is positive in a certain proportion of cases, but in the opsonic index we have apparently a means of diagnosis more rapid than the bacteriological method and more constant than agglutination. Recently the writer undertook a search for typhoid bacillus-carriers among twenty-four patients with a history of gall-bladder disease, using the agglutination and opsonic tests simultaneously with the bacteriological examinations. Seven of these had a decidedly abnormal index to typhoid and paratyphoid bacilli, and repeated examinations showed that this was constant. Those suffering from acute symptoms had a fluctuating index, low and high, while in the others it was always high, never falling to normal; five of the seven agglutinated typhoid or paratyphoid bacilli or both in dilutions of 1 to 50 or more. The bacteriological examinations

showed that all seven were bacillus-carriers, five of paratyphoid, two of typhoid. Of the seventeen non-carriers none agglutinated either variety of bacilli in dilutions as high as 1 to 50, and none had a decidedly or persistently abnormal index. As the opsonic index was abnormal in 100 per cent. and the agglutination test positive in only 71 per cent., the former is clearly the most valuable. The test can be made rapidly and easily, and in the case of an unexplained epidemic in a hospital, the work could be simplified by first taking the opsonic test of the suspects and supplementing it with the bacteriologic one where the index was abnormal. In making these tests, the serum of both the suspected person and the control should be heated to 58° Centigrade for fifteen or twenty minutes. This destroys the lysin for typhoid bacilli while the heat-resisting element in the opsonin remains, making a decided contrast between normal serum, which contains but very little of this element, and immune serum, which is usually very rich in it.

The Lancet, February 26, 1910.

Pericardial Effusion: Its Diagnosis and Treatment.—Samuel West calls attention to the physical signs of pericardial effusion. Among the earliest are an increase in dullness outward and upward on the left side along the third left space or rib and the disappearance of the cardiohepatic notch on the right side called Rotch's notch; systolic recession is sometimes very striking where the effusion is large, but systolic recession in the epigastrium is at times well marked with adherent pericardium and it sometimes occurs without either pericardial adhesion or effusion in some cases of dilated right ventricle. The two signs yielded by percussion were Bamburger's sign, which is a small quadrilateral patch of dullness in the left interscapular space and the other is dullness over the lower lobe of the left lung posteriorly. Even with a large effusion and in the recumbent position friction at the base may be very loud. The diagnosis rests entirely upon the physical signs as there is nothing in the general condition or symptoms of the patient that is characteristic. It is from dilitation of the heart that precordial effusion had generally to be distinguished. The most conclusive sign is given by percussion; if the dullness can be shown to extend distinctly to the left and downward beyond where the apex of the heart is located the diagnosis is certain. With dilatation the impulse can usually be made out as far as the dullness extends at the apex and there is often a wavy impulse to be seen and felt in the left intercostal spaces above, unless the action of the heart be extremely feeble. The sounds also, though weak in both cases, may be completely absent with pericardial effusion, except perhaps at the base; with dilatation they are usually audible to some extent even down to the apex. The epigastrium is more prominent in large effusions. In pericardial effusion there is often systolic recession while in dilatation there is mostly systolic protrusion. Paracentesis is rarely necessary for serous effusions in the course of rheumatic fever. An exploratory puncture should be made first with a small sharp needle. The hand should be placed firmly upon the chest and the puncture made by the fingers rather than by a thrust of the hand and arm. The sites selected and advocated for puncture have been four: (1) In the third left intercostal space near the sternum—a dangerous place on account of the proximity of the left auricle; (2) in the fifth right intercostal space, to the right of the sternum—also risky; (3) the fifth space to the left of the sternum; and (4) the fifth or sixth intercostal space outside of the left nipple line but well within the area of dullness. This is the place Dr. West advocates and chooses. If exploratory puncture shows that there is purulent effusion the pus should be evacuated by paracentesis or by incision. He had seen some cases of purulent effusion cured in this way. Bearing in mind that pus in the pericardium may be in a pouch or pocket and not generally in the pericardial sac, it is well to leave the needle in and follow it down with the knife until the pus is reached.

A Singular Combination of Fractures of the Leg.—W. Arbuthnot Lane reports the case of a man in an athletic mood who arranged to jump over a flower-bed. He slipped, twisting his foot very painfully, as he approached it, and apparently leaping off the normal leg landed on the damaged one which he felt break with his weight. It seems pretty clear that the spiral fracture of the lower end of the fibula was broken by the excessive abduction of the foot, while the tibia yielded to the torsion to which it was exposed when he landed on the foot already over-abducted because of the fracture of the fibula. An upper fibular fracture was absent owing to the fibula having been already broken by the excessive abducion of the ankle. The treatmen of such torsion fractures consists in the free exposure of the tibial fragments, their accurate replacement in their normal relationship, and their secure fixation by one or more steel plates and screws.

A Case of Sudden Deafness Occurring During Eclampsia.—The only reported case of deafness arising during eclampsia is recorded by Macleod Yearsley. Two features of eclampsia may be pointed out: (1) that the symptoms are those common to many toxemias, and that eclampsia is, broadly speaking, an autointoxication by the toxic products of protein disintegration; (2) that eclamptic blood is characterized, among other things, by an increased coagulability. Deafness occurring during eclampsia may, therefore, be due to toxemia, to effusion or hemorrhage into the cochlea, or to thrombosis or embolism. The case reported he believes to be one of blocking of the cochlear branch of the auditory artery.

The Influence of Narcotics on Phagocytosis.—Leetham Reynolds records some experiments to show the effect of morphine on phagocytosis and it would seem that the morphine exerts a marked influence on the leucocyte. Not only does it check diapedesis, but phagocytosis is diminished in a marked degree, and the growth of the bacteria, on the other hand, is not appreciably affected. Morphine not only masks the symptoms, but it muzzles the phagocytes.

British Medical Journal, February 26, 1910.

Two Cases of Nonfebrile Erysipelas.—These two cases are reported by W. Cameron Macauley who states that they appear anomalous in that both, for the most part, had subnormal temperatures and in both the cerebral symptoms were early and profound, probably due to the fact that there was very little effort on the part of either patient to combat the disease—one being an elderly man of enfeebled constitution, and the other an infant three weeks old. In the old man, diarrhea was present, constipation being the rule. During the last four days before his death the temperature ranged from 97° F. to 97.6° F. The temperature of the body generally of the child was 97° F. Death occurred in this case.

Anasarca in an Infant.—John D'Ewart reports the case of an infant, ten days old, who developed a marked anasarca. There was an absence of all the usual causes of anasarca. A careful investigation revealed the fact that the nurse had added a quantity of salt to the food in the bottle, the exact amount of which could not be determined. The speedy recovery of the infant without any definite treatment, except the cessation of the salt administration, points conclusively to the salt having been the cause of the trouble. Considerable interest has been of late years exhibited in the question of the excretion of common salt from the body. This fact, supported by Widal's contention that a saltless diet is best in cases of renal disease, is ample excuse for recording this case.

Treatment of Suppurative Otitis.—Faulder White has performed several otectomies for the cure of suppurative otitis, and in every case a good result was obtained. He reports one case which is a fair example of the benefit to be derived from this very simple and safe procedure. A man about forty years old had suffered from an infected right middle ear for several years. His chief complaint was "stone deafness" on that side, with a distressing sensation of "deadness" as well. He could not hear a watch or fork at the meatus. He cleared out the middle ear and, as a result, he was able to return to his duty. All the unpleasant sensations he complained of had disappeared and he now could hear conversation with the right ear, though carried on in a low voice. The tick of the watch could not be heard at about three inches away from the right ear.

Berliner klinische Wochenschrift, February 14, 1910.

Rheumatic Polyserositis.—E. Mosler discusses this condition of simultaneous inflammation of the various serous membranes and summarizes his findings as follows: Apparently acute pericarditis and pleuritis are observed more frequently than previously, occurring as a sequel of a severe articular rheumatism or in rheumatic individuals in whom the arthritis lies in the background of the affection. Pleuritis and pericarditis come on suddenly and smultaneously. The severe discomfort, dyspnea, orthopnea, etc., are the result of the pericarditis. The pericarditis is usually dry, whereas the pleuritis goes on to a bilateral exudate. In a portion of the cases the pleuritis and pericarditis are complicated by an endocarditis, which may come on simultaneously or later. Myocarditis is observed in all the cases. The pleuritis usually recovers without nuncture, and with-

out extensive adhesions. The rheumatic pericarditis heals without clinically appreciable damage. The myocarditis accompanying the serositis often requires a longer time to recover and often leaves behind it a cardiac dilatation and a resulting metral incompetency. The prognosis is proportionally more hopeful the longer the time that has elapsed since the age of puberty

Testing Gastric Motility by the X-Ray.—E. Schlesinger says that the main objection which has been claimed against the testing of gastric motility by means of the *x*-ray, namely, that the bismuth gruel used as a test object in a short time sediments in the stomach, does not hold if a properly made gruel is used. The *x*-ray method exceeds all other known methods in exactness, can be used in almost every patient, and is the most agreeable to the latter.

The Prevention of Prolapse of the Iris After Cataract Operation Without Iridectomy.—Geis summarizes his results in operation on 170 cases of cataract extraction without iridectomy by saying that the instilling of a 1 per cent. solution of eserin immediately after the extraction without iridectomy markedly decreases the proportion of cases of prolapse of the iris. The eserin instillation certainly in no way interferes with the process of healing, but if anything aids it. The use of eserin as advised appears to increase the indications for extraction without iridectomy. Diabetes and nephritis are no contraindications to its use.

Münchener medizinische Wochenschrift, February 8 *and* 15, 1910.

The Tonsillar Treatment of Rheumatism.—Schichhold, in discussing the tonsillar origin of acute articular rheumatism, says that the exciting cause of the rheumatic disease lies in the pus filled tonsil crypts and from there may enter the circulation and produce the specific disease. Purulent collections in other organs besides the tonsils may be the source of the disease. Complete cure and especially prevention of recurrences is possible only by the most thorough removal of the tonsils. All other methods which do not accomplish this, especially the previously common tonsillotomy, are quite insufficient for a lasting cure. Besides the arthritis other complications also are influenced beneficially. Endocarditis and myocarditis can be cured only when they are in their earliest stage and no appreciable tissue change has taken place. Old verrucose nodosities are uninfluenced and are not only a direct hindrance to cure but a source of renewed infection. The tonsillar therapy has a favorable influence upon other diseases than rheumatism, which are associated with tonsillitis, especially upon nephritis.

Relation of Inflamed Tonsils to Infectious Disease.—Curschmann in describing this subject says previously disease of the tonsils was considered as a purely local condition. Recently its relation to infectious diseases has become appreciated. We know that tuberculosis may enter through these glands, and some claim that typhoid may also. It is probable that they may be the portal of entry for the virus of erythema multiforme, peliosis rheumatica, and similar conditions. Of especial importance is the relation of purulent disease of the tonsils to septic processes. The author believes that the diagnosis of many cases of "cryptogenic septicemia" would be cleared up if the tonsils were carefully examined. He has seen cases in which at autopsy tonsils but little enlarged and superficially apparently normal were found to contain tiny collections of pus, which were the cause of the severe disease. From these he has isolated streptococci, staphylococci, and pneumococci. Very frequently the cause of certain forms of nephritis are found to lie in a tonsillar inflammation. Simple tonsillitis, even without abscess formation, may cause acute or subacute, usually hemorrhagic, nephritis. This sometimes comes on very quickly after the onset of the tonsillitis, but more frequently is a sequela of the tonsillar disease. In every case of parenchymatous nephritis the history of disease of the tonsils must be carefully investigated as the disease may arise from the same tiny chronic abscesses. This is important therapeutically as well as diagnostically, as the author has seen recently three cases of tonsillar hemorrhagic nephritis recover rapidly after tonsillectomy. He believes that the nephritis is more frequently caused by toxines than by bacteria, though occasionally in such cases he has found pure cultures of the pyogenic bacteria in the urine and urinary antiseptics have produced prompt cures. He recognizes the close relation between tonsillitis and acute articular rheumatism, but believes that Schichhold has gone too far in saying that all cases of the latter disease are dependent upon the former.

Pneumococcus Septicemia with Hemoglobinuria.—Meyer reports the case of a young man who was taken suddenly ill with the symptoms of pneumonia. No pulmonary consolidation was discovered during life. He had a marked methemoglobinuria. The blood contained pneumococci and on centrifugalization the blood serum contained methemoglobin. At autopsy a small area of pneumonia was discovered in the lower lobe of the lung.

A Clinical Method of Estimating Uric Acid in Blood Serum.—Roethlisberger discusses the significance of uric acid in the blood and the methods of estimating it, all of which he says are unwieldy or inaccurate. He then describes his own method which is based upon the property of uric acid to reduce silver carbonate. The procedure must be carried out in a dark room with red light. On a strip of silver paper in a closed dish is placed with a fine pipette a small drop of 15 per cent. solution of pure sodium carbonate and the dish closed until the solution is completely absorbed by the paper. Then a drop of the patient's serum, obtained by the usual method of clotting a few drops of blood, is added from a second very fine pipette to the center of the moist spot on the paper. After two minutes in the closed dish the paper is removed and washed in clean water. After fifteen minutes the paper is placed for five minutes in a solution consisting of one part of pure ammonia and two to three parts of distilled water. The paper is then again washed in clean water for several hours, and then dried, after which it may be exposed to the light, though it does even then lose its color somewhat. If there is no uric acid in the blood the dried paper shows only a faint grayish spot. If uric acid is present this patch may be light red, reddish brown, or brownish black according to the amount of uric acid present. By comparison with a scale made by adding known quantities of uric acid to ox blood, the color tells the amount of uric acid present in the blood.

Treatment of Red Nevi by Light and Radium.—Kromayer has used either the quartz light or radium, or a combination of the two, in 40 cases of red birth marks, usually on the face. The light is indicated especially in the superficial cases of capillary nerves. The blue rays especially are advisable and a fairly high compression is required. The treatment lasts one-half and later one hour and occasionally even longer. A current of 120 volts and 3½ amperes is used. The use of radium is especially useful in the deeper arterial nevi. It produces a nearly painless inflammation of the skin, which heals in from 8 to 14 days, leaving atrophy of the skin. Most nevi are a mixture of both forms, and so the author has used the light treatment and followed it with radium. Of the 40 cases treated, but very few showed no improvement. The great majority showed improvement more or less marked. It was noticeable that most of the patients were more enthusiastic than the writer himself, urging him to repeated treatments. These repetitions, however, had a limit. He has never used the light on the same spot more than four or five times, or the radium more than two or three times. The light treatment is most effective at the first application; then it loses its potency, as it causes pigmentation, which absorbs the light rays and prevents further treatment. The repetitions of the radium are prevented by the danger of causing chronic dermatitis and teleangiectasis. Even in the favorable cases, with complete loss of the red color, it is only with the small superficial arterial nevi that the skin is left completely normal, so that the place cannot be told from the surrounding skin. With large nevi there is formed a slightly fibrous atrophic area with a whiter color than the surrounding skin. The indications for the treatment are: (1) Extensive red or blue-red nevi, provided they are superficial and due to capillary dilatation with slight arterial involvement, indicate light treatment; (2) the small red arterial nevi call for radium treatment; (3) the medium-sized mixed nevi, which make up the majority of nevi, demand a mixed treatment of light and radium.

"Floating Heads."—Longaker says that whenever a "floating head" persists until the advent of labor, difficulty, delay, and danger are to be feared, especially in the primiparous. Attempts to deliver by forceps are very likely to be unsuccessful, and they are frequently followed by the most serious consequences. Version, where slight disproportion exists, may be successful; likewise expectancy, delay, and then forceps; but in many of these cases the future welfare of mother and child will be best conserved by electing delivery by the abdominal route.—*Surgery, Gynecology, and Obstetrics.*

Book Reviews.

Les Maladies des Enfants. Par V. Hutenel, Professeur de Clinique Médicale Infantile à la Faculté de Médecine de l'Université de Paris, Membre de l'Académie de Médecine. Vol. I-V. Paris: Asselin et Houzeau, 1909.

This system of pediatrics from the pen of Professor Hutenel and his immediate associates is a most complete exposition of the theory and practice of the science of infant care and treatment as it is understood by the present school in France. Being the work of the professor and of his immediate disciples, it represents more of a unit than is common in treatises of its size, for not only did Hutenel oversee the work, but he took an interested part in the production of each chapter, as is attested by his name on each title page. While possibly some of its contents, especially that appertaining to the feeding of the infant, is at wide variance to the ideas most generally accepted in this country, nevertheless it represents the experience of a school of medicine which is acknowledged to be one of the best in the world, for France has long been noted for its pediatrists. Volume I, in which Lesné, Martin, and Darré collaborated with Hutenel, covers the general subjects of the anatomy, physiology, and hygiene of the child, the question of birth, heredity, and evolution, and their influence on the infant. The second portion of this volume contains the chapters on the infectious diseases. Volume II is prepared with the aid of Lereboullet, Bigart, and Tixier, and includes chronic infections, as tuberculosis, syphilis, rheumatism, and malaria, the diseases of the blood, and those of nutrition, as rickets. Volume III, in which the names of Nobécourt and Merklen are associated with the author's, covers the diseases of the digestive tract, the liver, the kidney, and the generative organs, and intoxication. To Volume IV Paisseau, Vitry, Leven, and Jeanselme contributed. It includes the diseases of the respiratory and circulatory systems and the skin. Volume V covers the diseases of the nervous system and in its production the author was aided by Babonneix and Voisin. To the reader of French the present system is of considerable interest and value. Placed upon the bookshelf for reference it is found to be a veritable storehouse of succinct, clear expositions of the various subjects included in pediatrics. It seems especially valuable in covering in a few words the various by-paths and rarities of the science and giving just the information wanted in exceptional instances in conditions entirely omitted or slurred over in the ordinary text-book of the diseases of childhood.

The Medical Complications, Accidents, and Sequels of Typhoid Fever and the Other Exanthemata. By H. A. Hare, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College and Physician to the Jefferson College Hospital, Philadelphia, and E. J. G. Beardsley, M.D., L.R.C.P., Philadelphia. With a special chapter on the Mental Disturbances Following Typhoid Fever, by F. X. Dercum, M.D., Professor of Nervous Diseases in the Jefferson Medical College. Second edition, thoroughly revised and much enlarged. With 26 illustrations and 2 plates. Philadelphia and New York: Lea and Febiger, 1909.

Typhoid fever is always of interest to the physician, both because of its frequency and also because so few cases seem to follow the classical course laid down for them in the text-books. The present volume will prove a most useful companion to any treatise on Practice; and the practitioner will find here a full and authoritative discussion of the many medical complications, accidents, and sequelæ that are liable to occur in connection with this disease. Ample use is made of charts and illustrations; and the bibliographical references are unusually complete and up to date. Chapters are also added on similiar conditions occurring in smallpox, scarlet fever, measles, chickenpox, and rubella.

Principles of Hygiene. By D. H. Bergey, A.M., M.D. Third Edition. Philadelphia: W. B. Saunders Company, 1909.

In this, the third edition, Dr. Bergey brings his work up to date and incorporates the more important advances which sanitary science has made in the past four years. These advances relate especially to methods of sewage purification by biological processes, the defensive operations of the body and the best methods of rendering assistance to the same, the discovery of the cause of syphilis, the flea as an agent in the spread of plague, and other matters. The later editions of a book usually result in a presentation of its subject-matter in better form, and to this general rule Dr. Bergey's latest work is no exception. He unfortunately still attempts the impossible, however, by endeavoring to cover in 542 pages, nearly 100 of which relate to quarantine laws, the manifold phases of what is undoubtedly now recognized as being the most generally valuable, important, and extensive subject having to do with medicine. Necessarily much that should be common knowledge is left out of consideration, and some other matters receive such brief mention as to have their actual importance beclouded and belittled thereby. Examples might be given in failure to discuss the purification of water by ozonization, now an established procedure, and the dismissal of the tremendous specialty of military hygiene, which several volumes the size of Dr. Bergey's could not cover, in some eighteen pages of rather poorly selected matter. It has of course been a difficult task to make a judicious selection of material for incorporation in this book, and it seems to the reviewer a mistake on Dr. Bergey's part apparently to have attempted in advance to crowd the consideration of a broad science into a definite number of pages, rather than to let the number of such pages be determined by the actual needs of such proper consideration itself. As it is, the text gives the impression of excellence in every way, except for a certain feeling of insufficiency and incompleteness dependent on a somewhat too brief and dogmatic handling of its various subjects. The illustrations in the book are not many, do not seem to have been well chosen with a view to their practical value, and take up valuable space which, if there is any valid reason for keeping the book at its present size, might better be used for other purposes. In its printing, binding, and general get up the book leaves nothing to be desired.

The Causation of Sex. A new theory of sex based on clinical materials, together with chapters on the forecasting of the sex of the unborn child, and on the determination or production of sex at will. By E. Rumley Dawson, L.R.C.P. London, M.R.C.S. England; Fellow of the Royal Society of Medicine, Late Member of the Council of the Obstetric Society of London, formerly Resident Obstetric House Physician to the Westminster Hospital. London: H. K. Lewis, 1909.

Dr. Dawson's hypothesis states that sex is not influenced by the male, but depends upon which ovary supplies the female elements. That is, a male fetus is the product of a right ovary plus a spermatozoon, and a female fetus is the product of the left ovary plus a spermatozoon. The right ovary is larger than the left (William Anderson, Clarence Webster, G. A. Piersol, Parrein, Bonamy and Bean, Berry Hart, and other anatomists), therefore more boys are born than girls since the area of ovarian tissue is greater in extent and produces more ova. Moreover extirpation of both ovaries has resulted in sterility; of the right ovum, in girl progeny, and of the left ovum, in boy progeny exclusively. Ovulation alternates regularly, thus if the right ovary casts off an ovum in December, the left will do so in January, the right in February, the left in March, etc. Hence one can calculate the sex of any expected child, the year, month and day of the first born being given, and the author claims 97 per cent. of successes in his predictions. This statement is not exactly in accord with the previous one that the right ovary produces more ova than the left. Certainly the scheme is ingenious and deserves wide attention on the part of obstetricians in order that more facts may be adduced.

Diseases of the Nose, Throat, and Ear. By Charles H. Knight, M.D., Professor of Laryngology, Cornell University Medical College; Surgeon Manhattan Eye and Ear Hospital, and W. Sohier Bryant, M.D., Senior Assistant Surgeon, Aural Department, New York Eye and Ear Infirmary. Second Edition, Revised with 239 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1909.

This is really the second edition of Dr. Knight's portion of the work, with a new part on otology added by Dr. Bryant. The chief additions to the former edition are in the chapters on deviated septum and diseases of the accessory sinuses. In regard to the method of direct examination of the upper air passage the author of the first part says that not too much attention has been given to the subject because it is not likely that the older methods of examination will be supplanted as a matter of routine, for the class of cases within its scope offers a comparatively restricted field for the new procedure. In the second place the apparatus and the unusual operative skill required are more or less prohibitive as to general use. Nothing of importance is, however, omitted. In response to many requests a new part on otology has been added. The well-known experience and clinical activity of Dr. Bryant are responsible for many new and instructive illustrations and an interesting text.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Regular Meeting, Held February 17, 1910.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

THE papers and discussions were devoted to a symposium on thoracic surgery.

The Method of Respiration by Continuous Intratracheal Insufflation: Its Theoretical Significance and Its Practical Availability in Medicine and Surgery.—Dr. S. J. MELTZER read this paper. (See page 477.)

Avoidance of Apparatus Complicating the Operation: A Paramount Requirement in Thoracic Surgery.—Dr. WILLY MEYER read this paper. (See page 483.)

On Experimental Intrathoracic Surgery by the Meltzer Method of Intratracheal Insufflation.—Dr. ALEXIS CARREL read this paper. (See page 491.)

Demonstration of an Apparatus for Continuous Intratracheal Insufflation, with Remarks on the Use of This Method in Thoracic Surgery.—Dr. CHARLES A. ELSBERG read this paper. (See page 493.)

Dr. SAMUEL ROBINSON of Boston said that doubtless there was a temptation on the part of many to credit him with a special fondness for his own apparatus for use in thoracic surgery, and it was true that he had adopted a form of apparatus, but only after having given other forms of apparatus used in thoracic surgery a fair trial. It was his good fortune in the spring of 1908 to hear a gentleman of Cleveland describe his procedure in which a tube was introduced down to the bifurication of the trachea through which he was enabled to continue the oxygenation of the blood without disturbing the heart beat. After some correspondence with this gentleman Dr. Robinson repeated his experiments and was greatly interested to learn that by the use of intratracheal injections with the catheter, even with the lungs in a state of practically complete collapse, oxygenation of the blood was kept up. It then occurred to him that surgical operations might be performed with the use of this method, and this led to further experimentation, doing operations upon the thorax with the lungs practically in a state of collapse. He was led to attempt to use air instead of oxygen in the same way, but found that he could not keep up the function of the heart beat with air without keeping the lungs in a state of at least semi-inflation. He finally concluded that, in order that the function of the heart should be kept up, the lungs should be in a state of two-thirds inflation. This fact he did not bring out with any idea of claiming priority in any way, but to show that he had continued his work with other methods; his chief reason for changing was primarily that he could see no occasion in surgery where the entire front of the chest would have to be removed. He also realized that in practically every operation one could think possible on the human, one side of the chest only was opened. In further experimental work they placed in a straight tube, the walls of which completely filled the larynx, but it was found that oxidation was not kept up and dyspnea ensued. Alterations were made in this tube and further experiments made, but they soon realized that this could not be utilized in thoracic surgery on the human being. He had been led to believe from what he had been told by the nose and throat specialists that the maintenance of any foreign body in the trachea was not an easy matter; even when the parts were cocainized, and the tube introduced, to again cocainize the parts the tube must be withdrawn and this was not feasible; when once the tube was introduced into the trachea, it must not be removed; the reintroduction of the tube in the middle of an operation might cause some confusion. Dr. Robinson thought it was well to introduce new apparatus. While in Europe he had seen most of the famous apparatus in use, and he had himself come to use what he termed the classical apparatus; in fact, he had both the so-called classical and the emergency apparatus, the latter being supplied with a mask. It was interesting to note that in dogs bronchitis, tracheitis, or pneumonia was not caused by etherization by this method and he was led to believe that the resistance in dogs to these conditions was greater than it was in the human being. These things should be borne in mind in order that they might be just in their criticisms of the various apparatus which bid fair to introduce a new surgical technique. Dr. Robinson said that his clinical experience had taught him that it was best to use some simple apparatus, not necessarily a small one, but one which, even though a clumsy affair, could be run by a person who knew the least about such apparatus in hospitals. Small apparatus, as a rule, was quite complicated in its construction, while with the larger types the surgical operation could be run smoothly and rapidly.

Dr. HENRY H. JANEWAY said that during the past two years Dr. Green and he had worked together in intrathoracic surgery, and both of them had taken a deep interest in Dr. Meltzer's work because of its close similarity to the method of artificial respiration formerly used by Dr. Green. This method consisted in the inflation of the lungs with air interruptedly passing to them from a constant pressure in a tank and through an intralaryngeal tube. Provision was made for the escape of air from the lungs in the intervals between the inflations through an opening in the part of the tube within the mouth of the animal. Dr. Meltzer's method was an improvement upon the method of Dr. Green in that a soft rubber catheter was used instead of a rigid tube and, secondly, in the fact that this tube was passed further within the trachea. The method was the same that Robinson tried and published in 1908. It seemed to him that the important feature in this method was the fact that when a tube of sufficient size was passed within the trachea, the larynx so hugged this tube that considerable resistance was offered to the outcoming air. Undoubtedly the failures to appreciate this fact explained why the method had not been used before. The contention, however, must be true, because Dr. Meltzer used a pressure of some fifteen to twenty or twenty-five mm. of mercury in the tube, while the degree of distension of the lungs showed that within the trachea there must be a pressure of at least 5 to 8 mm. The method, therefore, was a true positive pressure method and all that Dr. Meyer had said regarding this point and the fact that the tube within the trachea must be considered an additional complicating factor was true. Dr. Janeway had had the opportunity of operating by Dr. Meltzer's method at the Rockefeller Institute with his own apparatus, and the operation passed as smoothly as any that he had ever performed. The artificial respiration continued perfectly even from start to finish. The respiratory movements of the animal were not entirely eliminated. In fact, concerning this point he could observe no difference between the method and one formerly used by Green or the one which they were now using. In fact, Dr. Meltzer encouraged the periodic deflation of the lungs by every now and then exhausting the air from his system of tubes. The frequency with which this must be done depended upon how extensively the thoracic cavity was opened. If both sides were opened, or if the method was used to artificially respire a patient suffering from paralysis of respiratory center due to too much ether or a toxic dose of morphine, the frequency of deflation of the tubes must correspond to normal respiration. It seemed, therefore, that for this reason also the method was a true positive pressure method. Now, whether the presence of a tube in the trachea could be a harmful addition or complication in positive pressure artificial respiration Dr. Janeway did not think could be de-

cided without extended trial. The only objections which he could think of were purely theoretical. They were four in number and were the very ones which influenced Dr. Green to suspend the use of his intralaryngeal canula. In the first place, the necessity for the introduction of a tube within the trachea would be found inconvenient in many instances, particularly in use in the fire department as in cases of suffocation by smoke, and in cases where it was necessary to have nurses or physicians unfamiliar with intralaryngeal work use the method. Secondly, the presence of a tube within the trachea might be found inconvenient and in the way during attention to the toilet of the mouth and in such intrathoracic operations in which instrumentation of the esophagus was needed. Thirdly, they believed that more ether was absorbed by the patient when administered through the intratracheal tube. Dr. Green was certain that this was true from his own experiments and this fact was one of the most important considerations which influenced him to suspend its use. There were two reasons why this was so. The first was the fact that in positive pressure applied by a cabinet a certain amount of cerebral anemia existed. Sauerbruck had utilized this fact in cerebral surgery. This cerebral anemia rendered less ether necessary. The second reason depended upon the completeness with which the patient was artificially respired. It was difficult to judge of how much ether the patient was receiving. Dogs by this method could receive what would otherwise be a toxic dose. They believed that such an intoxication must increase the shock of intrathoracic operations. Lastly, it might not prove impossible that in certain pulmonary conditions the presence of a tube in the trachea and stream of ether vapor directly upon the bronchi might be deleterious.

Dr. William W. Keen of Philadelphia said that after having seen Dr. Carrel operate, manipulating the viscera of the chest with the same ease and exactness as one would in abdominal surgery, he was delighted with the whole thing and that if it was necessary to operate upon his own lungs or upon his aorta the Meltzer and Auer method would be his preference. The method was simplicity itself and he was very much impressed with it. When he wished to close the cavity of the chest the pressure was increased at his request a little, so that the lungs expanded and obliterated the chest cavity and there could be no pneumothorax. The respiratory function was reestablished in the animal one and a half hours after the operation, after a transverse section of the chest had been made, both cavities having been opened. What he had seen Dr. Carrel do was to him a revelation.

Dr. William S. Halsted of Baltimore said that for a year or more he had been interested in thoracic surgery and until Dr. Meltzer had described his method he had used the positive pressure apparatus because he had no negative one. In his experiments upon dogs the Meltzer-Auer apparatus had been used with the greatest satisfaction, and even if it had not yet been used on the human subject it was a wonderful contribution to their animal work. Having worked with positive pressure apparatus of various forms, as well as incubation tubes, etc., it seemed to Dr. Halsted that the Meltzer-Auer apparatus was one of simplicity. He sympathized with Drs. Willy Meyer, Robinson, and Elsberg in what they had stated, and he felt that it was true; at the present time it was too early for one to be justified in speaking positively in regard to any one apparatus of the pressure sort; time only would determine its value. In his clinic in Baltimore Dr. Halsted used nitrous oxide, carbon dioxide, and oxygen gas, and when these gases were given in their proper combination, the patient went under the influence very easily and, even after very prolonged operations, within five minutes they were conscious. He reported some cases in which the operations were very prolonged and, with the use of these gases, consciousness returned within a few minutes after the operation. Then, too, the condition of these patients after taking these gases was entirely different from the condition of those who took ether. In old alcoholics sometimes ether had to be supplemented. Before he had used these gases he said he did not realize how detrimental the use of ether was.

Dr. Joseph C. Bloodgood of Baltimore said that perhaps in the future the progress in surgery must come from the experimental laboratory and perhaps in the surgery of the thorax they had better evidences of the importance of experimental surgery; the progress in this work must be made in the laboratory. As a rule, in the majority of the cases in the past history of surgery, what had been established in animals in the laboratory had been shown to apply to human beings, and that was one reason why he believed that this simple method of anesthesia in thoracic surgery would eventually become practical.

SECTION ON PEDIATRICS.

Stated Meeting, Held February 10, 1910.

Dr. Eli Long in the Chair.

A Case of Intussusception.—Dr. Edward W. Peterson presented a patient who, when five months old, was admitted to the Post-Graduate Hospital. Two days before admission the baby seemed to be suffering from abdominal cramps; there was vomiting at frequent intervals and the bowels did not respond to the giving of enemata. On the third day, however, blood and mucus were expelled, unaccompanied by feces and flatus. The abdomen was moderately distended and very rigid. An elongated mass was felt on the left side. The examining finger when withdrawn from the rectum was covered with bloody mucus. A diagnosis of acute intussusception was made, and this was confirmed at operation. It was of the ileocecal variety. Owing to the edematous and friable condition of the gut, adhesions having formed at the neck of the intussuscipiens, it was very difficult to reduce the last two inches of the invagination. The bowels acted naturally on the second day. The secondary enteritis yielded to appropriate treatment. The patient was discharged on the seventh day.

A Case of Tuberculous Peritonitis.—Dr. Peterson presented a boy, three years old. In February, 1908, he had a very severe attack of gastroenteritis, which lasted three weeks. Shortly after this the boy very slowly lost weight and strength, and at the same time there was a gradual increase in the size of the abdomen. Several physicians out of the city examined this child and pronounced the condition a malignant one and gave a grave prognosis. This weak and emaciated child was admitted to the Post-Graduate Hospital with the skin and conjunctiva jaundiced, and with a bronzing of the skin over the abdomen suggestive of disease of the suprarenals. Nodular masses were readily palpated in the abdomen and one, the size of an orange, was distinctly felt to the left of the umbilicus; they were most prominent in the right iliac region. There were 2,360,000 red cells, 8,000 leucocytes, 55 per cent. hemoglobin; the polymorphonuclears showed 33 per cent., the small lymphocytes 60 per cent., and the large lymphocytes 7 per cent. After studying the case for a few days they decided they had to deal with a case of tuberculous peritonitis. Treatment with fresh air, tonics, etc., was tried for three weeks, but as the child was losing weight and strength it was decided to operate. A two-inch incision was made in the abdomen and a very extensive miliary tuberculosis was found. The fluid evacuated was very suggestive of an old hemorrhagic condition. The parietal peritoneum, the in-

testines, omentum, and other parts were simply studded with innumerable miliary tubercles. After washing out the cavity with peroxide of hydrogen, then with normal saline solution, the wound was closed without drainage. The parents were carefully instructed how to carry out the hygienic and tonic treatment properly. In addition inunctions of mercury were given. The discoloration of the skin soon cleared and to-day the boy was apparently in perfect health.

Intussusception.—Dr. JOHN F. ERDMANN read this paper. In his series of operations, now about forty-five, he said he had been struck by the health of the patients, few having been ill before the onset of the trouble. The onset was sudden, with colicky pains, accompanied with shock; this primary onset was followed by cramp-like pains, intermittent in character. The early shock disappeared as the first hour passed. The diapers were likely to be slimy and contain blood. This evidence of blood was pathognomonic when there was a previous colic, shock, and spasm picture. Frequent desire to defecate, tenesmus with little result except quantities of mucus and blood, vomiting, and distension of the abdomen were developed in the order named. In the majority of the cases palpation failed to reveal a tumor, and certainly not the classical sausage-shaped one described in the text books. The rectal examination revealed a tumor far less often than abdominal palpation, unless the case be of a day or more duration; the withdrawal of the finger from the rectum was followed usually by blood and mucus. The abdomen was lax during the early hours of the disease, but subsequently became distended. The pulse was accelerated. The temperature was usually subnormal or normal at the onset, but a moderate rise ensued during the progress of the disease. The differential diagnosis of these cases sometimes was very difficult, especially those cases with visceral crises in the erythema group of skin diseases. Little difficulty should be met in making a differential diagnosis in a case of appendicitis. In considering the treatment he inserted, with a few alterations, a portion of a paper published in the *New York Medical Journal* in May, 1904. In his last sixteen cases of operative reduction the average age was six and a half months, the youngest being sixteen weeks old, with males in excess. One of these cases died, the cause being in all probability status lymphaticus. All of the excision cases died. In conclusion Dr. Erdmann said that early recognition of the condition was absolutely necessary to a high recovery rate. Inflation was decidedly not useful, but dangerous. Enemas were successful in an exceedingly small proportion of the cases, and should not be used after six hours. The earlier the operation, the more likelihood of a small mortality. Late operations might be followed by gangrene with all its horrors.

Appendicitis in Infants and Children.—Dr. CHARLES N. DOWD said he wished to refer to a few points which hinged upon two questions, when to operate and how to operate. The diagnosis in children was very difficult and because of the repeated consultations and the consequent delay there occurred often a general spreading peritonitis with fatal results. Murphy of Chicago had called attention to four important symptoms in acute appendicitis which followed as a sequence; if they did not follow as a sequence the diagnosis of appendicitis might be questioned. (1) Pain in the abdomen, sudden and severe; (2) nausea and vomiting, usually three or four hours later; (3) abdominal sensitiveness most marked in the appendicular region; (4) moderate elevation of temperature from two to twenty-four hours after the onset of the pain. The first, second, and fourth symptoms were of little significance in children except as confirmatory of the third. One was, therefore, often misled in making a diagnosis of appendicitis in children, and must depend mainly upon the third symptom. Muscular rigidity, which indicated this tenderness, was as definite in children as it was in adults. It was not, however, so definitely localized since children's appendices were relatively longer than adults, and the rigidity might vary with the position of the appendix. There were several distinct inflammations which were apt to make a differential diagnosis difficult. Amongst these were the following: 1. Beginning pneumonia. Occasionally adults with a commencing pneumonia would give symptoms very suggestive of an appendicitis, but in children this occurred frequently. 2. General peritonitis from unknown causes. Children were very apt to have a spreading peritonitis from an unknown site of infection, which spread very rapidly and usually with a fatal termination. This form of peritonitis was found more often in children than in adults. 3. Tuberculous peritonitis. This was common in children and often simulated appendicitis; it was usually the form with plastic exudate and not the ascitic form found in adults. 4. Pneumococcus peritonitis. 5. Gonococcus peritonitis. 6. Cyclic vomiting. This form often gave symptoms much like those of appendicitis. It was interesting to note that Comby of France had operated upon many of these cases, believing them to be a chronic form of appendicitis, and a large proportion of the cases seemed to have been cured by the operation. 7. Foreign bodies. Dr. Dowd said that he had taken three pins from the appendix and in one case he found a round worm free in the peritoneal cavity, with no indication of the point of exit from the intestine. 8. Hip disease. Whatever ideas one might have in regard to the time of operation in appendicitis in adults, when dealing with children all ideas of delay should be thrown aside. One should operate as soon as the diagnosis was made. Children were more apt to have a spreading peritonitis with appendicitis than were adults. The mortality had been very high, but last year George Alsberg reported sixteen cases occurring in children without mortality. Dr. Dowd's mortality rate was as follows: In a group of 70 cases, of whom 15.7 per cent. were operated upon at an early date, 57.1 per cent. later, and 27.1 per cent. in the interval, the mortality was 10 per cent. In a second group of 50 cases, of whom 16.0 per cent. were operated upon at an early date, 74.0 per cent. later, and 10.0 per cent. in the interval, the mortality was 8 per cent. In a third group of 61 cases, of whom 36.1 per cent. were operated upon at an early date, 49.2 per cent. later, and 14.7 per cent. in the interval, there was no mortality. A child under two years of age did not stand as good a chance as one over that age, yet these young children would do well if one could make an early diagnosis and did not attempt too much at the operation. It was the difficulty of diagnosis rather than the question of operation which made the mortality rate so high for little children. They stood the simplest operations wonderfully well.

Dr. EDWARD W. PETERSON believed that there was no type of intestinal obstruction so easy to diagnose as intussusception. An acute invagination usually manifested itself in a subject whose previous health had been good. The onset was sudden, with severe paroxysmal colicky pains, vomiting, straining, and mucohemorrhagic stools. There was constant desire to go to stool, with a passage of mucus and blood, without feces or flatus; this was pathognomonic of intussusception. If, in connection with the symptoms just mentioned, a cylindric or rounded intestinal tumor could be felt, then the diagnosis was rendered reasonably certain. It

might be added that in cases of intussusception a careful examination of the abdomen and rectum, under an anesthetic if necessary, would generally reveal the presence of a tumor. Dr. Peterson said he had operated upon nine cases and had seen as many more, and in every case a tumor could be felt. In intussusception the prognosis was going to depend not so much upon the duration of the affection as upon the amount of obstruction and the degree of strangulation to the blood supply of the invaginated gut. He agreed heartily with the recommendations for treatment as outlined by Dr. Erdmann. In discussing Dr. Dowd's remarks he said there was no question about the difficulty of making a diagnosis of appendicitis in infants and young children. He was surprised at a mortality of 30 per cent. given by a certain Brooklyn surgeon in discussing the subject. In the wards of the Post-Graduate Hospital he had lost but one case during the last seven years. Children stand the operation remarkably well, if one was careful not to attempt too much.

Dr. Godfrey R. Pisek, in discussing Dr. Dowd's paper, said that no reference had been made to one method that was a great help in diagnosing appendicitis in children, that was rectal examination. Children stood this examination well and an enlarged appendix or an abscess could be palpated and located especially if the bimanual method were used. This method had not been used as often as it might have been. Dr. Pisek cited the case of a child of a physician who had cyclic vomiting and was operated upon for a subacute appendicitis. Since the operation she was much improved under the same treatment as before the operation. This was in accord with what Dr. Dowd had said in regard to cyclic vomiting.

Dr. Sara Welt-Kakels said that she had been impressed by the fact that in some cases of intussusception there was absence of pain, mucohemorrhagic stools, and tumor, and she believed that the general practitioner, in treating cases of gastroenteritis, should think of the possibility of intussusception, even in the absence of some of the well-known cardinal symptoms. Dr. Welt-Kakels cited the case of a child being treated for gastroenteritis, who was brought to Mt. Sinai Hospital because the mother did not think proper progress was being made; by means of a rectal examination she had made a diagnosis of intussusception. At operation a loop of gangrenous intestine was found. The child died twenty-four hours after the operation.

Dr. William P. Northrup said that he taught his students that there were three things about which they should always be very keen from the time they graduated until they quitted their calling; these were the diarrheal diseases of summer, pneumonia, and intestinal obstruction. He had seen two cases of intussusception within two weeks, some time ago, both of which were injected with water and both got well. This was the worst thing that could have happened to him, for he had written a paper about the results. Since that time he had learned better and preferred surgical incision. Shortly after his experience with the two cases that were cured by injection, he had seen a case at the Presbyterian Hospital in which the question arose whether to inject water or make an incision. The incision was decided upon and an intussusception was found in which it was very difficult to draw out the gut, especially the last portion. Dr. Northrup cited the case of a robust child with an inordinate appetite, who ate almonds and meat. He began to have pain, became very ill, and vomited excessively. For three weeks he went on in this way. Dose after dose of castor oil was given, each followed by a watery discharge. Finally a practitioner said: "Give him rhubarb and soda; if without effect, give it again and again." This was done and finally the child passed a large, putrid bolus, which contained, among other things, almonds. The child had been well since. Dr. Northrup cited two other cases in which the appendix was found to be in an abnormal position. In one instance it had become wrapped around the bladder and in the other it was tucked up behind the cecum.

Dr. Dowd closed the discussion. He said that in his experience the leucocyte count had been a very indefinite guide. He had operated upon abscesses where there was a 36 per cent. polymorphonuclear count; in several where there was a low differential count and occasionally there was a low leucocyte count, while in very many cases with no discoverable lesion there was a very high leucocyte count. Probably in the majority of cases the leucocyte count would correspond with the condition found, but there were so many exceptions that he could not interpret and he knew of no one who could. The presence of calculi was another trap that might very easily mislead one. He had never seen a ureteral calculus occurring in a child, although since they occurred in the bladder he supposed they also occurred in the ureter. He had never found rectal examinations as valuable as the abdominal examinations, although he regularly made them. The abdominal muscles were a telltale and he found no structure by rectal examination that gave an equal amount of information.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held January 31, 1910.

The President, Dr. John E. Weeks, in the Chair.

Address of the Retiring President.—Dr. H. Seymour Houghton delivered this address. He thanked the members of the society, and expressed his appreciation of the uniform courtesy extended to him in his efforts to properly conduct the proceedings of the society, and in maintaining its scientific work and upholding its dignity as one of the leading as well as one of the largest medical organizations in the City and State of New York. Entering the office as President with a degree of fearfulness that was somewhat terrifying, and leaving it with regret and a happy retrospect, he said he could appreciate the mental process involved in the popular idea, as expressed in their pictures of the New Year, where it was possible for the year to be ushered in a stripling baby and in a short twelve months to step forth from activity a gray-bearded old patriarch. The attendance upon the meetings had been remarkably great. The papers read had been both interesting and instructive, and unquestionably had punctuated the progress of medicine. While the evenings had been extremely long, at times running well on toward midnight, they had been all too short for full justice to be done to the papers or proper discussion to be had on the valuable points brought out. Dr. Houghton felt that it would be most fitting to take some action looking toward regulating their executive sessions, especially in such a way that undue prolongation of the business features should not occur. He called attention to the conscientious and thorough work of the members of the Comitia Minora and the painstaking and judicial care exercised by their counsel, Mr. Vandiver, in matters of dispute between fellow members; he said he also bore witness to the brilliant and admirable management of their finances by the treasurer, Dr. Richardson; no less efficient, no less painstaking, and no less difficult had been the work of the secretary, Dr. Young. During the ten years of his incumbency he had brought the work of his office to a state of systematic development out of all proportion to the early requirements; one glance

at his office would be almost enough to discourage one from wishing to be a successor when Dr. Young became weary of the strain. Dr. Houghton told of the work of the Milk Commission in connection with the Health Department in general, and with that of Dr. Park in particular. Recently a small outbreak of typhoid fever occurred over in the East Side. By a process of exclusion the source of this outbreak was traced to a small town, Salem, up near Saratoga, and there to a particular dairy, and finally to no less a person than the owner of the dairy, an old gentleman found to have been a typhoid carrier dating back some forty years. This was but a small item.

Inaugural Address of the President.—Dr. John E. Weeks said that the possible activities of this society had an exceptionally broad scope; they were "to aid in regulating the practice of medicine and surgery in this State, to contribute to the diffusion of true science, particularly the knowledge of the healing art, and to assist in the preservation of the public health." Theirs was the oldest incorporated medical society in the State. It was first known as the Medical Society of the State of New York, and began its work November 14, 1794. About twelve years later (April 4, 1806) it was incorporated as the Medical Society of the County of New York. The society had grown until now its membership was approximately 2,325, a little more than one-third of the entire membership of the State Society of which it formed a part. Among the many advantages accruing to membership in the Medical Society of the County of New York were the scientific work of the stated meetings, the protection against suits for alleged malpractice, the prosecution of the quack and charlatan, the receipt of the directory and the State journal, membership in the society, and eligibility to membership in the American Medical Association. In the County of New York there were about 4,667 regular physicians, of which number about one-half were members of the society. One of the important objects of the society was to assist in the preservation of the public health. Under the direction of the Board of Censors their counsel had during the past year instituted proceedings against fifty-three medical corporations and individuals who were practising medicine or vending nostrums illegally, and many convictions had been obtained. The report of the treasurer on November 19 last showed a balance for the year of $3,000.79; this, with the funds on deposit, made a total cash surplus of $8,205.74. Last year 225 bills having some medical import were introduced into the State Legislature; of these seventeen became law. Fortunately, few, if any, of the bills passed were detrimental to the community or to the medical profession. The Committee on Legislation, in connection with similar committees in the county branch and State societies, backed by the membership of these bodies, were able to exert a strong influence on the Legislature. It was the firm opinion of all medical men of the State who had studied the subject of animal experimentation that the present restrictions by law in this State were sufficient to prevent undue suffering on the part of the animals employed and to confine experiments within reasonable limits. Since this was the case, it became the duty of the society to lend its energetic support to the effort to defeat the enactment of laws designed to further restrict or embarrass animal experimentation.

The Appropriation of Public Funds for the Partial Support of Voluntary Hospitals, with Special References to the Development of the Hospitals of the City of New York.—Dr. S. S. Goldwater opened the discussion on this subject, and said that there were a great many reasons why the members of the society and the medical profession of the city should interest themselves in those phases of public law which directly or indirectly affected the hospitals of the City of New York. So far as the principal question under consideration was concerned, he called attention to the fact that of the 14,000 hospital beds for all classes of cases, 70 per cent. were to be found in the private hospitals and but 30 per cent. were to be found in the municipal establishments that were supported by public funds. Dr. Goldwater asked those present if they favored the voluntary hospitals or the municipal hospitals if this question was to be voted upon. When questions of this sort came up for consideration he believed that the officials and city legislators had a right to expect co-operation and guidance on the part of members of the medical profession. They should all know just what the hospitals were doing, what they were accomplishing, and just what they failed to accomplish. At the present time the hospital system was in an undeveloped state. In New York City alone there were 350 beds for each 100,000 population. Something might be accomplished if they could give the legislators a clear idea of the relation the hospitals bore to the community of the city and State, as well as a clear idea as to what constituted a perfect or ideal hospital. The latter was not to be found in this country. He advised against their becoming extremists without knowing just what constituted a good hospital. What was greatly needed were hospitals that would do the work intended by them properly. They should all welcome voluntary support to hospitals as something by which the burden on the taxpayers would be reduced. They should welcome such support, and not reject it. A co-operative system was characteristically an American system; in thirty-five States there were laws under which this sort of co-operation might be carried out. New York State had a system which was a good one; Pennsylvania, on the other hand, had a system which was as bad as New York's was good. There were several hospitals in the City of New York that refused to apply for city appropriations; yet they made no bones about accepting exemption from taxation. He knew of 200 vacant beds in certain of these hospitals—vacant because they did not have money enough to support them. Yet the city was knocking at their doors ready to aid them if they would accept. These institutions declined such aid through fear of city or State interference; they objected to the public officials. At Mt. Sinai Hospital such an objection did not exist. They were not ashamed of their institution and were not afraid of any inspection by public officials. The City of New York was not obliged to appropriate a dollar to the hospitals; such an appropriation was not mandatory. The Board of Estimate and Apportionment had adopted a very comprehensive set of rules; they determined the maximum amount of money the city was willing to set aside for the purposes in question. In 1907 Mt. Sinai Hospital expended over $384,000, and received from the city $54,000. The Lying-In Hospital spent some $39,000, and received from the city $17,000. The Post-Graduate Hospital spent $189,000 and received from the city but $16,000. These were merely a few examples. There were all told forty-one hospitals that spent about $3,000,000 and received from the City of New York $209,000. It was, therefore, very evident that what the City of New York appropriated to these institutions represented but a small proportion of the actual cost of maintenance.

Mr. John M. Glen, secretary and director of the Russell Sage Foundation, told of his twenty years' valuable experience in dealing with hospitals and charity organizations in his native State, Maryland. For years he was a member of the tuberculosis commission. He said he was astonished at the amount of money going out for charitable affairs. This whole subject must be considered from a very broad point of view. He did not believe it was the function of the government to administer charity; relief by the State or city was not charity at all; it was merely relief. Public and private charities should be kept distinct from each other. He asked what the State was doing in regard to public health, that was, in regard to preventive measures.

Was it doing its duty in the realm of public hygiene? He asked that they listen to some figures from the State of Pennsylvania showing appropriations to hospitals; 140 institutions received from that State over $4,500,000. Just think what could have been accomplished if they had spent that amount of money on public hygiene or anything else but the public hospitals. Think of what could have been done in educating the people about tuberculosis. Think what could have been accomplished in Pittsburg. A great deal could have been done in factory inspection. Mr. Glen then gave some facts that concerned the State of Maryland. He believed the fact alone that the city gave money to institutions tended to a multiplication of these institutions, many of which were unnecessary. Private money could be obtained when the institutions failed to get money from the legislators. Reputable citizens, good men and women, as well as reputable doctors, asked for appropriations for the benefit of private institutions, thus saving the trouble of asking for appropriations from benefactors.

Mr. Homer Folks, Secretary of the State Charities Aid Association, said that he fancied that he had been asked to participate in the discussion of this subject because he was supposed to belong to one of the "extreme" classes, namely, to those alleged to be opposed to granting public money to private institutions. His own instinctive feeling toward this subject was perhaps best illustrated by recalling the remark of the Kentuckian in reply to some reference to bad whiskey. He corrected the speaker, saying that no one should speak so disrespectfully of such a desirable product; that some whiskey might be better than other whiskey, but there was no such thing as bad whiskey. All hospitals looked good to him; some were better than others; but all hospitals, honestly established, did a great deal of good. He said frankly that the hospital with the most money looked best to him. The hospital that had the means to take care of its people well, to give them plenty of good food, to provide good nurses, and to supply good instruments in the operating room looked best to him, irrespective of the particular form of its management. Respectability of managers, good intentions on their parts, or even religious zeal were poor substitutes for the wherewithal with which to pay bills. The question turned not so much on the saving to the taxpayer as on what system would, in the long run, secure for them the largest number of adequately equipped, adequately maintained, and wisely maintained hospitals. It was probably unfortunate that this function had not yet been clearly defined in the range of the duties of the municipality or of private charity. The public hospital had grown upward from the almshouse; the private hospital had dropped down from the skies of benevolence. They had not as yet found their perfect adaptation one to another. The subject might be discussed in two ways: first, on what they would think best for a locality starting anew, or, secondly, they might discuss what was best from now on for the City of New York. These two possibilities should be kept clearly in mind, for what was best for a new community might not be most practical for a city already encumbered with traditions. If they were starting afresh he would draw a clear line between public and private hospitals and would devote no money derived from taxation to the maintenance of any private institution whatever. In order to illustrate his point he cited what had been done along educational lines, and said he doubted if we would have such an effective school system if the schools had been dependent upon public charity. Likewise it was possible that had the municipality been responsible for the hospitals from the beginning there would be a much better hospital system than now existed. The fundamental objection of the present scheme was the division of responsibility. Mr. Folks agreed with Dr. Goldwater that the New York system of regulation was by far the best system that had been devised in the United States. A study of four or five individual hospitals during the period from 1897 to 1908 showed that city appropriations had increased, but that this increase bore no definite relation to the private contributions. Taking the system as a whole, that was, hospitals receiving aid from the city during that period of time, private contributions increased from $460,000 to $835,000. City appropriations increased from $130,000 to $680,000. In another year the city appropriation will have passed in actual amount the receipts from private contributions. These results did not seem to show that they had yet found a system whereby city appropriations might be made to maintain any proper relation to private contributions. He thought the trend throughout the United States was in the direction of municipal control. Mr. Folks was not at all sure if they did succeed in controlling these appropriations—a most desirable result in itself—that they would have freed themselves from some of the conditions that existed in Pennsylvania and Maryland, that was, that there was no longer log-rolling in our legislatures because the appropriations were made by the municipalities. But this should not drive them to the conclusion that the public hospital was in politics and the private one was not. With the gradual application of civil service laws and a higher standard of public opinion, the public hospitals had left behind them the greater part of the burden of politics. The private hospitals through their participation in city grants were finding themselves more and more entangled in a more dangerous form of political and sub-political activity. Mr. Folks said that it was not yet clear that a uniform standard of efficiency had been attained by the hospitals receiving city aid. If they could have the cooperation of the private hospitals in developing an adequate system composed partly of private and partly of public hospitals they should by all means have such a system. It was intolerable that private hospitals hoping to enlarge their work should be found opposing the establishment of new public hospitals, and themselves not occupying the field. If these were to remain a part of the great hospital system to which they all looked forward, they must join with Dr. Goldwater and others in urging the adequate development of both private and public hospitals, so that, fitted together, they would make an adequate and comprehensive system.

Dr. Frederic R. Sturgis said he was very much interested in the question of public appropriations to private institutions; as a general proposition he did not think it was quite proper to appropriate the public money to private purposes. It was a bad principle. The proper function of the city and municipality was to attend to the public health of the community; first, in efforts at the prevention of disease, if possible, and, secondly, to aid those who were sick to get well. It had always been observed that when the amount of public money went up, the amount of money from private sources went down. In his opinion it would be wise to have the city divided up into districts; in each district there should be one emergency hospital, and this hospital should care for none except in that district. Then for every two or three districts there should be one general hospital. He wished to emphasize his belief that the appropriation of public funds should be cut away from the private moneys.

Dr. Frank Van Fleet said that on receiving the notice of the meeting the title of the papers had suggested two thoughts to him: First, that history was repeating itself, and, secondly, that long ago it seemed as if the last word had been said on this subject. He recalled the fact that ten or more years ago certain of his colleagues had appeared before the Board of Estimate and Apportionment asking for appropriations to certain hospitals and had been characterized by certain other colleagues as "well

dressed medical mendicants." That was long ago, and in the interval public appropriations to private charities had not been contested, and it seemed as if the last word had been spoken. Evidently he was mistaken. It did not seem to Dr. Van Fleet a valid argument to urge as an objection to an admirable system in New York the conditions existing in Maryland and in Pennsylvania; if any argument was to be raised on this score, it should be that these two States should come up to the standard New York had created. He did not think they were called upon to answer the question propounded by Mr. Folks, what would have happened if these private charities had never been created? They had been created and they existed, and the conditions confronting them was not a theory but a fact. There were many reasons why the public funds should be appropriated for private charities. The people wanted them, and that was a very good reason. There was a very large class in the community whose salaries had not kept pace with the increased cost of necessities, and these people required the help hospitals could give them, for often they had not the money to pay for such help. As Dr. Goldwater had said, people preferred to go to private charities, and because of the demands made on them, private charities needed public help. Then again the city saved money by appropriating public funds to private charities. If the city paid to a hospital one dollar a day toward the care of a patient, and it cost two dollars or more a day to care for such a patient, the city saved the difference, for the hospitals in New York City by careful management had reduced such cost to the minimum. Another important point which had not been brought out was that the City of New York was a great center not only financially and commercially, but medically as well. Medical men came from all points to New York to learn the latest and newest methods for treating disease, and it was a distinct saving to the people of New York to provide the facilities for up-to-date teaching. Time did not permit him to go into further detail, but Dr. Van Fleet said he was sure that with the opportunity to present the subject many convincing reasons could be advanced why the City of New York should continue to appropriate public funds to private benevolences.

Dr. Henry G. Piffard said there was no escape from the conditions that existed in regard to the appropriation of public money to private institutions, but it seemed to him that when money was contributed there should be a string attached to it, which was not the case to-day. In other words, the city government should be represented on the board of hospital trustees in an equitable manner in proportion to the amount contributed by the city.

Elements of Success in Surgery.—Cordier concludes an article on this subject with the following deductions: 1. The field of surgery is a vast one, and is best covered by the specialist in some of its departments, the eye and ear especially. 2. Surgery and medicine should go hand in hand in the treatment of border-line cases, but should be divorced in the strictly surgical or medical cases. 3. The selection of a surgeon for a given case should be made from no other standpoint than that of his recognized ability. 4. A surgical operation should be performed as quickly as possible, consistent with good and completed technique. 5. All unnecessary and rough handling of important tissues should be avoided. 6. Careful, short anesthesias will help to keep the death-rate low. 7. Careful hemostasis with proper ligature material is an important element in successful surgery. 8. Thorough aseptic technique should be carried out, and may be obtained either with or without rubber gloves and mask. 9. Lawn tennis suits and gloves are only too often the avenue leading to wound infection. 10. Short post-graduate courses instill false surgical confidence, and lead to many surgical disasters. 11. Honesty and sincerity should ever be the keynote in deciding as to the advisability of performing any surgical operation. 12. Mental tranquility of the patient is of much importance preceding the performance of some surgical operations.—*The Lancet-Clinic.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of March 12, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	878	166
Diphtheria	423	44
Measles	1,544	33
Scarlet Fever	686	30
Smallpox	—	—
Varicella	218	—
Typhoid Fever	28	6
Whooping Cough	37	2
Cerebrospinal Meningitis	1	9
Malarial Fever	—	—
Totals	3,815	290

A New Pathognomonic Diagnostic Sign in Neoplastic Stenosis of the Colon.—C. Minerbe and D. De Giacomi, in a case of lymphosarcoma of the colon and retroperitoneal glands, demonstrated that the colon was obstructed by inflating the intenstine with a bicycle pump attached to an intestinal tube. The strong impulse which was imparted to the air in the colon by the stroke of the piston caused expansive pulsation in the tumor, which could be felt by the hand placed on the abdomen. He considers this a pathognomonic sign of obstruction of the descending colon. After a series of experiments on the cadaver and the living body, he states that the following conditions must be present to give a successful test by this method; they are an intact sphincter ani, and the presence of stenosis of a certain degree due to degeneration of the intestine. The walls of the colon must be indurated by infiltration, and not the entire circumference of the intestine have been invaded, so as to render it inextensible. Unfavorable conditions occur with thick abdominal walls, deep situation of the colon, fullness with feces, and contraction of the abdominal walls. The same method applied to the stomach with an esophageal tube causes the stomach to stand out, so that its boundaries may be seen through the abdominal walls.—*La Riforma Medica.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 11, 1910:

		Cases.	Deaths
CHOLERA.			
India, Calcutta	Jan. 16–22	..	87
Rangoon	Jan. 16–22	..	1
YELLOW FEVER.			
Brazil, Manaos	Jan. 23–Feb. 5	..	9
Para	Feb. 6–12	6	4
PLAGUE			
Japan, Shikoku Island	Jan. 30–Feb. 5	1	..
Peru, Arequipa, department	Dec. 10–16	1	..
Callao, department—			
Callao	Jan. 17–25	3	..
Lambayeque, department	Dec. 10–16	10	3
Libertad, department	Dec. 10–16	7	..
Lima, department	Dec. 10–16	1	1
Russia, Astrakhan, government—			
Naourzali-Tchagil	Jan. 17–25	13	11
Turkey in Asia, Jiddah	Feb. 3	1	1
SMALLPOX.			
Algeria, Bona	Jan. 1–31	..	2
Austria, Galicia	Jan. 23–29	2	..
Silesia	Jan. 23–29	1	..
China, Canton	Jan. 2–15	15	..
Hankow	Jan. 16–22	..	Present.
Egypt, general	Jan. 15–21	72	22
Cairo	Feb. 5–11	2	..
France, Nantes	Jan. 1–31	1	..
Germany, general	Jan. 30–Feb. 12	6	..
Great Britain, Greenock	Feb. 6–12	1	..
London	Feb. 6–12	1	..
Greece, Athens	Feb. 6–12	..	1
India, Bombay	Jan. 26–Feb. 1	..	21
Calcutta	Jan. 16–22	..	1
Rangoon	Jan. 16–22	..	6
Italy, general	Feb. 6–13	12	..
Genoa	Feb. 1–15	1	..
Naples	Feb. 7–13	28	6
Mexico, Aguascalientes	Feb. 13–26	..	4
Guadalajara	Feb. 5–18	..	3
Mexico	Jan. 23–29	..	1
Portugal, Lisbon	Feb. 6–12	13	..
Russia, Libau	Feb. 6–13	1	..
Moscow	Jan. 31–Feb. 5	15	11
Riga	Feb. 6–12	2	..
St. Petersburg	Jan. 23–Feb. 16	85	32
Warsaw	Dec. 5–11	..	16
Spain, Barcelona	Feb. 8–14	..	5
Cadiz	Jan. 1–31	..	1
Seville	Jan. 1–31	..	7
Siberia, Vladivostok	Jan. 15–21	1	1
Turkey in Asia, Bagdad	Dec. 12–Jan. 1		Present.

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Original Articles.

ON THE SENSE OF CONTACT AND THE GENESIS OF PLEASURE AND PAIN.*

BY EDWARD BENNET BRONSON, M.D.,

NEW YORK.

IN a paper read before this Society some twenty years ago, entitled "The Sensation of Itching,"† I sought to trace the origin of this so-called sensation to a disturbance of the primal sense of contact. The theme led the writer incidentally to make some excursions into the domain of general sensibility. Now, with still greater temerity, he attempts to trace from the same point of departure the origin of that manifestation of the affective life known as the feeling of pleasure or pain. Though pleasure and pain are states of consciousness, diametrically opposed to each other, they are correlative states, and the solution of one would seem necessarily to imply that of the other. The problem has always been baffling, and perhaps this very character is the lure that impels one, like the moth, to approach the light at the risk of singed wings.

In the solution of any problem, the most natural course is to try to reduce it to its simplest terms. The different characters or qualities of any product, however familiar with them we may be, by observation, are best understood and appreciated by tracing them back to their first beginnings. Is this not also true of the characters and manifestations of that most complex of all products—the living sentient organism? It is not by observation of its varied functions, faculties, and feelings in their state of high development that we should gain the fullest understanding of any one of them, but by tracing the thing back from the more complex to the more simple forms, and as far as possible toward its primal state. Even the study of mind, long the exclusive province of the psychologist, is coming more and more into the purview of the physiologist and biologist. In pathology, too, biogeny plays an important part. The tendency in disease to reversion to simpler types is a point of no little moment in this study, and applies to mental and nervous affections, as well as to diseases of the body generally.

Because of the complexity, the infinite variety of human feelings, it is better at first to reverse the route above indicated, in this particular excursion, and begin at their common starting point, and thence follow out synthetically their subsequent divergences and relations. That starting point we find in the sense of contact, a sense that still exists, and is identical with that primal sense that in the early forms of animal life enabled the first organized communication with the external world. Previous to this, external stimuli could have affected only such molecular and formative changes as pertain to vegetative growth. With the first intimation to the animal of a difference between one kind of contact and another, the way was opened to all the sensations, and we approach the threshhold of objective consciousness.

Through prolonged exercise of this primal sense, there were gradually evolved the special sense organs, not only those pertaining to the sense of touch (more properly called the sense of pselaphesia), but also the organs of sight, hearing, taste, and smell, and to these was added the muscular sense. Combined and coordinated, these organs constitute the means of intercourse with the outside world, the primary and essential source of all knowledge. This development presupposes, of course, long periods of progress. First, there were the æons on æons when progress alone depended on haphazard adaptation and selection. After this, with the appearance of the vertebrates, "the centralization of the nervous system," and the birth of consciousness, through purposive adaptation, the progress was enormously accelerated.

An elemental factor throughout this progressive development has been the principle of attraction and repulsion. Concerned at first only with nutrition, as development advanced it has remained a potential governing factor in every vital process. Under its influence, agreeable or agreeing external contacts tended to increase of nutrition and increase of vital power, disagreeing contacts led to impaired nutrition and deterioration of power.

Again, every contact effects a certain material change in the organism, and this change is more or less lasting, depending on the amount of beneficial or injurious effect. Such change is augmented by each repetition of the same contact or conditions of environment, till, through repeated similar experiences, fixed by heredity, there is finally acquired a sensitiveness to particular impressions. This retention of impressions is the basis of unconscious or conscious recollection, habit, instinct, and, with the advent of intellect, memory. By a similar process, there develops in consciousness a sense of the agreeable and disagreeable, of order and disorder, of fitness and unfitness.

These constitute the chief controlling principles of all development, and, so far as finite mind can penetrate, the final causes of evolution. Natural selection, essential as it has been, is only an accessory. The product in the development of man is a vast complex of movements, organs, functions, feelings, and, finally, intellect, whose activities, coordinated, make the cosmos of the living sentient being; incoordinated, tend to deterioration, dissolution, death. Every phase of these activities should be reducible to one or to some combination of the

*Read before the Section on Neurology and Psychiatry of the New York Academy of Medicine, Feb. 14, 1910.

†MEDICAL RECORD, New York, Oct. 18, 1890; Selected Monographs on Dermatology, London; The New Sydenham Society, 1893, p. 299.

above controlling principles. Is not such a reduction possible with regard to pleasure and pain? No definition or explanation of them can be satisfying that gives no intimation of their true origin and descent.

The teleologists would explain the existence of pain and pleasure as an essential part of the divine scheme of reward and punishment. There is a suggestion of truth in this, inasmuch as the development of these feelings has, perhaps more than that of any others, furthered the purpose of self-preservation. The burnt child dreads the fire. Repeated experiences of harm resulting from certain acts or encounters, tend to the formation of habits and instincts that contribute to the safety of the individual and of the species. Whether pleasure or pain has exercised the greater control, is doubtful. Sometimes the dread of pain would seem a more potent influence for good than is the prospect of pleasure. Indeed, we have often been led to believe that there is more of saving grace in the threatened terrors of hell than in the promised beatitudes of heaven.

Some distinction should be made between the feeling of pleasure or pain considered abstractly and those mixed states of feeling we know as pleasureable or painful. The quale-theory, so well expounded by Mr. Marshall,* is unquestionably true, so far as it goes; but the theory would seem to concern itself rather with what are pleasureable or painful states—that is with mixed states of which pleasure or pain is a part—than with the abstract conditions that underlie the latter. To define "pleasure-pain" as merely a quality, would seem to present this most important sense as merely of ancillary significance. It may be associated with any of the sensations, as it is with many emotions. It is true that while in sensations, and also—though to a less extent—in emotions, the element of objectivity predominates, there is in pain and in pleasure invariably and essentially an element of subjectivity. In the purest states of pleasure and pain, consciousness of the external world is supplanted by self-consciousness—an agreeable self-consciousness or a disagreeable self-consciousness—though, as a fact, pure states of pleasure or pain rarely, if ever, exist. Almost always there remains some trace of objective sense, even when the object is something pertaining to the ego itself, as in somatic pains or in pain attending an acute, local inflammation.

Between the pain or painful feelings associated with mental states, and what is commonly known as physical pain, there is an apparent disparity, but if the rationale of their production can be shown in both cases to be identical, the discrepancy disappears. The difficulty has arisen from the method of considering pain and pleasure only as concomitants of certain states of mind or feeling. But whatever pleasure or pain may be, abstractly considered, in all their manifestations the essence is the same, whether we call the feelings they alloy pleasurable and painful or agreeable and disagreeable.

The simplest disagreeable feeling, the simplest of all conscious disturbances in the skin, is the sensation of itching. The most rational explanation of this disturbance is found in referring it to that embryonic and but slightly differentiated sense—the sense of contact. There is good reason to believe that at the earliest stages of sentient life, neither pleasure nor pain exists. They presuppose a certain grade of development, a certain complexity of the nervous structure, which the primordial sense of contact must have anticipated by long ages. First, the sense of contact would acquire through experience and instinct the ability to discriminate between contacts that were congenial or uncongenial, agreeable or disagreeable. The first sentient effect of contact is to call attention. If the nature of the alarm is not recognized, the result is apprehension, the analogue of fear (the simplest, and by many, designated as the most primitive of all emotions). In itching, however provoked, there is always the representation in consciousness (or subconsciousness, if you will) of a foreign body in contact with the surface. It is that sensation that experience through many stages of animal life has taught is often followed by a prick or a sting, or some other miniature attack, and the inclination to escape the threatened hurt has grown into an animal instinct. The natural response is to repel the intruder, which, in itching, usually means to scratch. If the itching is not relieved, there ensues a nervous commotion with more and more strained attention until such time as the surcharge of disordered energy is released—until the tense attention is relaxed. In the operation of the higher tactile sense (pselaphesia) the nervous excitation is transmuted into a clear perceptive act, and there is no disagreeable nervous tension, no engorgement. In the one case, there is coordination; in the other, incoordination; in one a conscious equable adjustment of impressions received at the surface to the higher sensory organs; in the other, failure to connect with these organs produces conscious disorder.

In almost every case, at the start at least, itching may be instantly relieved if a strong and clearly defined impression, a perceptive impression, is made on the affected part, such as by firm pressure, by scratching, or by substituting a distinct sensation of another kind. Sometimes the temperature sense will do it, as when we evoke the sensation of cold by applying menthol; or the sensation of heat produced by hot applications. It is not so much substitutive irritation that produces the effect as the substitution of one sensation (if we may call itching a sensation) for another which is capable of coordination with higher nervous centers. In the feeling of itching, there is a content of vagueness and uncertainty, such that the sensation is incapable of interpretation.

This state of baffled and fretted nerves closely corresponds to the fret of mind when confused and misdirected thoughts are baffled in their decisions and judgments, "and enterprises of great pith and moment, with this regard, their currents turn awry and lose the name of action." Neither worry nor fear (to which we have already compared the sense of itching) could be called actual pain, and yet they illustrate its origin. Fear is not pain so long as a conscious power of resistance remains. Abject fear, terror, and extreme cowardice are relatively states of positive pain, because with them goes the consciousness of lost power of resistance. In fear, as also in regret, in proportion as the consciousness of effective action declines, there supervenes more and more an affective condition that is a painful one. When eventually these become terror or profound grief, the effective action has broken down, and there remains only a suffering self-consciousness. When the collapse extends, as it may, to the affective fac-

*Pleasure, Pain and Sensation, by Henry Rutgers Marshall, The Philosophical Review, Vol. 1, No. 6, p. 625.

ulties as well, the result is loss of all sensibility, and at the same time cessation of functional activity; such as occurs in shock and syncope. In physical pain, the essential conditions are practically the same, but in this kind of pain no intellectual or emotional process, nor any highly specialized sense being involved, it is much simpler in character and more rapidly developed. In itching, though the sense involved (the sense of contact) is not highly specialized, it suffices to give to consciousness strong objective impressions or representations as long as it lasts. Physical pain may suddenly supercede it, but the two feelings cannot coexist. Physical pain tends to that state of anesthesia in which specialized sense is annulled.

All the specialized senses are subject to disturbances corresponding more or less closely to itching of the skin, when it is only the primitive phase of the sense that is concerned. The effect of a flashing, and especially of a flickering light on the eyes, is one instance; that of confused and perturbing noises on the ear is another—the effect on some people of the din of the city, or on others of the babble and chatter of the afternoon tea. All imply vexed and fruitless attention. There is intrusion on the sensory equilibrium that finds no coordinate action to counterbalance it; the energy is there, without the directing sense—a fire alarm that doesn't tell where the fire is.

These disturbances are all concerned with special senses in their simplest or embryonic phases. The reactions to which they give rise are essentially instinctive and closely allied to unconscious reflex action. Indeed, they often occur independently of consciousness, as when one scratches an itching spot in sleep. The instinct is always a repulsive one, whether attended by consciousness or not, but when consciousness is added, something other than the factor of repulsion comes into play. We are not only cognizant of the act of repelling, but with this goes a sense of more or less effective energy. The more effective the energy, the greater the feeling of satisfaction. In its nature this sense is identical with what in higher activities we call the joy of combat. We are all more or less susceptible to the enticements of conflict, with its chances of advantage and hope of gain. In one and the same process may be associated the painful stress incident to a struggle and the pleasurable consciousness of effective energy.

But there is another sense phase in the active processes connected with disturbances of feeling that corresponds with the moment of relief. As the strained attention is relaxed, as the surcharge of energy is released there succeeds often a pleasureable feeling that is not the same thing as the agreeable consciousness of effective energy, nor of effectual energy only. It is the consciousness of a changing process with a sense of another kind of energy which is a reflection of the primary action or activity in a different medium. It is not the discharge of energy, nor is it simply the restoration of equilibrium; that would be merely rest, an unconscious state. In simple disturbances that is often the only sequel of the sensory process, but in greater disturbances the discharge of energy is not simply dissolved but is transmitted into other forms of nervous activity, conformably to the law of conservation of energy. What then produces the agreeable consciousness that attends the cessation of strained attention? It is not merely relative; it is not simply a sense of contrast, a sense of ease following actual discomfort, or the apprehension of discomfort. This means content, inertia, apathy—simply neutral states which connote equally absence of pleasure and absence of pain.

It is more or less generally conceded that an essential condition precedent to either pleasure or pain is one of hypernormal activity, but what becomes of the excess or why its dissipation when the acme is reached, should be accompanied with either pain or pleasure, is a question presenting difficulties. It has been said that when the excess goes to replenishment there is pleasure; when, on the other hand, it tends to harm, to deterioration, pain results. But how a state of replenishment, or of deterioration can *per se* be a conscious state, is not clear. It may be granted that with the replenished organism there is a consciousness of well being, but the feeling exists only by comparison with some previous condition of discomfort. When the pangs of hunger have been appeased, there succeeds such a sense of contentment, of well being, but it is usually more or less a sluggish, torpid feeling. It is not the state to which we would apply the name of positive pleasure. Positive pleasure occurred at the period of relief—a sense of gratification that concerned not appreciably the organs needing replenishment, but engaged activities of sensation and movement of great complexity. Chiefly affecting the special senses of taste and smell, the overflow of energy finds its sympathetic echo throughout the entire sensorium. In the paper on itching above referred to, it was said that "the very act of scratching appears to evoke a condition of erethism, and excitement far in excess of the mere pruritic irritation. The delight of a child in having its back scratched on removing the clothing at night is chiefly due to awakened sensations quite independent of the feeling of itching, and which are distinctly voluptuous in character. Then the scabious Scotchman at the scratching post fervently ejaculates his 'God bless the Duke of Argyle'; it is not only the negative satisfaction of relief that he feels, but a sense of positive enjoyment; he is having the pleasures of a gratified sense."

That pleasure does not consist merely in a sense of relief, but rather in action atending the relief, is illustrated also in the simple act of sneezing. The desire to sneeze begins with an irritation of the Schneiderian membrane, with the inclination to dislodge an offending body. It corresponds to the itching of the common integument, as the act of blowing the nose corresponds to the act of scratching in pruritus. If blowing the nose does not relieve the irritation, there ensues a series of movements, partly voluntary, chiefly involuntary, the issue of which is that convulsive explosive effort, the sneeze. But if after the first preliminary movements the explosion fails to occur, even though the original irritation has disappeared, how common for the subject to exclaim: "Ah! I missed that," and with a tone of positive regret. A similar instance is where pleasurable feelings are excited in pruritus of the external auditory meatus, by introducing the tip of the finger and making rapid vibratory movements. There are many other instances of like character. That the conditions described are exactly paralleled in the orgasm of aphrodisiac sense, which represents the acme of physical pleasure, is sufficiently obvious, without more particular comment.

One of the commonest manifestations of pleasure is laughter. In this, there are conjoined activities of mind with others of a lower rank. First, there is evoked in the mind, usually after a certain more or less prolonged fixity of attention, a concept, that, owing to its absurd or unexpected character, finds no ready solvent for the awakened interest and energy in its appeal to reason; the capacity to receive it is not there, and the result is an overflow into lower channels of physical action. For relief, as in the case of itching, there is involuntary recourse to muscular action, with more or less convulsive, sometimes rhythmical movements, of the facial, respiratory, and vocal muscles, and sometimes, in the transports of hilarity, extending over the entire organism including even the organs of secretion. The incitements to laughter are most irresistible when the mind is taken most unawares. But the personal equation plays an important part. To one, a witticism will evoke only a smile, because it directly evokes a train of coordinate ideas that afford adequate capacity for any excess and overflow of mental energy; to another, who is able merely to grasp the absurdity, no such outlet presents itself, and a burst of laughter is the only recourse. Yet though the simple minded laugh easiest, it is by no means merely a question of mentality. It is rather a question of individual organization. Some organisms by nature seem specially attuned to sensations of pleasure; their nerves vibrate and thrill in response to agreeable stimuli, in sympathetic chords, like the overtones of music; for them is

> ".....the goddess fair and free
> "In heaven yclept Euphrosyne,
> "And by men heart-easing mirth."

Some take their pleasures more seriously and such need be neither hypochondriac nor bilious. To them Milton's

> ".....goddess fair and holy
> ".....divinest Melancholy"

is "the Cherub Contemplation."—But however we take our pleasures, whatever be their sources, and whatever their manifestations, their rationale remains the same—the release of surplus energy in coordinate and coordinated activities.

The effect of personal equation is seen also in the fact that the same stimuli that cause one confusion, distress, and pain, such as the *sturm und drang* of town life, the passing with sound and fury of a fire engine, an express train rushing by, may to another give only a stimulating and sympathetic impression of coefficient energy. The grandeur of a tempest, that to one strikes only terror, to another is rather an "ennobling stir" in which he feels himself "exalted." To him it is a grand fortissimo of nature's harmonics, and it affects in him a sympathetic emotion not unlike that produced by the fortissimo of an orchestra.

The personal affect produced by music varies greatly according to the individual's susceptibilities. Every one has a sense for rhythm, whether in the flowing measures of verse, or of prose, of the dance, or of music—and even for certain rhythmic motions of inanimate nature.

The pleasures of music are both emotional and intellectual. While the latter are reserved for the connoisseur, including as they do the more abstruse matters of form, balance, theme, counterpoint, orchestration, and the like; the capacity for emotional response is more universal. Though "the man who hath no music in himself" is a rare anomaly, in many the coordinate affect is too slight to control sustained attention. The effort of attention becomes simply a derangement and disturbance of sense, for which the relief usually sought is to do something or to say something, unconscious of the disarrangement of senses in the rapt listener near by, on whom it acts like those particular interferences or "beats" in musical notes, whose effect is always dissonant and disturbing. To some, it is the so-called "program" character that chiefly appeals; but usually it is not so much that it presents to imagination any particular things, as that it arouses particular emotions. To enjoy this, it is necessary to be in a state of sympathy. In the contemplation of any work of art, if we are conscious of an idealized intention expressed in truthful form, even though the emotion or the ideas aroused in the listener or observer may differ from what the artist had in mind, the response is a coordinated one, and provides a sufficient capacity for the attention evoked, and the effect is pleasurable.

With regard to the pleasures or pains of memory, the same principles obtain as in other feelings, but here may be noted a marked difference between pains or pleasures that are intellectual and those that are purely sensuous. We can recall in memory a pleasurable or a painful experience, but we can only recall the fact of a physical process. A sensation once felt cannot be repeated in consciousness without the physical conditions that originally produced it. In hysteria or melancholia, or in allied conditions, there may, by autosuggestion, be imaginary physical pleasures or pains, but they form no part of normal sensibility. In grief, all the circumstances attending the loss may be repeated in consciousness through memory, together with the affections that were blighted, and again, as originally, they vainly seek an outflow; their object is irretrievably gone, and no capacity of mind or feeling is capable of receiving them. All the reawakened energies of the original attachment are there, but without the accustomed outlet they rebound on the disturbed sensorium, like waves dashed on a barren and rocky shore.

Mathematically stated, pleasure and pain might be termed the coefficients of effective and of ineffective energy. But they are also conscious states; either it is conscious adaptation or conscious ineptitude. For they are always more or less egotistic states. In their higher manifestations there is increasing detachment of the ego from the non-ego; the sense of effect is supplanted by a sense of affect; it is either self-consciousness elated or self-consciousness abased. In the highest of these states self-consciousness becomes supreme. In the extremity of pain the struggle for existence ceases to be an object and gives place to an agony of despair. At the supreme heights of pleasure all objective sense is merged in a sense of transcendent capacity. It is the supreme exaltation of self. In the ecstasy of adoration the subject sits with his god.

To whatever heights these senses ascend, or whatever depths they sound, as in every manifestation of sensibility of which man is capable, it all harks back through the mazes of evolution to one common and simple progenitor—the sense of contact, and to efficient causes that lie in the elemental laws governing the universe.

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THE DIAGNOSIS AND TREATMENT OF INTESTINAL PROTEIN INDIGESTION.

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Dyspeptics may be divided into those who have gastric and those who have intestinal dyspepsia. The latter group includes those who are unable to digest proteins and those whose metabolism of carbohydrates or fats is imperfect. Protein intestinal indigestion, however, is so common that autointoxication, intestinal intoxication, intestinal dyspepsia, and similar terms are generally understood to refer to it alone. Proteins in the diet not only have the disadvantage of producing more waste material than the carbohydrates, but also are peculiar in that they undergo, if not promptly and perfectly digested, a true putrefaction in the intestinal canal. The products of this putrefaction are numerous and of varying toxicity, but apparently the most important, and clinically the most easily recognized, are those connected with the aromatic group in the protein molecule; their common substance of origin is tryptophan.

Since Tiedemann and Gmelin, in 1831,[1] first showed that tryptophan is one of the substances split off from the protein molecule in the process of digestion, the further studies of Nencki,[2] Ellinger and Gentzen, [3] Hopkins and Cole,[4] and others have established its importance as a precursor of indol and of urinary indican, and, for the practical physician, the recognition in the urine of indican and similar derivatives of protein decomposition will help to make clear the underlying fault in many a puzzling case of deranged metabolism. Urinary indican, or indoxyl-potassium sulphate, and the accompanying skatoxyl-potassium sulphate, which usually exceeds it in quantity, may be interpreted as themselves the cause of the clinical symptoms or as merely the indications of deeper causes. They take their origin in the protein molecule of animal protein in the diet, but vegetable protein may, and the body's own intrinsic proteins in some cases certainly do, furnish them in pathological conditions; and it is noteworthy that proteins which are poor in aromatic radicles are but little subject to putrefaction in the intestines and do not furnish these products to the urine. Part of the indol, or benzopyrrol, formed in the gut remains in the feces, while part is carried to the liver in the blood of the portal vein, and in that organ it is combined with oxygen to form indoxyl, which then unites with potassium sulphate to form indoxyl-potassium sulphate, the "indican" excreted by the kidneys. The skatol goes through a similar absorption, oxidation, and excretion, a part remaining in the feces. The other end-products, phenol, volatile fatty acids, gases, etc., are passed with the feces; hence the indican and indolacetic acid voided with the urine have a valuable significance and should be tested for in every examination. If this is not done a threatening toxemia may not be averted, or, if already existing, it may be overlooked.

The clinical expressions which may be due to protein indigestion are manifold, and it may safely be claimed that any of the great systems of the body may be deranged from such faulty metabolism, this feature being common to all, that for a time, often for a very long time, the trouble is functional, but at any time structural changes may be added. Generally the illness is of mild type and of annoying character, but the symptoms may be sudden and severe, as in Taylor's case[5] of heart block due to intestinal toxemia. In this case there was a radial pulse of 28, a pulse in the jugulars of 96-98, with urine of high specific gravity (1,033) with much indican; the entire group of symptoms yielded to treatment of the intestinal condition. The author cites a similar case of Babcock's.

Patients with protein enterotoxemia are frequently treated for long periods for anemia, headache, neurasthenia, disease of the skin, the liver, or the kidneys, or for "dyspepsia" of undefined type, with but transient if any relief, and frequently drift from one physician to another in habitual invalidism. Almost without exception they are self medicators, repeatedly prescribing cathartics and other drugs for themselves, for experience has shown them that a brisk purge gives relief for a day or two. A patient may be apparently in good condition, with no marked loss of weight, or pallor, and may have a fair appetite; or there may be severe anemia, marked decrease in weight, headache, lassitude, mental weariness, insomnia, melancholy, constipation, scanty urine, and albuminuria. As a rule, the history covers periods of months or even years, and often includes an unwise use of proteins in the diet. Patients are frequently encountered who eat meat three times a day, often with cheese, eggs, leguminous vegetables, and milk at the same meal, or, on the other hand, there may be a history of but little protein excess in the diet; and this would mislead us unless we realize that the underlying condition is not so much due to the number of grams of meat ingested as the inability to digest any; in such a state a few grams of protein may be enough to form poisons that will cause severe symptoms. Here it is well to remember that the dosage of these poisons may be infinitesimal, but potent because of constant repetition. Herter[6] caused indolaceturia in two persons, who had not suffered from it before, by increasing the meat in their diet.

Protein toxemia may manifest itself chiefly as anemia. Grawitz[7] recognized the close relationship of pernicious anemia and autogenous poisons. To this view Ziegler apparently subscribes,[8] and undoubtedly many of the chloro-anemias of young girls have this origin. In other cases the nervous system suffers most; but few cases are entirely free from nervous symptoms; and while in one case there may be only headaches and ill-defined fears, in others there is profound neurasthenia, or such melancholy and self-distrust that business is impossible, too often the patient going on to actual mental disease. In each type, until the intestinal condition is recognized and treated, nothing can be done for the nervous disorders. Durand[9] describes a case of tetany from such autointoxication, and the psychic phenomena are well given by de Vries.[10]

The relations between diseases of the eyes and intestinal toxemia are presented by de Schweinitz and Fife,[11] and in the discussion on their paper.

Cases of protein enterotoxemia are more common among adults, but they may also be found among infants. Longo's studies[12] on protein metabolism among infants showed that the toxicity of the urine is least on vegetable diet, but it increases on milk diet, is higher with meat, and highest with eggs, while the evidences of intestinal putrefaction increase in the same order. Herter[13] points out that imperfect development of the skeleton and similar metabolic faults may be closely related to the intestinal flora in infants.

As to the confusion between these cases and nephritis, it should be remembered with Neumann[14] that not every albuminuria indicates a true nephritis, for albumin and casts may be merely the record of renal irritation from elimination of toxic material formed in the intestines, which disappear on proper diet and treatment; yet it is equally important to recognize that long continued excretion of such toxic material will produce structural kidney lesions which may never go through the stage of acute nephritis.

In still other cases the main expression of the disease is some form of cutaneous eruption, as was observed lately by one of us (A. E. T.) in a case of universal pustular dermatitis herpetiformis, which had gone the rounds without relief until thorough examination of the blood, feces, and urine revealed the nature of the trouble. Many eczemas, etc., apparently due to external irritation, rest upon such underlying conditions, and are worse after every slight error in diet. As to the cases called dyspepsia, they are without number, and their true nature is not always recognized because every method for the examination of blood, feces, urine, and stomach contents is not exhausted, and hence, their treatment not being rational, improvement is but temporary if secured at all.

It is very important to observe that this condition of protein enterotoxemia is almost without exception secondary to some other condition. Its protean clinical expression shows that it is a clinical entity only in the sense that it persists for years, the site of absorption is in the intestine, and the patients may be separated into certain groups which have the causation in common. Some cases occur in diabetics who are on an exclusively protein diet, others in phthisical patients on forced feeding, but such cases are not considered here. Anders[15] separates cases which are primary and those which are secondary, but, in a strict sense, practically all cases are secondary, due to causes situated higher up. From imperfect mastication, insalivation, and gastric digestion, the food may leave the stomach all ready to putrefy, and the composition of the food may be of importance here, Tobler having shown[16] that a large amount of fat in milk delays its expulsion from the stomach, while addition of carbohydrates seems to hasten it. Zuelzer[17] has isolated a hormon from the stomach walls which caused increased peristalsis when injected intravenously. If we may assume that the presence of this is essential, and its absence causes food to stay too long in the intestine, some of the simpler cases may be explained as due to anomalous gastric function. Similar delay in the movement of the intestinal contents occurs with gastroptosis and enteroptosis, others appear to be reflex from chronic appendicitis and similar conditions. Some degree of ptosis of the transverse colon is very common, and this may be sufficient to produce slow peristalsis and absorption of the indol and skatol which are always present. In such mechanical conditions the element of the time required for the intestinal contents to traverse the length of the canal is very important.

In many cases the original fault is in the pancreatic function, and this may be recognized by the methods of Cammidge,[18] Schmidt,[19] the plate method of Schlecht,[20] and others. Probably pancreatic faults are among the most common, but with these or alone the liver's functions may also be deranged. Rodella[21] has recently shown that where too little bile enters the intestine there is a great increase in the Gram-positive bacteria there.

Frequently beside the overeating and imperfect digestion of proteins, there is abnormal innervation, which may follow the longer arc and cause headache, etc., or follow shorter arcs and derange the abdominal viscera in their digestive, internal secretory and blood forming functions, so that a double vicious circle is possible, and a similar explanation suggests itself for some postoperative temperatures.

Since these features are more or less distinct in nearly every case of the disease, it follows that, if the tedious and trying conditions are to be relieved, not merely the evidences of putrefaction are to be sought in the urine, but also the underlying and original cause must be found, and this implies exhausting the methods of examination of blood, urine, feces, and stomach contents, as well as a careful physical examination. Such patients are well accustomed to having the doctor glance at them and write a prescription, and usually welcome the explanation that thorough examinations of everything examinable are first necessary before either diagnosis or treatment can be considered.

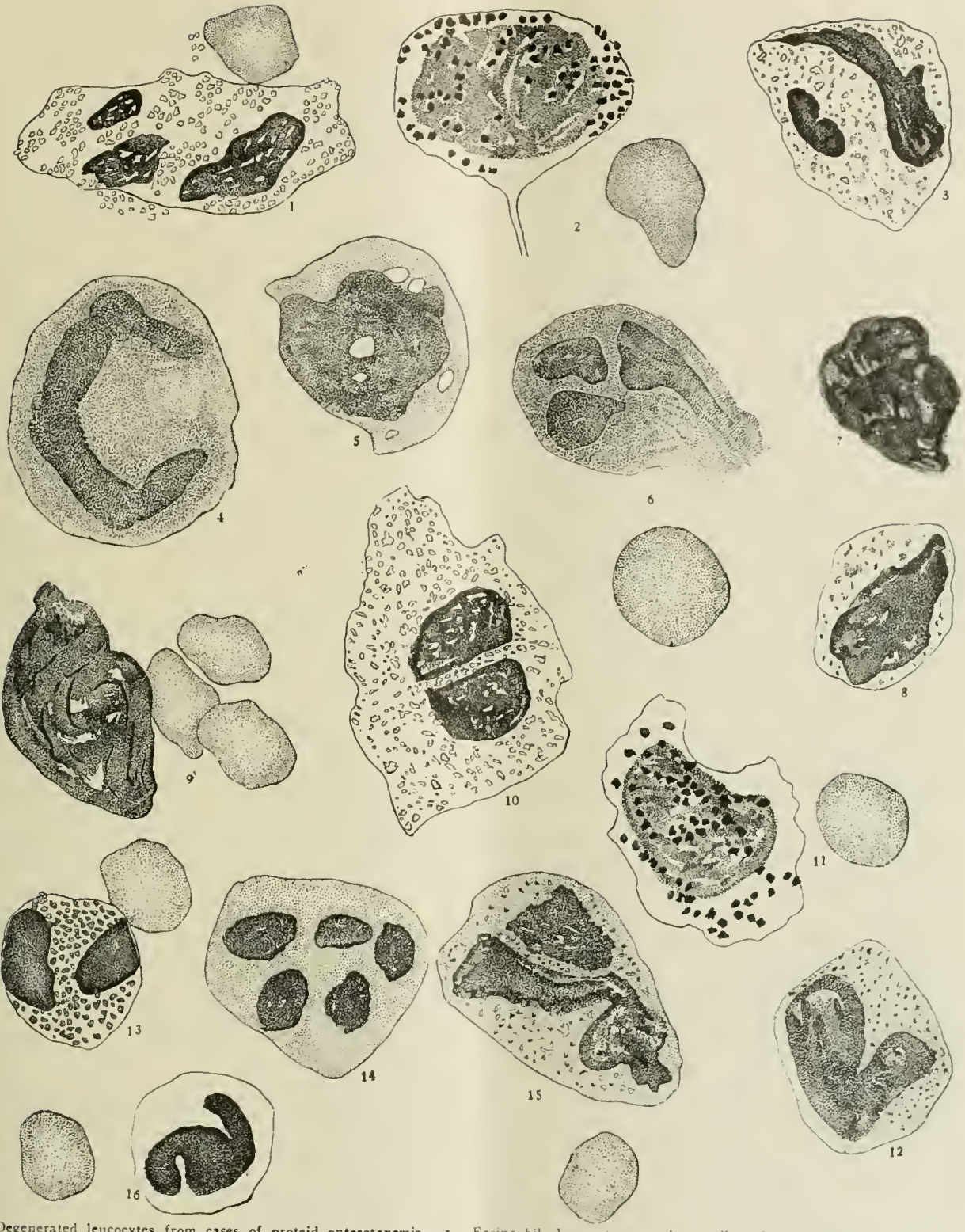
In describing the diagnostic methods no attempt will be made to exhaust the subject, but only those will be mentioned which any practitioner can carry out, and which have proved of value in our hands; others may be found in laboratory guides and recent periodical literature.

Urine. Besides the usual tests there are two of especial importance, namely, those for indican and for indolacetic acid. Indol is formed from the tryptophan which is early split off in digestion from the aromatic radicles of the protein molecules, and is oxidized and combined with potassium sulphate in the liver. The process may be expressed as follows:

$$C_6H_4\begin{matrix}\diagup CH \\ \diagdown NH\end{matrix}\!\!\diagup CH + O = C_6H_4\begin{matrix}\diagup COH \\ \diagdown NH\end{matrix}\!\!\diagup CH$$

and this, plus K_2SO_4, equals $C_6H_4.NH.CHKSO_4$, which is the ethereal sulphate called indican. In the urine it may be recognized by several tests. (a) Obermeyer's reagent consists of hydrochloric acid (sp. gr. 1.2) with 0.3 per cent. of ferric chloride: from 2 to 5 c.c. of this with an equal amount of urine and 2 c.c. of chloroform, are well shaken together in a test tube and allowed to stand, the chloroform settles out as a blue bottom layer; if ether is used it goes to the top as a blue layer, but it is liable to evaporate. This test has the advantage of affecting nothing but the indican and of removing most of it, but repeated shakings may be needed. (b) Hydrochloric acid with a trace of potassium chlorate gives a blue reaction. (c) Five c.c. urine with 3 c.c. saturated sodium perborate and 2 c.c. chloroform gives a blue color on shaking. (d) The permanganate test given by Porter[22] has not proved so good as the others in our experience. (e) The test for indolacetic acid will often show indican as well. Before testing for indican it is well to remove pigments and phosphates by adding to the urine one-fifth volume of 20 per cent. lead acetate and filtering.

The presence of indican in the urine is never normal, for it points to the putrefaction of protein material, either in exudates or necrotic parts of the tissues or in the alimentary canal; it usually stands in reciprocal relation to the indolacetic acid, and either may be abundantly present while the



Degenerated leucocytes from cases of proteid enterotoxemia. 1.—Eosinophile leucocyte, granules small, gathered in groups, some escaping, nuclei retiform and fragmented. 10.—Eosinophile, granules small, cytoplasm hydropic, nuclei dense and retiform. 13.—Eosinophile, of normal size, but granules deeply basophile. 2, 11.—Mast cells, one with projecting pseudopod, few scattered granules, nuclei swollen and pale with coarse retiform structure. 3.—Polynuclear, granules partly acidophile, nuclei dense. 15.—Polynuclear, hydropic, some granules acidophile, nuclei pale and hydropic. 4.—Polynuclear, hydropic cytoplasm without granules, deeply tinged by chromatin dissolved out of nucleus. 5, 6.—Polynuclears in the same condition with well-marked vacuoles in both cytoplasm and nuclei in 5, while in 6 the softened cell, deeply tinged with dissolved chromatin from its own nucleus, has evidently burst on spreading. 14.—Polynuclear, hydropic, tinged by karyolysis, nuclei pale and fragmented. 16.—Polynuclear, free from granules, pyknotic nucleus. 8, 12.—Large lymphocytes, swollen, cytoplasm granular with basophilic dots, nucleus deficient in chromatin. 7.—Free nucleus of large lymphocyte. 9.—Free and hydropic nucleus of large lymphocyte, the intranuclear torsion, as of an arrested spasm of the karyoplasm, well shown. Normal red cells drawn on the same scale for comparison. Drawn with 1/12 oil immersion, 3 eyepiece, Abbe camera, A.E.T.

other is reduced to a mere trace. One of us has a case of severe chronic neuritis, paroxysmal as these cases usually are, in which the indolacetic acid alone is found. Herter (loc. cit.) suggests that as indolacetic acid is not paired, like indol, phenol, and skatol, it may act directly on the nerves.

Indolacetic acid also is derived from tryptophan and all obstacles to the intestinal flow favor its formation and absorption. In its formation probably the *Bac. coli communis* and *Bac. bifidus* are concerned. It was described in 1882 by Nencki[23] under the name of urorosein. It may be detected in the urine by adding a few drops of 0.1-0.2 per cent. potassium nitrite solution and hydrochloric

acid (sp. gr. 1.2), the urine floated upon this shows a ring at the line of meeting which is pink, rosy red, or deep red. As Herter has shown[24] in his able paper on indolaceturia, some urines give the reaction upon the simple addition of hydrochloric acid, because nitrates are already present in them or form on standing, hence, when the test fails, nitrites must be added before indolacetic acid is assumed to be absent. With 1 per cent. calcium chloride solution instead of the nitrite the color is purple instead of red. When the urine contains much indican, this must be removed by filtering it, shaking with lead acetate, and employing the Obermeyer test. The urine above the chloroform may be removed by pipette and may then give a distinct indolacetic acid reaction. Another test for this substance is the addition of one drop of nitric acid to 2 c.c. of hydrochloric acid, floating the urine carefully on this as before. This urorosein reaction, for so long a mere curiosity, is shown to be of great importance clinically and should always be tested for.

It is convenient to note at least three grades of reactions for indican, slight, moderate, and strong, and this is sufficient for clinical needs, but a more elaborate indican scale has been devised by Folin. Brunon and Guerber[25] suggested a year ago that the proportion between the ethereal sulphates and the total nitrogen of the urine is an indication of the degree of putrefaction in the alimentary canal. Calling the sulphates A and the nitrogen N, the quotient $\frac{A}{N}$ which is usually 1.0 or 1.4, may rise to 3.0 with much protein putrefaction, or, in very severe cases, as high as 6.0 and 7.0, decreasing as the case improves.

By Cammidge's test[18] the urine gives an indication of the condition of the pancreas, based upon the occurrence of glycerin in the urine with destructive lesions of that organ; on heating with nitric acid or hydrochloric acid, glycurone is formed, which precipitates with phenylhydrazin as crystalline rosettes. The integrity of the hepatic functions may be studied in the urine by giving the patient 100 grams of levulose and then testing for glycosuria; if none is found, hepatic function in this respect, and presumably in others as well, is considered normal, but in the aged we may have glycosuria without actual liver disease.

Some of these cases have serum albumin in the urine, as a result of local irritation in the excreting organ. Others may show the presence of nucleoalbumin, which is easily recognized by the following test (Thayer's): Onto 5 c.c. of filtered urine 1 c.c. of 10 per cent. trichloracetic acid in absolute alcohol is floated; a pronounced white ring is formed at the line of contact, which the addition of glacial acetic acid dissolves. The source of this nucleoalbumin may be leucocytes from either the kidney, the bladder, or the vagina, especially when there is some complication like prostatitis or vaginitis, but in many cases the reaction is obtained when the microscope discovers few or no leucocytes after centrifuging. The exact significance of the test is not yet determined, but perhaps there is an increased discharge of mucin from the urinary channels similar to the catarrhal condition of the alimentary tract.

Blood. Smears are made in the usual manner and stained with Wright's stain, but frequently it is well to reinforce this with hematein for about three minutes, after washing off the former solution, following it by a dash of eosin, examining the dried preparation by the twelfth immersion lens. Very often there is but little decrease in the hemoglobin and but little variation in the distribution of it or in the size of the red cells, though with severe cases poikilocytes are very frequent. The pathological changes appear to affect leucocytes chiefly, and often but one variety of these, or one more than any other. In making a differential leucocyte count, few departures from the normal percentages may be observed, or the lymphocytes may be in excess with a high eosinophile count. Tanaka[26] notes an increase in the lymphocytes and the plates in neurasthenia in Japan and ascribes it to vasomotor influences. Rous[27] observed that the largest proportion of lymphocytes reach the blood stream by way of the thoracic duct, hence it is not surprising that irritation in the territory of its origin should raise the proportion of lymphocytes, and also cause degenerations of some of them before they reach the blood, and since eosinophilic leucocytes are normally present in the walls of the alimentary tract in great numbers, they may find their way to the blood along the same path.

Degeneration of the leucocytes in the flowing blood is only to a slight extent an expression of the old age of individual cells, their graveyard is elsewhere. When many leucocytes are degenerated it is safe to assume the presence of some toxic agent though it is not clear whether it acted before or after reaching the blood stream. Cadaverin, putrescein, and other toxic substances were found in the blood of pernicious anemia by Hunter,[28] and it may be these poisons or the ethereal sulphates circulating with the blood, which destroy the leucocytes. This is extremely difficult to prove, but the origin of such toxic agents is almost without doubt in the food passing through the alimentary canal, as is shown by their increase upon adding meat to the diet and their decrease on withholding it or supplying proteolytic ferments, with an accompanying change in the per cent. of degenerated leucocytes. The resistance of the cell and the intensity and duration of the toxic influence, doubtless control the number and kinds of leucocytes which degenerate; commonly the large lymphocytes and the polynuclears are the most affected, and it may be fair to assume that they are most sensitive to such destructive substances. Arneth claims that with infection the older polynuclears are destroyed first, which leads to a relative increase of younger forms, namely those with one nucleus, variously lobed. When abnormal cells occur, as myelocytes, they also may show degenerative changes. Hence in making a differential count, a separate notation of degenerated white cells and their kind should always be made, and later records compared with this will show whether improvement is taking place. Botkin's experiments[29] showed that different leucocytes vary in their resistance to noxious influences, and the same thing is shown clinically in cases of protein enterotoxemia, a rough scale of the frequence with which the cells degenerate being polynuclears, large lymphocytes, mast cells, and eosinophiles, and, most resistant, small lymphocytes. This tends to throw doubt upon the recent claim of Lefas[30] that the baso, ampho, neutro, and acidophile leucocytes are four stages of one and the same granulation, the acidophile being the oldest, for in that case there would not in all probability be such a variation in the resistance of these cells.

The degenerative changes, apparently, do not differ in kind from those observed in acute diseases and the essential anemias. They affect both the cytoplasm and the nucleus, usually both at the same time, but not necessarily to the same degree, the nucleus being more resistant. Affecting the cytoplasm, we find swelling by imbibition of fluid, up to complete solution or bursting, loss of granules as observed by Arneth and others, changes in the staining affinities of the granules so that some or all of those in a polynuclear cell may be red and those in an eosinophile may be blue, formation of vacuoles and pseudopods, separation of parts of the cytoplasm, and complete loss of it, as is common in the large lymphocytes. The nucleus may be pyknotic or hydropic, some of the larger look as if the karyoplasm were twisted and torn apart in places, arrested in an intranuclear convulsion, and in others this apparently has led to fragmentation of the nucleus, in some there are distinct vacuoles, in others the nucleus is a coarse net work. Frequently the fluid imbibed has dissolved the chromatin out of the nucleus and stained the cytoplasm, which is usually darker close to the nucleus and lighter farther out. Other nuclei, mostly of large lymphocytes, are naked, and may be of very irregular contour, budded and basket like. Some of the injuries noted are due to mechanical pressure while spreading the softened and swollen cells.

Digestion normally has some effect upon the blood, the outpour of the digestive fluids, about 1800 c.c. in all, tending to increase the proportion of cells and slightly raise the specific gravity, though a diet rich in fluids may have the opposite effect. Purging, either from medicine or disease, has a marked effect, causing relative increase of both reds and whites, greater specific gravity, and probably increased viscosity, and these effects are probably all more marked in the blood of the portal system than in the peripheral blood; this gives the liver an abnormal blood to work with and tends to produce thickened viscous bile. Since patients of this class habitually abuse salines we should consider whether we desire such effects and caution the patients accordingly.

While there is nothing pathognomonic about the blood, yet thorough examination should not be neglected, for certain characteristics, taken together with those of the urine and the feces, are found so commonly that they serve both to confirm the diagnosis and to measure the progress of the case; these include hemoglobin but little diminished, comparatively minor changes in the reds, at times poikilocytes, very seldom myelocytes or nucleated red cells, and with this uncharacteristic picture a notable proportion of degenerated white cells, often with increase of both mast cells and eosinophiles. These findings separate the blood picture from that of any essential anemia as well as from conditions where leucocytosis is an important feature. As improvement occurs the proportion of degenerated cells falls and the hemoglobin increases.

Feces. Both chemical and microscopic examination of the feces should be made, at least once, when the case is first seen. A specimen record of an actual case may serve to show the range of such an examination.

Miss B. Examination of feces, June 20, 1909; consistence, soft, reddish, gaseous, subacid; fat, present as such; protein, present by nitric acid, Esbach's test, and the ferrocyanide test; carbohydrates, sugar, starch, and erythrodextrin absent; occult blood, absent; lactic acid, absent; bile derivatives, much pigment present, some stercobilin; indolacetic acid, marked reaction; microscopic, much undigested muscle fiber, its nuclei lacking, oxalate of lime, few white cells, no reds, no fatty acid crystals, no parasites or eggs.

Such an examination is enough to confirm the diagnosis, explain the conditions, and serve as a basis for treatment. But there are other examinations of the feces which have for their purpose the recognition of the functional activities of the great glands and a few of these may be mentioned.

When protein is found in the feces, the question is still unanswered whether this is derived from the food or from the patient's blood by exudation, transudation, or actual hemorrhage. In the latter case the search for occult blood, and microscopic recognition of red cells, with other evidences of inflammation, such as pus cells and desquamated epithelia, and the presence of corresponding symptoms, will help to clear up the condition. Tsuchiya[31] has lately given a method of testing for certain proteins in the feces, after the latter have been freed from hydrobilirubin and nucleoprotein, as follows: 5 gms. of feces is rubbed up with water till thin, and the reaction is tested; 10 c.c. of this is rubbed up with enough 10 per cent. acetic acid, in a mortar, till strongly acid; then 5 c.c. chloroform are added and the mixture again rubbed up in the mortar; the entire amount is poured into a precipitating glass and allowed to settle, after which the upper portion, slightly turbid and yellowish, is removed by a pipette, and a disc of agar, which has been soaked in copper sulphate solution and dried, is put in it for an hour; the disk is then removed, placed on a white porcelain dish, and caustic soda or potash solution added; if there has been dissolved protein in the feces a distinct biuret reaction takes place.

The author never found this biuret reaction in normal feces, only once in 23 cases of intestinal dyspepsia, but regularly in all cases of diarrhea from intestinal disease and after purges which irritate the intestinal wall (calomel). With this simple method, if experience proves it reliable, an inflammatory factor may be recognized or excluded.

Schlecht[32] proposes a method for the recognition of trypsin in the feces which has the merit of gauging the digestive power of the ferment, and, incidentally, the functional activity of the pancreas. The patient's colon is cleansed by enema, with or without glycerin, a test meal of 150 grams of meat with the same amount of potato is eaten, after an hour a brisk cathartic is taken (calomel 0.2), which produces a thin stool in two or three hours. A portion of this is made alkaline and rubbed up in a mortar, and dilutions made with 10 per cent. glycerin water in the proportion of 1 : 2, 1 : 3, 1 : 5, and so on as high as it is desired to carry it; each dilution, after stirring, is used for planting on a serum plate, made with beef serum and dextrin broth. One plate may be used for all the dilutions of a single case by dividing the plate into sectors. The plate is kept for 24 hours at 37° C. and then examined for evidences of digestion, as little funnel shaped depressions where the trypsin has acted; the dilution at which these fail to appear gives the measure of pancreatic function. Where there is no disease of the pancreas there is usually a distinct dimpling of the plate with a dilution of 1 : 200. This test, in conjunction with Cammidge's test in the urine and the microscopic findings in the feces, will show the integrity of the pancreas.

The function of the pancreas may be tested by sewing a small piece of fresh beef in a circular piece of gauze and giving this with the food; when recovered from the feces only fibrous tissue should remain; if striated muscle fibers are still present and the fibrous tissue is but little affected the gastric function is imperfect, but if the nuclei are present in the muscle fiber the pancreas is at fault; if the muscle fibers are not stained with bile there is probably a deficiency of this fluid.

Loss of amylolytic power in the stomach may be tested by an Ewald breakfast, removed after an hour and a half, and this is important for many cases of protein enterotoxemia are primary in the stomach, progressing to loss of weight, constipation, and intestinal catarrh in consequence of the gastric insufficiency, and conditions are thus provided for protein putrefaction in addition. By giving dry meals and insisting upon thorough mastication the stomach condition can be improved to the benefit of the intestinal[33].

Histories. The following brief histories are fairly typical and are given more to show the condition of the blood, etc., at the time of beginning treatment than because they are unusual:

Case I.—Mrs. W., 45, married, has a history of chronic headaches and nervousness, voluntary emesis after meals from the fear that she might feel distress in the stomach, loss of appetite and weight. Her present weight is 115 pounds, has visited many springs and sanatoria, is continually reading popular medical works and treating her own case, is full of fears and almost desperate. The blood examination shows:

Polynuclears	161	61.92 per cent.
Large lymphocytes	37	14.23 " "
Small lymphocytes	36	13.48 " "
Hyaline	21	8.08 " "
Eosinophiles	3	.12 " "
Mast cells	2	.08 " "

Degenerated whites, 10.30 per cent.; no poikilocytes, very little variation in the size of the reds, no nucleated red cells are seen. The distribution of hemoglobin is very irregular.

The feces are extremely foul, small, hard lumps mixed with mucus, and semi-fluid material; proteins are present chemically and microscopically; starches and sugars are entirely digested; the fats are well digested.

The total urine for 24 hours is 1550 c.c. It is pale yellow, turbid, acid; there is no sediment. The specific gravity is 1.007. No albumin is found; bile pigment is in excess; indican in marked excess, plus 3, indolacetic acid moderate; the total solids are 16.31 grams to the liter; urea, 3.5 grams; uric acid, 0.22 grams; chlorides, 6.00 grams; earthy phosphates, 2.00 grams; alkaline phosphates, 3.00 grams; sulphates, 2.00 grams; these equal for daily total of 1550 c.c.; total solids, 25.2; urea, 5.4; uric acid, 0.3; chlorides, 9.3; phosphates, 7.7; sulphates, 3.1. Microscopically there are no crystals, few granular casts, no mucus, few white cells, and no red cells.

After about a month, or a little less, the blood showed; polynuclears, 265, 53.42%; small lymphocytes, 120, 24.19; large lymphocytes, 55, 11.08; hyaline, 47, 9.43; eosinophiles, 7, 0.14; mast cells, 2, 0.04. The hemoglobin per cent. and distribution is normal. There are no nucleated reds, no poikilocytes, no great variation in size of reds; rouleaux formation is good. There are no degenerated white cells. The weight increased 14 pounds in two months.

Case II.—E. E., male, 72 years old, married, gives a history of chronic constipation; is very thin; tongue is coated, dry, and fissured; is neurasthenic; there is loss of mental application, fears, and self-distrust; business is almost impossible. There is insomnia.

Blood examination May 3, 1909			June 25, 1909	
Polynuclears	379	72.19	178	67.42
Large lymphocytes	70	13.33	23	8.71
Small "	49	9.33	39	14.77
Hyaline	13	2.47	12	4.54
Eosinophiles	12	2.28	12	4.54
Mast cells	2	0.03	0	0
	525	99.63	264	99.98
Degenerated whites, 10 per cent.				
Hemoglobin, 90 per cent.			No degenerated whites	
Urine				
No albumin or sugar, excess of bile pigment, marked indolacetic acid, solids 46.60 grams to liter, urea 19.26 grams, chlorides 10.0 grams, hyaline and granular casts, small amount of mucus, few pus cells, few reds. (On rectal examination, prostatitis.)			No albumin or sugar, slight bile pigment excess, no indolacetic acid, urea 28.89 grams per liter, chlorides 12.00, sulphates, slight excess; no crystals, few hyaline casts, small amount mucus, few white cells, no reds.	

Classification. It would be helpful if cases of protein-enterotoxemia could be referred to a few well-defined classes, but this is almost impossible, since they show so many gradations from one type to another; and yet the authors believe that a little study of a case will enable the physician to include it in one or the other of the following provisional types.

1. Neuralgic; with frequent frontal headaches; there may be other neuralgias or actual neuritis; usually the nerves above the waist are chiefly or alone affected; these cases commonly have more indolacetic acid than indican in the urine.

2. Neurasthenic; when in males there is often present a distinctly sexual element, with seminal vesiculitis or prostatitis.

3. Anemic-chlorotic; oftenest found in young women who neglect their bowels and eat imprudently.

4. Dyspeptic, with flatulence, alternating diarrhea and constipation, distress in abdomen or dull pain, ptosis of some of the viscera, chronic appendicitis.

5. Mental; with fears, dulness, rapid exhaustion on mental effort, impaired will and memory, melancholy.

6. Mixed types, most common, but one of the above usually predominating.

Treatment: This subject naturally falls into two main divisions, the dietetic and the medicinal. The most valuable hints for diet are derived from the study of the feces and the tests of hepatic and pancreatic efficiency; for if the patient is making a good use of starches and sugars, while fats are fairly well digested, the indications are clearly to cut proteins to a minimum, make cereals and other starches the main reliance, and supply assimilable fats guardedly. It will not do to exclude proteins from the diet entirely, for these patients are often losing weight, and without proteins in the food they will consume the body's own proteins and

continue losing weight. A little lean meat once a day, or milk, or vegetables rich in protein may be allowed. The weight must increase in such a case if improvement is to take place, and the patient should have a special suit of clothes and a particular day of the week and hour of the day for taking his weight, always on the same scales; after the first weighing the clothes should be rolled in a bundle and weighed at home, which will give a constant factor to subtract from the various weighings to reckon the actual weight without clothes.

It is absolutely necessary to supply ferments; otherwise even the small amount of protein allowed will putrefy and delay improvement. All the strong proteolytic ferments have a pronounced action on milk and upon proteins of vegetable origin.

Many patients miss the protein from their diet if too much restricted, and will rebel, and since the patient's co-operation is most important this must be taken into consideration. Perhaps nothing is quite so good in such cases as gelatin. It may be prepared acceptably in many ways, simply dissolved in beef broth, or given as calves'-foot jelly or other jellies, or as Bavarian and other creams for dessert. Gelatin is peculiarly free from aromatic elements which furnish indican and indolacetic acid, and it is bulky and well tolerated. Aldor[35] has used it with success in 60 cases of intestinal catarrh. Other cases do well on junket and whey, the latter given cold, flavored with lemon. Buttermilk is an excellent article of diet, and may be taken *ad libitum*. Fermented milks are on the border line between food and drugs, for they are supposed to nourish and at the same time to aid in disinfecting the intestine. In such fermented milk the casein is already converted (to about 50 per cent.) into peptone and albumose; lactic acid is about 1.0-1.2 per cent.; calcium phosphate is in an easily absorbed form, and they are particularly useful when the stomach is also deranged, as in anorexia nervosa, and subacute gastritis. Gout and arteriosclerosis are often associated with intestinal putrefaction, and for these conditions the fermented milks are also useful,[36] North[37] in some cases employs suspensions of butter and lactic acid bacilli in maltose broth for flushing out the colon. Nutritive enemata may be found useful, but rectal alimentation is seldom needed for these cases. Where hyperacidity and spasmodic pain are important symptoms, olive oil is frequently of service, either swallowed or taken through a tube, best given hot.[38] Tea, coffee, and alcohol are almost always to be forbidden, and copious drinking of distilled water encouraged to the utmost and kept up for weeks and months. Other cases will require other diets, and it often taxes the physician's ingenuity to suggest something with the patient likes and which he really ought to have.

Drugs: The indications for drugs are chiefly six: 1, to clean the bowel thoroughly; 2, to stimulate the liver to produce more bile and of a more fluid quality; 3, to supply ferments; 4, to disinfect the alimentary canal; 5, to care for the stomach condition; 6, tonics.

1. The immediate need is for a clean bowel, and this may be obtained by calomel or calomel with podophyllin, best given in 0.01 every hour for six doses, and followed by a saline the morning after, with a full glass of cold water. But it will not do to stop here. Increased catabolism is an absolute need,[39] and either cathartics or diuretics or both must be taken for a long time. When the constipation is accompanied by too small a total daily urine, of high total solids, salines may accomplish the double purpose of flushing out the bowel and causing the excretion of more urine, but as a rule it will be better to give salines only as diuretics, except with obese patients, cleansing the bowel otherwise. For the latter purpose nothing gives better satisfaction than phenolphthalein, either in the tablet form or as syrup, the latter especially for children. Usually one or two tablets every night will suffice, but more can be given, and after daily thorough defecation has become the rule, the quantity of the drug may be reduced, giving a tablet once every other day or twice a week. As opposed to all other purges, phenolphthalein does little if any damage to the intestinal wall, materially decreases the numbers of bacteria, and produces a copious outpour of the lymph in the deeper parts of the mucosa and its lymph channels.[40] But in some cases other cathartics are necessary, and a proper pill may be alternated with a tablet of phenolphthalein, and the laxative effect of certain articles of diet, like shredded wheat biscuit, may be used to aid the drugs. Consistent and persistent deep breathing will also aid in the attainment of this object, but it is difficult to persuade the patient of it. The various preparations of bile salts, and combinations which contain them, are efficient and convenient means of obtaining several kinds of action at once. The offensive breath, coated tongue, pain in the region of the liver, foul odor of the feces, flatus, and similar symptoms, all tend to improve as soon as more bile, of more fluid quality, enters the intestine daily. As the catarrhal condition of the upper part of the small intestine improves, the enterohepatic circulation of bile salts is facilitated, peristalsis becomes more regular, and cathartics in reduced frequency maintain the advantage gained.

3. Since the chief reason for the failure of the proteins to digest, whence come all the other troubles, is often a lack of the normal ferments, a very clear indication is to supply such ferment. The administration of ferments should be kept up for several months while proteins are cautiously added to the dietary and their digestion watched by frequent tests of the feces and the urine. When fat is not well digested, alkalies are indicated.[41]

4. Intestinal disinfection is a difficult subject. Salol, naphthalene tetrachloride, some of the guaiacols, creosote, and sulphocarbolates are all useful at times; perhaps the sulphocarbolates are most uniformly useful, keeping watch against any tendency to constipate. Schmidt[42] has suggested a simple and ingenious method of disinfecting the bowels which it might be well to try. He finds that agar will take up about 12 per cent. of hydrogen peroxide and give it off slowly in the intestinal canal. Such a jelly, flavored to taste, swallowed in rather large lumps without much chewing, may be a valuable addition to the medication, particularly if diarrhea is a marked symptom.

5. The conditions in the stomach should always be studied. Hyperchlorhydria and gastrosuccorrhea are well controlled by eumydrin, as shown by Tedeschi in 1907 and Massini in 1908.[43] It may be given in doses of 0.001 t.i.d., and is best combined with sodium citrate; it is more efficient than atropin and less toxic. For the opposite condition Ynkawa[44] has lately claimed that suprarenal extract strongly increases the flow of gastric juice and the production of hydrochloric acid, except in complete anacidity. Of course, the well-known and established

measures may be required in addition, to say nothing of repeated use of the stomach tube.

6. Tonics are required in the majority of these cases; anemic cases usually do best when both iron and arsenic are given. A convenient and efficient way to administer iron is by Blaud's pills after meals, plain or with arsenic. Strychnin is best avoided in most of these cases, for the heart is apt to be irritable. As a rule, tonics are most needed at the beginning of the case and should be dropped as soon as there is a decided gain in weight and the patient is habituated to a diet which suits him.

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Tuberculous Peritonitis.—Noble, in concluding an article on this subject, says: 1. Tuberculous peritonitis of the serous variety is best treated by laparotomy. 2. Great care should be exercised in making intraabdominal manipulations and examinations, not to cause abrasions. 3. In the adhesive variety no attempt should be made to disturb the adhesions. 4. The less the tissues are handled the better will be the results. 5. Removal of the primary focus of the tuberculous peritonitis when possible should always be performed, *i.e.* appendix, tubes, etc.—*Illinois Medical Journal.*

NUCLEIN BY INTRAVENOUS INJECTION IN THE TREATMENT OF TUBERCULOSIS.

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In reviewing the literature upon tuberculosis, I have been unable to find any reliable information upon the condition of the blood in tuberculous subjects. Beyond the mere statement that the patients are anemic, I have been unable to find any original research that would recognize or give a reason for the similarity of the condition of the blood in tuberculous patients of a comparative known degree of infection. We recognize the fact that the mucous membrane of the bronchioles and air vesicles are, in the tuberculous, necessarily impaired; consequently, we have the physiological use of just that much tissue eliminated, the area of which is more or less rapidly increased as the pathological condition progresses. It is the gradual diminution of the normal tissues and the increase of the pathological conditions, eliminating the possibility of the patient securing a sufficient amount of oxygen to supply the normal requirements of the body for this element, that gradually produces the anemic condition as witnessed in these cases.

If the physician will study the embryological development of the body, and recognize and realize how dependent all the tissues of the body are upon the cellular development and rejuvenation, so to speak, he will realize the necessity of treating tuberculosis, as well as all other pathological conditions in which there is a destruction of tissue, by creating new cells in the blood, as well as elsewhere, to take the place of those that are cast off in the pathological excretions.

Our system of medication, in these cases, has been limited largely to such as is given per os, and we are dependent upon the absorption of the same through the gastrointestinal system, never knowing the exact portion that may be absorbed and carried to the tissues of the body, nor the chemical changes that may take place by the action of the gastrointestinal secretions thereon. There is always more or less impairment of the digestive system in all these cases. Realizing this, I have concluded that the way to get the full benefit of such remedial agents as may be our choice in using, is by their introduction direct into the circulatory system.

I have found in the tuberculous subject, in addition to the presence of the tubercle bacilli and the general clinical symptoms that are familiar to us all, a marked change in the blood, a change that may be recognized by any one and which does not require any unusual laboratory equipment. The normal specific gravity of the blood varies between 1.055 and 1.060. In every case of tuberculosis that I have examined in the past two years, I have found a decrease in the specific gravity of the blood, with a corresponding decrease in the amount of hemoglobin. Physiologists tell us that the blood in one thousand parts contains 784 parts of water and 216 parts of solids; the greater portion of the solids is composed of corpuscles, and the analysis of 1000 parts of moist corpuscles shows water 688 parts, and solids, organic, 303.88, and mineral 8.12. Of the solids the most important is the hemoglobin, it constituting more than 90 per cent. of the organic

matter of the corpuscle. When we have a decrease in the number of corpuscles, we have a corresponding decrease in the amount of the hemoglobin, their most important constituent, and the corpuscles being decreased, we have a consequent decrease in the specific gravity, and the percentage of the decrease of the hemoglobin may be computed easily from the specific gravity as given in the table below.

The simplest and most available way to estimate the specific gravity of the blood is that of Hammerschlag, a modification of the Roy method. Chloroform is heavier than blood; benzol or benzine is lighter. Mix in a hydrometer glass such quantities of the two so that the specific gravity, taken with an ordinary hydrometer, is 1.058, that of normal blood. Puncture the ear or finger, draw a drop of blood into a dropper, then blow it out into the chloroform-benzol mixture. The blood does not mix at all with these liquids, but floats like a red bead. If it sinks to the bottom, add chloroform; if it floats at the top, add benzol, adding one or the other of these fluids until the drop finally remains stationary in the body of the liquid, showing that the specific gravity of the drop is just that of the surrounding liquid. Then gently place the hydrometer in the fluid, and the specific gravity of the fluid is shown, which is identical with the specific gravity of the blood contained therein.

The specific gravity of the blood plasma varies very little from any cause (except in dropsical conditions), the hemoglobin composing more than 90 per cent. of the organic solids of the corpuscles, consequently the specific gravity of most non-dropsical patients varies in accordance with the hemoglobin.

Some care should be exercised in taking the specific gravity: (1) Have the inside of the hydrometer glass perfectly clean and dry, otherwise the drop of blood may cling to the glass and flatten against it. (2) It is usually well to have more than one drop of blood in the fluid in case of any mishap to the first one. (3) Add the chloroform, if required, drop by drop. This may be dropped direct into the containing glass. Add the benzol, drop by drop, using a long pipette and gently placing the end at the bottom of the glass container. By adding these fluids in this manner you avoid the necessity of stirring the fluid in order to have it thoroughly mixed, and thus avoid the danger of breaking up the drop of blood. (4) Avoid having any air in the blood drop; this can generally be seen either in the capillary tube or after the drop is in the mixture.

In dropsical cases we must use some form of hemoglobinometer. In other cases, I do not see why this method should not be adopted, as it is easy, accurate, and a quick method of calculating the specific gravity.

Hammerschlag's Table.

Specific Gravity.	Hemoglobin Percentage.
1.033-35	25 to 30
1.035-38	30 to 35
1.038-40	35 to 40
1.040-45	40 to 45
1.045-48	45 to 55
1.048-50	55 to 65
1.050-53	65 to 70
1.053-55	70 to 75
1.055-57	75 to 85
1.057-60	85 to 95

Modified Table from Schmaltz.

Specific Gravity.	Hemoglobin Percentage.
1.030	20
1.035	30
1.038	35
1.041	35
1.0425	45
1.0455	50
1.048	55
1.049	60
1.051	65
10.52	70
1.0535	75
1.056	80
1.0575	90
1.059	100

Apparently a degree of specific gravity means much more at the top of the scale (*i.e.* 6.6 per cent.) than at the bottom (1 2/3 per cent.). These tables, while not absolutely correct, are near enough for all practical purposes (Cabot).

With a decrease in the specific gravity of the blood we also find a decrease in the number of red blood corpuscles. Not only do we find a deficiency in the number, the normal of which is five million in the male and four and one-half million in the female to the cubic millimeter, but we find these cells very much deformed, poikilocytes, as they are called. Careful observation will show that the percentage of poikilocytes to the normal blood-cells increases in accordance with the severity of the disease, *e.g.* if the specific gravity of the blood is 1.045 the percentage of hemoglobin will be about 50 per cent., and blood examination will show that coincidently about 20 per cent. of the red blood-cells will have become poikilocytes, the presence of which simply indicates that there has been a separation of the hemoglobin from the cell, it having gone to form some of the more deleterious portion of the plasma. As a consequence of the loss of this hemoglobin, we have marked deficiency in the oxygen-carrying power of the blood, thus depriving the cells of that element upon which they are so dependent. Under the influence of the nuclein-saline solution the poikilocytes rapidly disappear from the circulation, the hemoglobin eliminated by the liver as bilirubin and biliverdin; the deformed cells being replaced by new and healthy erythrocytes from the normoblasts more rapidly than is possible under any other form of treatment as yet devised.

I have been using nuclein solution containing approximately six grains of sodium tritico-nucleinate to the ounce, standardized to one milligram of organic phosphorus to each cubic centimeter; using this in physiological salt solution made up as follows: Calcium chloride, 0.25; potassium chloride, 0.10; sodium chloride, 9.00; water, 1000.

I have been using this as a vehicle for the nuclein for the reason that it conforms to the normal specific gravity of the blood; distilled water will act as well if it is preferred, but I believe if our chemists could prepare a salt that would, in breaking up, give up its oxygen, that the effect of the nuclein would be greatly enhanced. Oxygen is what the tissues require, and if it can be introduced directly into the blood, the pathological condition is attacked at its base. The red blood-cells are only the carriers of the oxygen in loose combination with hemoglobin. The cells of the body are crying for oxygen, and having a sufficient supply they will soon take on such a healthy growth that the pathological condition will be greatly minimized, if not cast off altogether.

It has been taken heretofore that the administration of nuclein produces good effects chiefly by inducing leucocytosis. The value of nuclein given intravenously depends not only upon this fact, but in my opinion even more upon its upbuilding effects upon the erythrocytes and hemoglobin.

All other investigators have begun with the idea that the cure of tuberculosis depends, in great measure, on promoting leucocytosis. Now, leucocytes, acting as phagocytes, can take care of tubercle bacilli by surrounding and destroying them, just as they attempt to do with other foreign bodies; but the tubercle bacilli of themselves are of comparative minor importance—it is the effect of their products which we must overcome. Death

									Examination End of Fourth Week									Examination End of Eighth Week									
								Blood								Blood							Blood					
Case No.	Date	Age	Sex	Social Relation	Pulse	Temperature	Tubercle Bacilli	Cohesion	Sp. Gravity	Erythrocytes, per c. m-m	Poikilocytes, per cent.	Hemoglobin, per cent.	Nuclein-dose	Days between doses.	Temperature	Pulse	Cohesion	Sp. Gravity	Erythrocytes, per c. m-m	Poikilocytes, per cent.	Hemoglobin, per cent.	Nuclein-dose	Days between doses	Temperature	Pulse	Cohesion	Sp. Gravity	Erythrocytes, per c. m m	Poikilocytes, per cent.	Hemoglobin, per cent.	Nuclein-dose	Days between doses
	1908																														
1	2/1	17	F	S	88	99.4	P	Fair.	1.049	4.1 M	5	60	30 M	2	99	96	Good	1.054	4.3 M	2	75	20 M	4	98.6	84	Good	1.054	4.3 M	..	75	....	..
2	9/1	24	M	S	110	103	P	Poor	1.035	3.5 M	20	30	60 M	1	101	96	Poor.	1.038	3.5	18	35	40 M	2	100	90	Poor.	1.038	3.5 M	16	35	40 M	3
3	9/10	28	F	M	108	100	P	Good	1.054	4.3 M	5	75	30 M	3	99	90	Good	1.055	4.3 M	2	77	40 M	4	99	84	Good	1.055	.....	..	77	60 M	7
4	9/25	32	M	M	120	104	P	Fair.	1.040	4.0 M	15	37	30 M	2	101	92	Good	1.042	4.1 M	12	42	40 M	3	100	90	Good	1.045	4.2 M	10	50	40 M	3
5	10/1	24	F	M	180	104.8	P	Nil...	.....	3.3 M	25	..	40 M	1	100	98	Fair.	1.040	.....	..	37	40 M	2	100	98	Fair.	1.041	3.5 M	20	40	40 M	2
6	10/5	42	F	M	120	103	P	V. p'r	1.037	3.5 M	20	37	40 M	1	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*
7	10/18	36	F	W	110	101	P	Fair.	1.045	4.0 M	10	50	30 M	2	99	86	Good	1.049	.....	..	60	40 M	33	98.6	84	Good	1.052	4 5 M	3	70	40 M	7
8	10/20	29	F	S	100	100	P	Good	1.048	4.1 M	10	55	30 M	3	99	82	Good	1.049	4.3 M	5	60	30 M	44	98.4	80	Good	1.050	4.3 M	4	62	30 M	6
9	11/30	48	F	M	102	101	P	Poor	1.040	3.8 M	20	37	30 M	2	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*
10	12/15	17	F	S	100	99.8	P	Good	1.051	4.3 M	5	65	30 M	2	*d*	*d*	*d*	*d*	*d*	*d*	*d*	30 M	4	98.6	86	Good	1.052	.....	..	70	40 M	5
11	12/20	29	M	M	100	101	P	Fair.	1.048	4.0 M	10	55	30 M	2	...	..	.....	.....	.....	..	..	60 M	2	100	100	Fair.	1.048	4.0 M	10	55	60 M	3
	1909																															
12	1/10	27	F	S	110	102	P	Fair.	1.056	4.2 M	10	80	30 M	2	...	..	.....	.....	.....	..	..	40 M	2	98.6	86	Good	1.054	4.4 M	5	75	40 M	3
13	1/15	19	F	S	100	100	P	Good	1.052	4.4 M	5	70	40 M	2	*e*	*e*	*e*	*e*	*e*	*e*	*e*	40 M	4	98.4	80	Good	1 056	4.5 M	..	80	.....	..
14	1/20	24	M	M	100	101	P	Good	1.050	4.5 M.	5	62	30 M	2	*f*	*f*	*f*	*f*	*f*	*f*	*f*	*f*	*f*	*f*	*f*	*f*	*f*	*f*	*f*	*f*	*f*	*f*
15	1/30	31	M	M	102	100	P	Poor.	1.046	4.1 M	10	50	40 M	2	99	84	Fair.	1.050	.....	..	62	60 M	3	98.8	80	Good	1.054	4 5 M	1	77	....	..

a No change from last report.
b Patient sinking rapidly.
c No change, patient sinking rapidly.
d No examination.

occurs in tuberculosis from either (*a*) chronic sepsis from mixed infection, or (*b*) profound anemia, which results from the action of the toxins (or of the bacilli themselves, it may be) upon the erythrocytes, so diminishing the oxygen-carrying properties of the erythrocytes that the patient literally dies of oxygen starvation. By combating the growth of sepsis, the nuclein-produce leucocytosis may reduce the danger from mixed infection, but my experience impresses me more and more with the importance of the secondary anemia.

Now in the tables presented, it is clearly shown, first, that following the intravenous injection of nuclein, the percentage of hemoglobin is markedly increased; second, that the number of red cells is decidedly increased, and third, the specific gravity of the blood is almost uniformly brought up to, or near, the normal.

This is an important step in the treatment of tuberculosis, for it means that if patients can be subjected to treatment before mixed infection occurs, the blood may be easily brought up to normal by this treatment, thus increasing tissue-resistance. My investigations thus far suggest the possibility of there being a nucleinic index of the blood, the exact rating for each individual varying, of course, in degree.

In the process of development of erythrocytes from normoblasts the rapidity of the extrusion of the nuclei may be hastened or retarded by the amount of free nuclein in the blood (or if not nuclein then some unknown agent of like character) diminishing as the amount decreases and vice versa. If, then, the amount of nuclein be increased or the theoretical nucleinic index raised by the intravenous injection of nuclein, a problem of vast therapeutic importance is solved. All this, however, is, of course, purely theoretical. Yet as a practical result we do see exactly these results obtained, so whether or not the theory is a good one, we have the demonstration complete, in that its effects are exactly what is needed in the secondary anemias, even if not in the primary.

In the technique of intravenous infusion surgical cleanliness must reign supreme. Too much care cannot be exercised to have the parts thoroughly aseptic. Scrub the parts carefully with some good antiseptic soap, and wash off with alcohol. Apply an alcohol pad over the parts until ready to make the injection. I use an ordinary infusion bottle, with six feet of rubber tubing, about one-quarter of an inch in diameter, and a No. 18 or 20 saline solution needle. The needle should be sharp, and with not too long a cutting edge. Keep the needle in alcohol when not in use.

The bottle and tube should be sterilized before placing the solution in it. Allow one ounce of the solution for the bottle and one ounce for each twenty pounds of the weight of the patient. Now place the infusion bottle, tube, and needle, all attached, into a water bath and allow the same to reach the boiling point. This will give a temperature of the infusion at about 110° F. Then place the amount of nuclein solution to be used in the bottle and thoroughly mix it with the salt solution by agitation. Apply an elastic ligature about six inches above the elbow. This should be drawn tight enough to swell the vein. I use an ordinary rubber band about one-quarter of an inch wide. When the vein has become prominent, remove the pad, and spray the surface with chloride of ethyl. This insures practically a painless operation. Introduce the needle at an angle of 45°, first passing it through the skin and then into the lumen of the vein. If the needle is passed freely into the vein, there will be no trouble with the flow, which must be slow and continuous. Place the infusion bottle at a height of the patient's head, when he is in a sitting posture. About twenty minutes is required to introduce six ounces in this manner.

When the solution is nearly exhausted, shut off the flow and remove the needle by gently withdrawing it, at the same time using gentle pressure with gauze over the point of puncture. Having removed the needle, secure the gauze with adhesive strips, which may be removed in a few hours.

I use the median cephalic or median basilic vein. If care is used, a larger number of injections may be given in either vein in a very short space. I have given as high as sixty injections in one vein, all the time operating within a space of one inch, without harming the vein whatever. The dose of

Examination at End of Twentieth Week									Examination at End of Twenty-fourth Week							Remarks
		Blood									Blood					
Temperature	Pulse	Cohesion	Sp. Gravity	Erythrocytes, per c. m m	Poikilocytes, per cent.	Hemoglobin, per cent.	Nuclein-dose	Days between doses.	Temperature	Pulse	Cohesion	Sp. Gravity	Erythrocytes, per c. m m	Poikilocytes, per cent.	Hemoglobin, per cent.	
98.6	82	Good..	1.054	.....	....	75	.....	.....	.....	.....	.....	.....	.....	.....	.....	T. B. absent; patient appears recovered.
101	98	Poor..	1.038	.....	....	35	60 M	3	101	100	Poor..	1.038	3.5 M	15	35	T. B. present; patient is able to be about.
.....	.....	.....	.....	.....	.....	.....	.....	.....	98.6	80	Good..	1.055	.....	....	77	T. B. absent; patient has recovered.
99	94	Good..	1.051	4.6 M	3	65	40 M	4	99	92	Good..	1.048	4.6 M	3	55	T. B. present; has laryngeal tb.; able to carry on his usual work; very much improved.
98.4	90	Good..	1.052	4.4 M	2	70	60 M	7	98.4	90	*g*	*g*	*g*	*g*	*g*	T. B. absent; discharged 7/1/09; recovered.
b	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*	Died December 12, 1908.
.....	.....	.....	.....	.....	.....	.....	.....	.....	98.4	80	Good..	1.054	4.5 M	2	76	T. B. absent; discharged 6/1/09; recovered.
98.6	80	Good..	1.055	4.6 M	....	77	.....	....	98.6	76	Good..	1.054	.....	....	75	T. B. absent; discharged 6/10/09; recovered.
c	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	Died May 30, 1909.
98.6	78	Good..	1.054	4.4 M	....	75	.....	....	98.6	80	Good..	1.054	4.4 M	....	75	T. B. absent; discharged 6/20/09; recovered.
99	88	Fair.	1.054	.....	....	75	60 M	5	98	76	Good..	1.058	4.8 M	....	90	T. B. absent; discharged 7/1/09; recovered.
98.6	84	Good.	1.055	4.5 M	....	77	.....	.....	.....	.....	.....	.....	.....	.....	.....	T. B. absent, discharged 9/1/09, recovered.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	T. B. absent; discharged 9/15/09; recovered.
99	84	Good	1.053	4.6 M	2	74	.....	.....	.....	.....	.....	.....	.....	.....	.....	T. B. present; improved.
98.8	80	Good..	1.054	4.6 M	....	77	.....	.....	.....	.....	.....	.....	.....	.....	.....	T. B. present; improved.

e No change.
f Refused further treatment.
g No change from last report.

nuclein must be regulated by the results that are obtained upon the blood.

Of the 48 cases that I have been treating in this manner, I have had five deaths. In no case where I have been unable to obtain favorable results have I noted that the treatment has been harmful.

I have reported but 15 out of 48 cases, for some of them have not been under observation a sufficient length of time to warrant passing judgment upon them. All of my cases were such as are met with in private practice.

I may sum up the results of the treatment as follows:

1. If there is not a net increase in the percentage of hemoglobin in two weeks' time, we do not expect any permanent result.

2. Even where there is no net increase in the hemoglobin, the treatment aids in keeping these people upon their feet.

3. With a constant increase in the percentage of hemoglobin, when the same has reached 85 per cent. to 100 per cent., and remains there for one month after all treatment has ceased, the patient may be declared well.

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PERSONAL EXPERIENCES WITH A FEW CASES OF PELLAGRA.*

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It is useless to go into an historical discussion of pellagra, as so much has been written recently on this subject. The disease was first diagnosticated in the Western North Carolina Hospital for the Insane by the Superintendent, Dr. John McCampbell, in 1908, and I am indebted to him for permission to report these cases.

The predisposing causes of the disease are supposed to be ill health, poverty, alcoholism, poor hygienic surroundings, and venereal excess. Since the discovery of the disease more than a century ago, the opinion has gained ground among those who have studied the subject most carefully that the causative factor—whatever it may be—is taken into the body with some product of Indian corn. The specific cause of the disease is, however, unknown.

The pathology is indefinite. No specific, morbid changes are seen in acute cases. Marked changes rarely occur until the disease has existed three or more years. Among these changes are atrophy of the subcutaneous fat and muscles, and a tendency to atrophy and fatty degeneration of the heart, liver, spleen, and kidneys. Abnormal pigmentation is seen also in the muscles of the heart, the spleen, and the liver. In the intestines there is atrophy of the muscular coat, hyperemia, and ulceration. The changes in the nervous system show in some cases hyperemia—in others, anemia and edema. There are inflammatory changes in the meninges; degeneration of the lateral columns in the dorsal, and of the posterior column in the cervical and in the upper dorsal region. Often there is pigmentation of the cord and of the spinal and sympathetic ganglia. The central canal of the cord is frequently obliterated. It is said that the degeneration of the motor ganglia cells is more marked than the sensory. The cells of the anterior cornua are especially affected. The cells of the posterior cornua are also affected, but here the disease is not so marked. (Tuczek.)

Pellagra may be either acute or chronic. Both forms occur in spring or early summer, and, in the chronic cases, a recurrence of the symptoms appears at the same time each year. The disease frequently exists for several years before a fatal termination. In this disease the cutaneous, digestive, and nervous system are chiefly affected; the gastrointestinal symptoms being noted first, and, as a rule, these symptoms occur from one to four weeks—in some cases longer—before the erythema makes its appearance. The earliest symptoms are manifested by nausea; sometimes vomiting and anorexia, which occasionally lead to absolute refusal of food, and necessitate forced feeding; or, there may be an excessive craving for food. Many of our cases have shown excessive thirst, but few of them showed sitiophobia. Frequently there is a painful, burning sensation in the esophagus. Stomatitis is frequently seen. This

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usually appears early. It is similar to salivation and is frequently severe. The tongue, in a majority of cases seen by us, has been smooth, beefy-looking, and glistening. In many cases it looked as if it had been scalded. In one, there were purplish spots on the tongue. The buccal mucous membrane in many cases was reddened and there were aphthous sores at the corners of the mouth and on the lips. Diarrhea is always present at some time in the course of the disease but, at times, it alternates with constipation. The stools are serous, green, and slimy, and there is an intensely disagreeable, and, I have thought, at times, a characteristic, odor. These stools vary from a few to thirty or forty in twenty-four hours when the disease has reached its height. In two cases there was marked hemorrhage from the bowels. Meteorism has appeared frequently and pyrosis a few times. Lombroso says that pyrosis is never absent. These symptoms exist with increasing severity for a month or more before the erythema appears.

The erythema, which is always symmetrical as to location, appears first on the dorsal aspect of the hands and that part of the dorsal aspect of the forearms not protected by clothing. In many of our cases, this has been the only seat of the lesion. In one case, it extended along the ulnar aspect to and including the olecranon. The face, the back of the neck, and the shoulders may be affected. We have not seen the lesions on the feet. In three cases the palms of the hands showed the lesion, and it is said that the bony prominences wherever the clothing touches are frequently affected. In no case have we seen the characteristic erythema on the body, although this has been reported. The erythema appears in the spring or early summer and is almost identical in appearance with sunburn. In fact, these patients think their hands are sunburned. One said, "I picked blackberries one day and the next day my hands were sunburned;" and a country doctor wore gloves when the lesions first appeared and thought his hands improved. It does not disappear, however, like sunburn, with the exfoliation of the epidermis, but increases, and after a few days, but sometimes much longer, it begins to fade. If the case be mild, exfoliation occurs in fine flakes; if severe, in large layers. The affected area, after exfoliation has occurred, is purplish, smooth, glistening and soft; in some cases the lesion presents the appearance of a burn of the first degree. This purplish hue may be replaced by liver-colored pigmentation, or, after several months, the skin may look very nearly normal, but the normal lines of the skin are permanently obliterated. As the attacks recur, the hands become wrinkled, hardened, and leathery. Exfoliation occurs usually only once in a summer, but in one of our cases, the hands peeled three or four times. Mild relapses may occur as late as October. Two forms of the skin affection occur—the moist and the dry—but they differ only in degree. In the moist form, vesicles or bullæ are present, but when these break, the hands look raw and are painful. As a rule, however, the patients suffer very little discomfort from the lesions, but some complain of severe itching and burning.

Nervous symptoms usually occur early in the course of the disease. There is headache, chiefly occipital; pain in the back and in the back of the neck; tenderness along the spine, and tender spots in the lumbar region, the tenderness occasionally being greater over the right kidney. Vertigo, paresthesia, hyperesthesia, muscular weakness, and, as a rule, uncertainty of motion are observed. The cutaneous reflexes are variable and the pupillary reflexes inconstant, although in our cases there has usually been a tardy reaction to light and to accommodation. The deep reflexes may be normal, exaggerated, or lost, but usually they have been actively exaggerated. The patellar reflex has been more active than that of the biceps and triceps. In no case have we found true ankle clonus.

As the disease progresses, the muscular weakness becomes more pronounced, especially in the lower extremities. In some cases the patients were unsteady in their gait and did not seem to be confident of themselves. They walked with the legs widely separated and shuffled along in a tottering way—"spraddle legged"—as one of our patient's husband expressed it. Marked motor agitation is usually observed. While able to be up, the patients walk around the room constantly; coarse tremors are noticed in the head and in the extremities, and the tongue when protruded is tremulous. These tremors are more marked in the upper than in the lower extremities. As the disease progresses, the tremors become more violent, and, though bedridden, the patients are continually in motion. There is more or less incoordination in the upper extremities and the movements are distinctly athetoid in character. At times, the clonic convulsive movements give way to tonic spasms which last for a few seconds, then there is a period of quiescence before the clonic movements begin again. We have had no case of true convulsions. These patients are constantly picking at the bed clothes. They will not allow the cover to remain on them and throw it around in a disorderly way. As death approaches, there is generally present spasticity of the muscles, and, in many cases, marked opisthotonos.

The mental symptoms do not, as a rule, become pronounced until the second or third attack of the disease. In some cases there has been a mask-like expression on the face, while in others extreme apprehension has manifested itself in expression, speech, and behavior. In only one case was the patient cheerful. Emotional instability is frequently marked. Memory defects are present. Comprehension is reduced. Clouding of consciousness is often observed and there is psychomotor retardation as well as disorientation as to time, place, and personal identity. In severe cases the patients have no regard for cleanliness and soil their beds with urine and feces. Quite a number are suspicious, resistive, and irritable. The speech is slurring, and, in the last stages of the disease, there is unintelligible muttering delirium and amentia.

The delusions are varied; but are usually depressive, apprehensive, and painful. One patient thought that she was going to be shot; another that he was going to be hanged. In only two cases have the delusions been self-accusatory. Auditory and visual hallucinations are prominent. One patient saw her children and talked to them, while another thought she heard God and the devil talking to her. Suicidal impulses are common. One patient attempted to throw himself in front of a train while being brought to the hospital. Another tried to butt her brains out against the wall; while still another threatened to smother herself, and a physician attempted self-destruction by taking laudanum.

All of the cases which we report have given a history of ill health for two or more years before the mental symptoms developed, and most of them have had the skin lesions and the digestive disturb-

ances with nervous symptoms for at least two years before admission. The majority of cases occurred in farmers and farmers' wives for the reason that the population of our State is chiefly rural. Some were exceedingly poor, but three cases occurred in people who were well-to-do. The duration of insanity before admission was variable. There is a history in one case of periodic mental disturbance for six years. The age of the oldest patient was fifty-four; of the youngest, twenty-four. In many cases there has been a history of insanity in the family.

Case I.—Admitted December 12, 1907; he was 38 years old; had been married 13 years, and had one child who is 12 years old. He had had a common-school education. A former attack of mental disturbance had occurred fourteen years before. He had been insane six weeks before admission. The condition was supposed to be due to spinal disease. He also had had indigestion and spermatorrhea several years. The present attack first manifested itself in talk about religion, increased irritability, neglect of business, incoherent and irrelevant talk, occasionally crying, insomnia, motor restlessness, the thought that the Lord raised him above all other men, and that he was omnipotent. He had fought with two or three men and tried to cut one, and talked of suicide. At the time of admission, there were no skin or alimentary canal symptoms of pellagra, no history of erythema or diarrhea at any previous time, but complaint of indigestion, nervousness, spinal disease, and spermatorrhea for several years. He was admitted in a good state of nutrition. During a stay of a few months in the hospital he was only neurasthenic, hypochondrical, and complained of indigestion and backache. The physical and mental condition rapidly improved. He gained weight from 160 to 190 pounds, and went home April 4, 1908, apparently well. He returned May 21, emaciated, with diarrhea, a mouth sore, and increased salivation. The backs of the hands showed pellagrous erythema and also a patch on the bridge of the nose extending to forehead and over each malar prominence like the three leaves of a clover stalk. He had done little work on farm and was little exposed to the sun's rays. After readmission, he rapidly lost weight; the diarrhea became more marked, and there was an increasing distaste for food; he had difficulty in swallowing, became extremely apprehensive, restless, sleepless, and somewhat self-accusatory. He had the delusion that he had hydrophobia; he churned the saliva into foam, and begged every one not to come near him, as he feared he would bite them; something was in his throat, he thought, which prevented his swallowing. The distaste for water was marked; he became extremely maniacal, noisy, and emaciated, and died June 24, 1908, ten hours after a profuse hemorrhage from the rectum, exsanguinated, and seemingly because of rapid loss of blood. It is seen that death occurred June 24; that he went home April 4—ten weeks before—a splendid specimen of physical manhood, free from all pellagrous signs.

Case II.—The patient was a young woman of 26; a farmer's wife; her mother was insane; she was very much emaciated and had a dull, vacant expression on her face. There was a previous history of ill health for two years and diarrhea accompanied by skin lesions on the hands and arms for the two summers preceding admission. A week before admission she became violently disturbed, was restless and apprehensive that she would be hurt, and had to be tied in a chair to keep her quiet. She ate little. The patient was admitted July 14, 1909. At that time there was a reddish, scaly eruption on the dorsal aspect of the hands. This eruption extended along the ulnar aspect of the forearm to and including the olecranon. The palm of each hand was fissured and presented a blackened, scaly appearance with marked desquamation. The patient was exceedingly restless; coarse tremors of the head and extremities were seen. The deep reflexes were exaggerated to a marked degree; the gait was uncertain and spastic. The pupils were dilated and reacted sluggishly to light. There was confusion; she was resistive and at times catatonic. She was disoriented as to time, place, and personal identity; was always apprehensive and tried to hide. The delusions and hallucinations were of a painful character. She soon became bedridden, but was kept in bed with difficulty; she tossed the covers about the room; was exceedingly untidy in her habits and there was severe diarrhea. Anorexia was marked; thirst was excessive. The nervous and mental symptoms became more marked; insomnia was persistent; the tremors were pronounced, and, at times, became clonic convulsive movements. Occasionally tonic spasms occurred. As death approached, she was mute, stuporous, and helpless, and there was opisthotonos. She died September 29, 1909.

Case III.—The patient was a farmer's wife, 25 years old. There was no history of insanity in the family, but there was a history of ill health for two years preceding admission. The mental trouble began October 12, 1908. The erythema appeared on the backs of the hands at the same time, and there was a slight diarrhea. The patient's husband was sure that this was the first attack of the skin trouble and of the mental trouble. She talked foolishly; was low spirited; lost her appetite; the mouth was so sore that she could scarcely eat; and she picked at her hands until they became sore. The husband stated that "for five years she had not eaten two pounds of stuff made out of corn." She was depressed on admission; showed typical lesions on the backs of her hands; later became maniacal and very exalted; was absolutely incoherent; at times, had lucid intervals; at times, was stuporous; motor agitation was marked and tremors of the extremities especially noticeable. The deep reflexes were exaggerated, especially the patellar. A tap at any portion of the body would cause more or less tetanic contractions. Insomnia was persistent and diarrhea severe. The tongue was red, smooth, and looked as if it had been blistered. In some places, purplish spots were seen on the tongue. She sometimes refused food; at others, ate ravenously; diarrhea was severe and emaciation became extreme. As the skin lesions disappeared the mental and physical condition improved. The patient was in a jolly and happy frame of mind; gained flesh rapidly; remembered much that had taken place during her illness; realized, however, that her mind was not right. Nine months after admission she was well enough to go home. There was some mental deterioration, however, and the backs of the hands still showed the result of the inflammatory changes. This is the only patient since the disease has been recognized here who has become well enough to go home.

Case IV.—This case is different from the other cases in that there was a history of erythema accompanied by diarrhea which occurred first eight years ago and had recurred each summer since that

time. The mind did not become upset, however, until six years ago, but, since then, there had been each year mental disturbance coincident with the appearance of the dermatitis. The patient was alternately excited and depressed, and, about September of each year, when the hands improved, the mental symptoms also cleared up, and her condition was approximately normal until the next summer. On admission there was typical erythema on the hands. The abdomen was distended and there was a slight diarrhea; the deep reflexes were markedly exaggerated; the gait was spastic; she walked with difficulty and with feet wide apart; she was intensely excited for a while after admission, but four months after admission was more or less depressed and emotionally unstable. The erythema at that time had disappeared from her hands and she had gained forty-three pounds in weight. She was now able to give quite a clear account of her past life; realized that her mind was not yet normal, and showed some signs of deterioration.

Case V.—This occurred in a cultured woman of 57. There was no history of insanity, but there was a history of ill health for two years before admission. She was treated at Hot Springs for rheumatism eighteen months ago and had been in a hospital for nervous diseases twice since January 1, 1909. Two years ago she weighed 165 pounds, but in January, 1909, weighed only 95. The first symptoms noted were indigestion, headache, spinal pains, marked insomnia, nervousness, and loss of appetite. She was easily tired, could not attend to her duties, and was very emotional. She had formerly attended to her husband's business when he was away. She worried over trifles; was suspicious and thought that she was becoming insane; her mind became much disturbed in May, 1909, when she thought she was going to hell and threatened to smother herself; she became noisy, restless, incoherent, untidy in habits, and, at times, had convulsive attacks with cramps in muscles. At these times she had to be restrained in bed. Slight scaliness on the backs of the hands appeared a few weeks before admission. She was brought to the hospital on a stretcher June 4, 1909. Motor agitation was marked and there was an apprehensive look on her face and she refused to speak. Physical examination showed a well developed, fairly well nourished woman, brunette in type; the skin was moist and brownish in color on the dorsal aspect of hands and a few inches on dorsal aspect of forearm. Very slight scaliness appeared on the hands and there was a slight redness on the knuckles; the lips were tightly compressed and there were marked twitchings around the mouth and coarse tremors of the head and extremities, more marked in the upper extremities. The strength of the upper extremities was good; that of the lower extremities impaired. Pupils reacted sluggishly to light and to accommodation. Cutaneous sensibility was impaired. The deep reflexes were exaggerated. Babinski's sign was not present; there was no ankle clonus. The heart and lungs were normal; the abdomen was distended, but no masses could be felt. At times there were marked clonic convulsive movements of the upper extremities which became tonic for a period of a few seconds. This was succeeded by an interval of quietude. As the disease progressed the mental and nervous symptoms were more pronounced. The patient was irritable and resistive; tore up her clothes; pulled out her hair; was untidy and the victim of many painful hallucinations and delusions. The temperature varied from 100° to 102° and sweating was excessive. Anorexia was marked as well as excessive thirst; diarrhea was persistent; a bed sore developed. As death approached there was general spasticity of the muscles with opisthotonos. The patient died from exhaustion July 30, 1909.

Case VI occurred in a cultured woman of 52 and there was no history of insanity in the family, but there was a history of ill health for two years preceding admission. She had been despondent for quite a while and recently lost interest in her affairs; became reticent and embarrassed by the presence of her friends; could not sleep; was apprehensive and asked if she were losing her mind. No history of diarrhea or erythema could be obtained. She was mute for a week after admission, then began to talk and gave a fairly correct account of her past life, although she was confused as to dates and could not answer many questions which she should have known. Soon developed the typical nervous and mental symptoms of pellagra and had a persistent diarrhea. Opisthotonos occurred before death. She died demented, without showing any skin lesion. Two similar cases have been seen in male patients.

Case VII.—The patient was a woman 25 years old, a farmer's wife, well developed but markedly emaciated. There has been no history of insanity in the family, but there was a history of ill health for two years and for two summers preceding admission, erythema with exfoliation on the dorsal aspect of hands, wrist, and back of the neck. The digestive and nervous symptoms were slight. In the last of June, 1909, the eruption again appeared. Vesicles were present on the hands and neck, which, when they broke, left the hands raw. Digestive and nervous symptoms were marked; the appetite was ravenous; the mouth and tongue were sore; salivation was excessive; diarrhea was severe, ten or twelve watery stools a day; insomnia was persistent. She complained of pains in the head, feet, and back; was so nervous that she held a glass with difficulty; the gait was uncertain; she walked in a stiff, stilted way with feet widely separated. She had vertigo and fell once. The mind became upset in August. She was apprehensive; thought that she was going to be shot; talked with Christ and the devil. She had eaten little or no corn bread; ate muffins occasionally. Corn was raised on her husband's farm and stayed on the stalk until late fall; only the best ears were sent to the mill. On admission, September 8, 1909, there was a reddish, scaly eruption on the backs of the hands and wrist. The palms were fissured, dirty, and showed marked exfoliation. Erythema and scaliness appeared also on the back of the neck. Marked coarse tremors were noted in the head and the extremities—more marked in the upper extremities. The patient, after persistent questioning, gave a fairly good account of her past life, but her memory was defective. Comprehension was poor and confusion marked, and there was psychomotor retardation. The tremors at times became more or less clonic convulsive movements and occasionally tonic spasms were present for a short time. As the disease progressed, nervous, mental, and gastrointestinal symptoms became more marked. The appetite was ravenous, but she could not eat on account of difficulty of swallowing. She was kept in bed with difficulty; was very emotional and apprehensive and the delusions and hallucinations were exceedingly painful. She tossed her

clothing about; emaciation was extreme; a slight fever was present; bed sores developed and opisthotonos occurred just before death. She died from mental and physical exhaustion October 10, 1909.

Case VIII.—A country physician was admitted at the age of forty. He presented the characteristic dermatitis; had diarrhea, anorexia, and was so weak as to necessitate confinement to bed. The mental symptoms were well defined; the delusions were depressive, painful, and apprehensive; he feared that he was to be burned alive; was going to hell and the Lord had taken his spirit from him and had made his hands sore because he had been profane and had not lived right. While in the hospital he attempted suicide by hanging. During a stay of two months in this hospital the nervous symptoms improved; the diarrhea subsided; there was a gain in weight of fifteen pounds, and he returned home. The feature of special interest in this case was the fact that for ten years before admission this man had suffered from gastric dyspepsia each summer, attended by loss of weight, although the skin involvement did not show itself until two years before admission.

Case IX.—During the past summer the disease in aggravated form has been observed in one of our old patients—a dement sixty-one years of age—who has been in the hospital for twenty-one years and was insane ten years before admission. For the past two or three years he has been living at a colony building, remote from all cases of pellagra, and contagion during this time is not to be considered.

Urinalysis in cases under our observation has shown nothing characteristic. Examination of the blood reveals the changes incident to secondary anemia, and we have found an increase in the number of lymphocytes, especially the larger cells. The eosinophiles appear to be reduced in number.

I am indebted to Dr. James King Hall for the male cases reported in this paper.

A CASE OF SINUS THROMBOSIS COMPLICATED BY CEREBELLAR ABSCESS AND PURULENT LEPTOMENINGITIS.

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We all know that there is a natural tendency among surgeons to report only their favorable cases. But the purpose of case reports is not to advertise one's skill or prowess. They should be written solely for the purpose of increasing our knowledge of the subject of which they treat. The most instructive cases are very often those with the most unfortunate terminations. We learn more from a single autopsy on a case that we have observed very closely during life, than we do from the study of a large number of cases that get well.

The following case has been very instructive to me, and I hope that others may glean a point or two of value from its report:

Robert K., a laborer, 58 years of age, was admitted to Dr. Berens' service at the Manhattan Eye, Ear and Throat Hospital, on July 3, 1909, complaining of earache in the right ear, and pain in the side of the head, for two weeks. Examination showed a thick reddened drum-membrane, with a moderate sized perforation in the anterior inferior quadrant, from which exuded a large quantity of pus. There was some edema of the postero-superior canal wall, and marked tenderness over the mastoid. Temperature 102° F. There was no history of chills or sweats.

A simple mastoid operation was done. A thick dense cortex was found. When this was removed, it was seen that the entire mastoid process was converted into a single abscess cavity, the floor of which was formed by bare sinus wall, a large portion of the inner table having been eroded. The sinus was exposed for about 1½ inches of its extent. The sinus wall was covered with granulations, and in its lower part, a short distance above the jugular bulb, there was a ragged hole ¼ inch in diameter, leading into the lumen of the sinus. The sinus contained a clot. Without disturbing the sinus any further, the neck was scrubbed up, and the internal jugular vein resected from just above the clavicle, to a point above where it receives the facial vein, the termination of the facial vein being also removed. The upper part of the vein was hard, and contained a clot. The lower part was free. The reason for resecting the vein before exploring the sinus, was to avoid the possibility of pieces of infected clot breaking off and entering the general circulation.

Coming back to the mastoid wound again, the cortex was removed over the sinus, above and below, until healthy dura was seen. The sinus was now exposed over an area of 2½ inches. The outer wall of the sinus was removed with a pair of scissors. There was no bleeding. A curette was passed into the upper or torcular end of the sinus, and a long clot dragged out. This was followed by a free return flow. The bleeding was stopped by means of an iodoform-gauze plug. The curette was next inserted into the lower end of the sinus, and another clot dragged out, followed by a free return flow from this end. This was also controlled by means of an iodoform-gauze plug, first inserting a wick of gauze into the jugular bulb, in order to induce clotting in the bulb, thus minimizing the danger of infectious emboli being carried off through the inferior petrosal sinus. The wound was packed, and the patient sent back to bed in good condition.

The temperature dropped to normal the next day, and remained normal for thirteen days. The patient felt perfectly well and had no symptoms whatever. He was up out of bed in a week. The neck wound healed by primary union.

On July 16, thirteen days after the operation, just as we were about to discharge him from the hospital, he began to complain of slight headache. His temperature and pulse were normal. The mastoid wound looked well. He was given phenacetin, and a cold pack to the head, and the headache cleared up.

On July 19 there was a return of the headache, with a temperature of 102.4° F., and a pulse of 72. The headache was most marked in the occipital region. Examination of the eye-grounds was negative. Blood examination showed a leucocytosis of 9700—a differential count showing large mononuclear lymphocytes, 2 per cent.; small mononuclear lymphocytes, 12 per cent.; polynuclear neutrophiles, 82 per cent.; transitional forms, 4 per cent. His general condition was good. He was bright and cheerful.

For the next three days, the temperature ranged

between 99° and 102° F., with a pulse between 72 and 80. The headache varied, being rather severe at times; at times disappearing altogether. There were no other local signs.

On the morning of July 23, the house surgeon called me up, and told me that there was a decided change for the worse in the man. He had had a chill, the temperature going up to 102.4° F., with a pulse of 96. He had become somewhat apathetic. I was unable to see the patient until the afternoon, at which time he showed all the typical signs of an advanced meningitis. It was impossible to rouse him to answer any questions. He lay with his head thrown back, and his legs drawn up, moaning constantly. There was a marked tremor of the arms and legs. Rigidity of the neck. Increased knee-jerks. Kernig's sign. The pupils were equal and reacted to light. The right eye-ground was normal. The left showed slight swelling of the disc, with blurring of its edges.

A blood-count showed a leucocytosis of 15500, differential count showing large mononuclear lymphocytes, 2 per cent.; small mononuclear lymphocytes, 13 per cent.; polynuclear neutrophiles, 79 per cent.; transitional forms, 5 per cent.

A lumbar puncture was made. The cerebrospinal fluid was not under pressure. It was very turbid, and showed, under the microscope, pus cells and the pneumobacillus of Friedlaender.

He died the next morning at 10 o'clock.

Autopsy showed the entire pia bathed in thick, creamy pus, extending to the base of the brain, and down into the spinal canal. The ventricles were full of pus. On the surface of the right lobe of the cerebellum, a short distance behind the obliterated sinus, there was an abscess containing about two drachms of fetid pus. There was no necrotic bone. The edges of the mastoid wound were perfectly healthy.

It is very hard to conceive that a cerebellar abscess of such size could develop in a day or two. The only other assumption is that it had existed for several weeks without any symptoms. There was at no time dizziness, ataxia, nystagmus, or any other cerebellar symptom. This might be accounted for by the superficial location of the abscess. There was very little actual destruction of brain tissue.

There are several possibilities in this case.

It is possible that the cerebellar abscess may have been present at the time of the mastoid operation. It gave no symptoms, and there was no reason for my exploring the brain at that time. Two weeks later, the abscess perforated into the pia-arachnoid space, and started up a purulent leptomeningitis.

On the other hand, it is possible that the cerebellum became infected after the mastoid operation, by extension from the infected sinus. This, however, I do not consider very likely, as the sinus was widely opened, the entire outer wall having been removed, free drainage being established through the wide mastoid wound.

An interesting point in this case was the presence of sinus thrombosis, without chills, sweating, or a zigzag temperature curve. I think this is explained by the presence of the spontaneous perforation in the sinus wall, allowing free drainage from the interior of the sinus into the mastoid cavity.

About one-third of the cases of brain abscess are located in the cerebellum. Out of 100 cases of brain abscess observed by Koerner, its location was in the temporal lobe 63 times, in the cerebellum 31 times, and in both situations 6 times. The cerebellum becomes infected either as the result of sinus thrombosis, as in the present case, or following disease of the labyrinth. Occasionally the abscess occurs on the side of the brain opposite to the diseased ear, in which case it is due to a pyemic metastasis.

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SALIVARY CALCULI.*

By GEO. T. WELCH, M.D.,

PASSAIC, N. J.

In the suprahyoid or submental region there is loose connective tissue, in which is imbedded the parotid, the submaxillary, and the sublingual glands. Their excretory ducts communicate with the mouth, and during twenty-four hours pour out a secretion of from one to three pints of saliva. The source from which the cells of the glands obtain the materials of their secretion is from the plasma of the blood, which is filtered off from the circulation into the interstices. Under the stimulation of the presence of food, the saliva is poured out in abundance, though at other times there is barely enough to keep the mouth well moistened. In 1000 parts of the saliva there are found 5.9 of solids, of which 2.29 are made up of the various salts of potassium, sodium, calcium, and magnesium. The liquids of the body at all times carry in solution substances that are inclined to solidify, should there be an arrest of the circulation in a part, or should there be a roughness of surface from any cause, to which the scarcely dissolved salts and sediments could cling and calcify. From this cause we find arteries clogged, as in arteriosclerosis. From any stoppage of the excretory ducts of glands, therefore, we need not be surprised to find that in time calculi have developed. Thus we have biliary calculi, lachrymal calculi, calculi of the pancreas, calculi of the tonsils, and salivary calculi.

Calculi in the parotid gland are rare, and when they do occur, are due to causes in the duct-radicles, which retard the flow of the saliva. Calculi in the submaxillary and sublingual glands, while also rare, are, nevertheless, more common than those of the parotid. Their ducts discharge beneath the tongue, and from their location they are liable to mechanical injuries by foreign bodies, like bristles, small bones, hair, etc., getting into their apertures. The mucous membrane, and the loose connective tissue in the floor of the mouth, under the stimulus of an inflamed duct or gland, readily takes on cellulitis, and from the congestion it becomes brawny, hard, and, the skin about the chin and throat presenting a shining red appearance, the whole may simulate morbid conditions that might well puzzle an expert.

Such condition I found in a lady, Mrs. E. A. S., to whom I was called on September 24, 1908. Her countenance, which was distorted by a great swelling of the region about the right submaxillary, exhibited much suffering and anxiety. She gave a history of her usual degree of health, up to three months before my visit. About this time, a dentist, who had been treating her for some alveolar disease, had inserted a plate with an artificial tooth, to take the place of one extracted. The plate, she

*Read before the Passaic City Medical Society, November 11, 1909.

said, was rather long and pinched the floor of the mouth, and the gum beneath, and gave her much disturbance. Upon the advice of the dentist she had persisted in wearing it, until the pain and swelling had become so great that she had to desist. It was with much difficulty that I could examine the tongue and mouth, as the cellulitis was intense. The glands, the gum, the tongue were all implicated in the condition, and all the parts were slurred into one compact mass, hard, shining, and angry in appearance. The right half of the tongue was stiff and indurated; the sublingual and submaxillary glands on this side were in the same condition, and I could nowhere find evidence of suppuration. I endeavored with a fine probe to discover the aperture of one of the ducts, but could not do so.

Under an antiphlogistic treatment, with antiseptic washes, etc., the parts showed some improvement, the tumefaction slightly subsiding, and the pain abating. The Morton wave current of static electricity was tried with a measure of satisfactory results, the soreness becoming less, and the size of the diseased part abating, but the tenacity of the cellulitis was not reassuring as to a final favorable issue.

On October 8th a prominent surgeon was called in consultation, who, after a careful examination, pronounced the disease carcinoma, of an inoperable character, and gave a hopeless prognosis. Happily, the progress of the disease did not show the characteristic breaking down of structure that accompanies carcinoma in this locality.

After the surgeon was gone, I debated whether I should attempt a treatment with toxins of the streptococcus erysipelas and the bacillus prodigiosus mixed, or with the *x*-ray. I concluded upon the latter course, since the tumor would be so readily permeated by the *x*-ray in such a superficial position.

I gave the first treatment on October 13, and continued it until a decided redness of the skin on October 23 caused me to desist, until the 29th, when I recommenced it, and remitted it on December 28 for the same reason, until January 3 of last year, when it was used at longer intervals. At first it had been used nearly every day, until the evidence of decided redness occurred, then once in two days, and finally once in three days. In the meantime there was gradual abatement of the more serious symptoms, and the size of the diseased part became reduced one-half. Occasionally I would be able to find the aperture of the submaxillary duct by the side of the frænum linguæ, and could probe it for a short distance, when an ill-smelling fluid would be emitted, but I could not find any of the small ducts of the sublingual gland, although there should have been seven or eight of these opening by the side of the frænum.

In March there was some increase in the size of the tumefaction, and the *x*-ray was given three times a week, but in April and after, the rule was to give it about once in four or five days. The induration between the involved glands gradually dissolved away, until finally, from being such a large, solid tumor, the tongue had become normal and flexible, and the two glands were once more separate, and evidently their physiological life was partly reestablished, although both were yet large and indurated.

July 24 there was a reaction, and the swelling and pain returned. I could not find any aperture, but I felt convinced that there might be some surgical relief afforded, and at my suggestion another distinguished surgeon was consulted on July 28. He, also, was inclined to call the disease carcinoma, and advised against any surgical interference, stating that an operation would be frightfully radical, and strongly advocating instead the continuance of the use of the *x*-ray. During my vacation in August, Dr. Percy H. Terhune kindly continued the *x*-ray treatment of the patient. During September and October I gave the treatment at irregular intervals, the glands having now become so much smaller that there was not the same urgent need of it as formerly.

On October 11 one of those periodical reactions took place, and the floor of the mouth and the submaxillary region became swollen, hard, and painful. Fortunately I was able to discover one of the ducts of the sublingual gland, which, upon being probed, emitted a fetid liquid, much to the relief of the sufferer. The following day I found the aperture again, and also discovered a hard substance imbedded in the duct about one inch back from the opening. In examining this, the probe tore through the wall of the weakened duct, when a large salivary calculus was exposed. After its removal, the probe was carried down to the gland, and with the finger pressing against the latter, I was able to determine that there was no other foreign substance remaining. The submaxillary gland was also examined by pressure from within and without, but nothing foreign was discovered therein.

Presumably the pressure of the dental plate on the gum, and on the floor of the mouth, brought on the inflammation that caused such a frightful cellulitis, which closed up the ducts of the glands and induced the salts in the saliva, at some stage of the disease, to be precipitated and form the calculus.

At this date very little vestige of the original disease is to be found.

Scleral Collapse During Cataract Operation.—Santos Fernández describes twenty-six cases that occurred in his practice. He ascribes the cause to the excessive use of cocaine for, since he has limited the amount instilled to three drops of a 3 per cent. solution, no more cases have occurred. At first he thought that this accident was more liable to happen in weak people, but he has abandoned the view after he has seen it happening in healthy, robust people.—*Chronica Medico-Quirurgica de la Habana.*

Intestinouterine Fistula.—Le Jemtel finds recorded twenty-two cases of intestinouterine fistula. There are three conditions in which this lesion takes place. They are acute uterine rupture during labor, due to uterine action, forceps, or version in attempts at delivery; pelvic abscesses connected with the adnexa or appendix opening into the uterus; and cancerous processes in which the disease eats its way through the uterine walls. In rupture of the uterus the intestine becomes prolapsed through the uterine wound, and the uterine contraction causes strangulation of the intestine, gangrene ensues, and fecal material with gangrenous intestinal masses are discharged through the cervix uteri. In any case the diagnosis is very difficult, the symptoms being simply those of pelvic peritonitis, until the fistula has been established and the fecal discharge takes place. Protective adhesions prevent the discharge of fecal material into the abdominal cavity. Spontaneous cure is very rare, the condition being a very grave one, ending fatally from infection. Prophylactic treatment in case of uterine rupture during labor is immediate hysterectomy before strangulation has occurred. In cases of pelvic abscess, drainage should be secured before the rupture into the uterus has occurred. Once the fistula has become established, irritation of vagina and vulva, with ulceration, occurs, and crises of acute inflammation recur. Only an abdominal operation can give promise of relief, combined with intestinal anastomosis or enterorrhaphy.—*Archives Provinciales de Chirurgie.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE BUREAU OF PUBLIC HEALTH.

A REVIEW of the literature which has appeared during the past few weeks in both medical and lay periodicals upon the subject of the proposed National Bureau of Public Health, which was advocated by President Taft in his message to Congress a few months ago, shows a remarkable uniformity of opinion as to the need of such an institution. It is generally acknowledged that such a bureau is needed and that its foundation would do much to improve the health and prosperity of the country. It is, therefore, something of a surprise to learn from the Bulletin of the Committee of One Hundred on National Health for February, 1910, that, in order to push the legislation through Congress during the present session, money to the amount of $25,000 is needed. This statement, too, appears in connection with the fact that letters have been "sent inviting each Congressman to declare his position and to pledge his support" and that "the great majority of responses show a willingness to do so, and many letters are enthusiastic." It is difficult to understand how a reform which the President wants, which the great majority of the Congressmen want, and all of the thinking men and women of the country want, should require such a sum of money to bring about.

Another surprising statement in the same pamphlet is that "there is no Department in Washington disseminating information on how to care for infants, how to prevent or cure tuberculosis, typhoid fever, etc." Though the United States Public Health and Marine Hospital Service possibly is not primarily a department for the "dissemination of information" but rather for actual work in improving the health of the nation, it has in the course of its one hundred and twelve years of existence, not only done much in the way of the prevention of disease, but in its publications has disseminated a large amount of information on prevention and cure. It is therefore to the Marine Hospital Service that the country most naturally turns at this time of agitation for the Bureau of Public Health. A corps of expert sanitarians and medical scientists, this body is surely well equipped to enter even a wider field of usefulness than it now occupies, and if the new Bureau is formed it should be around the Public Health and Marine-Hospital Service as a nucleus. The success of the proposed Bureau requires that it be kept out of politics and be placed in the hands of just such an active, disinterested body of men as this corps has proven itself to be.

A more powerful and far-reaching organization for the care of the health of the nation is needed, and, provided it is properly constructed, the sooner it comes the better it will be for the country. Care, however, must be taken that the new Bureau is a step upward and not downward. The formation of a civil commission in which promotion depends upon political influence and favor will be subversive of the purpose for which the bureau is to be created. Where public health is concerned, the organization in control must be entirely outside of politics, but backed by the full power of the Federal Government. In short it should be a strictly military organization, where the appointments are for life and where promotion depends only upon years of service and efficiency. Such an institution already exists in the Marine Hospital Service, a corps prepared and willing on short notice to be enlarged and to take on the broader duties. No new bureau making the Marine-Hospital Service a subordinate department is needed. All that is necessary, if a bureau, and not a department with a cabinet officer at its head, is desired, is to enlarge the powers of the present Public Health and Marine-Hospital Service. No lay politicians are wanted to care for the health of the country.

NEW ANTIVIVISECTION TACTICS.

DURING the past four sessions of the Legislature of this State, bills have been introduced for the purpose of placing severe restrictions upon the practice of animal experimentation. Fortunately all such bills have been defeated by the sensible arguments of the medical profession. Foiled in these attempts, the antivivisectionists now seek by another method to insert their entering wedge. This consists in a bill which has been introduced into the Senate by Mr. Bayne and into the Assembly by Mr. Goodspeed, "To establish a commission to inquire into the extent and nature of the practice in this State of experimentation on living animals." The text of the bill will be found elsewhere in this issue.

Some of our readers may be inclined to welcome such an investigation on the ground that when once the full details about laboratory procedure are told the antivivisectionists will no longer have reason to continue their occupation. This is a plausible but, we believe, a specious attitude. The example of England is here, as throughout the antivivisectionist movement, illuminating. The movement originated in England, and its adherents in this country are closely following the methods and spirit of their prototypes across the ocean. There they have twice resorted to an investigation of the laboratories. As a result of violent agitation, the first Royal Commission was appointed by Queen Victoria in 1875. After taking elaborate testimony, much of which came from members of the medical profession, who at that time did not appreciate the importance of animal experimentation, the commission advised the enactment of a restrictive law. This was largely for the purpose of preventing imaginary abuses in the future since the testimony showed that there ex-

isted at the time no serious abuses warranting such a drastic measure. It was expected by many people that the new law would put a stop to the unpleasant agitation. Such expectations were never realized. The agitation has raged more fiercely ever since, more and more restriction being demanded. There exist now in Great Britain no less than fifteen anti-vivisection societies.

In 1906 these societies again demanded the investigation of laboratories and King Edward yielded to their demand. After a year and a half a second Royal Commission sat and took elaborate testimony. This has been printed in full and again overwhelmingly demonstrates the absence of abuse. The commission has not yet made its final report, but in view of the violent discussion that has raged for two years over the details of the printed testimony, there is no reason to believe that the report will prove to be a palliative in any degree.

In case the legislature deems it wise to pass the present bill the medical profession will give every opportunity to the commission to learn details of laboratory procedure, for, as every informed physician knows, nothing goes on in any of the laboratories which needs to be concealed from well-intentioned and mentally poised persons, whether professional or lay. Indeed, the details of those experiments are constantly being published in medical books and journals, and are seized upon and distorted by the hysterical or dishonest as evidence of the cruelty of animal experimentation, although they prove the direct contrary. And so it will be with the report of this commission, if the bills are passed. The Coleridges and the Belaises, the *Heralds,* and the *Lifes* will go on just the same; they will scream out that a dog's leg was amputated or its thoracic cavity was opened and will cry for the cruelty of it, all the time ignoring the fact, which they cannot possibly fail to know is a fact, that the animals were anesthetized and felt absolutely no pain. In all this agitation, it should be clearly understood that the antivivisection movement is due rather to a peculiar psychological state in its adherents than to present experimental methods.

THE INTERNATIONAL OPIUM COMMISSION.

The incursion of Americans into the Far East, the fact that the Philippine Islands are now under the American flag, and the varied interests of this country in Asia have rendered the material and physical welfare of the Chinese a matter of considerable moment to the people of this land. For some time American missionaries have been foremost in urging that strong efforts should be exerted to deliver the inhabitants of China from the domination of opium. It was felt that no true progress in any branch of industry or in religion or in culture could be made by races that were largely slaves to the opium habit. In recent years many conferences and discussions on the subject have been held and measures have already been put into force to curb the evil. The International Opium Commission, under the presidency of the American Bishop Brent of the Philippine Islands, sat at Shanghai from February 1 to 26, 1909, and the report of its proceedings has been published recently. The following countries were represented by delegates: Austria, America, China, France, Germany, Great Britain, Italy, Japan, Portugal, Russia, and Spain. The report of the outcome of the conference is a voluminous document, but singularly disappointing in some of its features. For instance, the medical and scientific aspects of the question are not dealt with. China, Japan, and America whose delegations contained each one medical expert, wished to appoint a committee to investigate the matter from these standpoints, but the proposal was negatived by the other countries concerned. However, the Japanese report does consider the subject to some extent from this point of view, and is consequently by far the most instructive and interesting to medical readers.

When the Japanese came into control of Formosa, they found the opium habit more or less general with the population, and, of course, especially with the large proportion of the inhabitants who were of Chinese origin. The suppression of the habit was gradual. From a study of the question at the time of their arrival in Formosa, the Japanese compiled the following statistics: Of all males in Formosa, 6.64 per cent. were discovered to be addicted to the opium habit and the greatest percentage of these was found to be in the educated classes, 39.81 per cent. being in the liberal professions, while the poorer or agricultural classes showed only 2.21 per cent. In the endeavor to elucidate the point as to the temptations which caused the contraction of the habit, the first step was traced in 93 per cent. of the cases to the use of the drug by medical advice. With regard to the treatment of sufferers, there are in Formosa numerous hospitals which admit patients. The most common mode of treatment has been by gradual withdrawal of the drug, although this can hardly be termed satisfactory treatment. Public opinion was at first hostile to the Japanese, but now owing to the judicious measures adopted a strong public sentiment has arisen against the opium habit.

In order to suppress the habit in China these edicts have been promulgated: 1. All smokers are to be licensed. All smokers under the age of sixty are to diminish their consumption by 20 to 30 per cent. yearly, and in ten years time all smoking is to be prohibited. 2. All shops which retail opium are to be licensed, and no new ones can be opened. 3. All Government officials under the age of sixty are to give up the habit as examples to others, being allowed only six months in which to do so. 4. Cultivation of the poppy is to be restricted by, at least, one-tenth a year. 5. The sale of morphine and of hypodermic appliances is strictly prohibited, the penalty for evasion of this law being decapitation. Notwithstanding the severity of the punishment, morphine used hypodermically has been largely employed in the stead of opium smoking, being cheaper and more convenient. The morphine is smuggled into China, the Chinese being adepts at this practice. Estimates of the percentage of smokers in the general population of China vary for the same locality between 20 and 75 per cent.

The report of the United States delegation alludes to the opium-smoking question in this country. It

is pointed out that in the Western States the problem has for long been a serious one. A high tariff on the drug has resulted only in increased smuggling. The report contains some interesting information as to the opium habit among the white population of America. The following statistics are stated to have been collected from twenty-five large cities, in regard to the prevalence of the habit: Of prisoners in large jails, 5.6 per cent.; of the general criminal population, 15.4 per cent.; of prostitutes and their parasites, 21.6 per cent.; of physicians, 2.05 per cent.; of trained nurses, 1.32 per cent., and of the general population, 0.18 per cent. are habitual users of morphine or of opium. It was stated that, although regulations aimed against the habit in the Philippine Islands were strict and enforced, smuggling was carried on somewhat extensively. Resolutions were passed recognizing the sincerity of the government of China in the attempts to abolish the opium habit, and recommending that the rigid laws against it should be enforced without fear or favor.

There is no doubt that it will take time to suppress the opium habit entirely, and the traffic in the drug in the Far East. Certain vested interests are opposed to suppression, but public opinion in all civilized countries is too strong to allow the question of money to stand in the way of thorough reform. Year by year the use of narcotics will be diminished although their employment will probably never entirely disappear. As said before, it is to be regretted that the scientific and medical aspects of the matter were not more closely considered at the conference.

SUGGESTION NARCOSIS.

Though nearly a century has elapsed since Récamier first applied hypnotic sleep to surgical operations, use of this power of mind over mind has never been generally made in surgical practice. Occasionally one hears of the extraction of a tooth or the opening of a furuncle while a patient is under the influence of hypnotism, and in rare instances more extensive operations have been performed. That the use of hypnotism is not necessarily confined to minor or momentary operations is shown by an article in the *Deutsche medizinische Wochenschrift* for February 10, 1910, in which Hallauer reports his experience in Strassmann's gynecological clinic in Berlin. The author does not depend solely upon the use of mental influence to anesthetize his patients, but begins the procedure by giving a few drops of chloroform. When the patient has begun to be drowsy, and has lost to a certain extent her self-control, by gently stroking the forehead and hair and suggesting in a monotonous voice first that she is going to sleep and finally that she is asleep, a thorough hypnotic condition is produced. In some instances the patient falls into a deep sleep, while in others, though remaining conscious, she is quite oblivious of all sense of pain. When, however, the operation is completed, and the patient is told that she is awake, she is able to arise at once, and in the case of one of the simpler procedures, to go to her home immediately, having none of the symptoms usually experienced after chloroform or ether narcosis.

Hallauer has made use of this procedure in over three hundred cases. In 60 to 70 per cent. the results were perfect; in 20 per cent. the effect was only partial, but quite sufficient to permit the operation; while in but 10 per cent. it failed, and chloroform anesthesia was required. He has used the suggestion narcosis in the operations of curettage, dilatation of the cervix, removal of retained membrane after abortion, amputation of the cervix, replacing of a retroflexed uterus, cauterization of carcinomata and caruncles, and many others. In all such procedures gentleness and care must be used, and the patient must be told that she is being washed or irrigated.

In obstetric cases the method is said to be of especial value, nervous patients lying quietly and comfortably in some cases for as long as one or two hours during the painful second stage of labor, neither at the time nor afterwards having any appreciation of the pain of childbirth. It is further recommended for examinations, the same perfect relaxation being obtained as under general anesthesia, while at the same time the patient can aid the examiner by deep breathing and voluntary movements. It is said to be of distinct value in conjunction with lumbar anesthesia, relieving the patient of all mental anxiety, and in the early stages of a general anesthetic.

CYCLIC VOMITING.

There are few diseases of childhood the etiology of which has been the subject of more divergent opinions than the periodic occurrence of vomiting which for want of a better title is known as cyclic vomiting. Thought at first to be purely of neurotic origin, the discovery of acetone in the breath and urine caused the disease to be classed as an acidosis, and to be treated by the administration of large doses of alkalis. A wider knowledge of the physiology of the presence of acetone and diacetic acid in the urine, however, demonstrated that these substances might appear in a child with protracted vomiting from any cause, and even in other conditions in which deprivation of food caused a certain degree of starvation, without the accompanying emesis. The acidosis and acetonuria was therefore accepted as a result rather than a cause of the cylic vomiting. Langmead of London considered the condition to be caused by an intestinal intoxication with absorption of a fat splitting poison, which resulted in the tissues being flooded with acetone and the other products of fat catabolism. Comby, on the other hand, has presented the theory that the symptom complex was in reality a manifestation of chronic appendicitis. In the *British Journal of Children's Diseases* for February, 1910, Russell reports a case of cyclic vomiting which is in many ways suggestive of at least a possible cause of the condition. The patient, a boy of four years and nine months of age, had suffered from periodic attacks of vomiting from birth, each attack lasting in the neighborhood of twenty-four hours. His final attack was more prolonged and was interrupted by a remission. The first part lasted one week and was characterized by frequent vomiting, rapid emaciation, and the presence of acetone and diacetic acid in the urine. This stopped as abruptly as it began, but after three weeks of apparently good health it recurred, and at the end of five days the child succumbed. The au-

topsy showed a marked degree of hypertrophy and stenosis of the pylorus. The author, while not claiming that such a hypertrophic stenosis of the pylorus is the usual, or even a common, cause of cyclic vomiting, calls attention to it as a possible etiological factor of this puzzling disease. Recurring spasm of a hypertrophied pylorus would at least explain the symptomatology of cyclic vomiting, its sudden onset with the beginning of the spasm, and its equally prompt relief with its cessation. The condition of the pyloric valve should at least be considered and investigated in these cases of periodic vomiting of childhood.

News of the Week.

A Proposed Investigation of Physiological and Surgical Laboratories.—A bill has been introduced in the New York Assembly by Mr. Goodspeed, "To establish a commission to inquire into the extent and nature of the practice in this State, of experimentaion on living animals, together with the condition of the laws of the State relative to the proper protection of scientific experiments without danger of unnecessary cruelty." The act provides that, "The Governor is hereby authorized to appoint a commission which shall consist of seven members, two of whom shall be physicians or scientific men residing in this State, two of whom shall be active members of some organization of this State, having for its purpose the prevention of unnecessary cruelty in vivisection, two of whom shall be lawyers practising within this State, and the remaining member of the commission shall be appointed at large. The commission shall choose a member thereof as chairman. Such commission shall serve without compensation, and shall make inquiry, examination, and investigation into the practice of vivisection or experimentation on living animals in this State. It shall also make a full inquiry and investigation into the condition of the law for the protection of scientific investigation of this character in this State, as well as the condition and effectiveness thereof for the prevention of abuse in vivisection and of unnecessary cruelty to animals therein. For these purposes the said commission is hereby authorized to send for persons or papers, to administer oaths, and to examine witnesses and papers respecting all matters pertaining to this subject. Such commission may employ necessary clerical or other assistants, and shall make a full and final report to the Governor within one year after its appointment, including such recommendations for legislation as in its judgment may seem proper." The same bill was introduced in the Senate by Mr. Bayne.

The Committee on Prevention of Tuberculosis of the State Charities Aid Association held a two days' conference in Albany, March 18 and 19. The topic of discussion at the first session was "Discovery and Supervision of Cases in the Home." At the banquet in the evening the subject was open-air schools not only for tuberculous children but for all children. The discussion the second morning was upon the institutional care of tuberculosis as the best means of prevention and cure. The conference closed with a mass meeting at which, among others, President Taft and Governor Hughes were speakers.

Plague in Hawaii.—Rear-Admiral Corwin P. Rees, commandant of the Naval Station at Honolulu, has advised the Navy Department of the existence of plague in the islands. Four deaths have occurred on the Island of Hawaii—two in Hilo, two in Honokaa. There are no suspicious cases on any other island.

To Study Pellagra.—The United States Public Health and Marine Hospital Service has ordered Past-Assistant Surgeon C. H. Lavinder to Milan, Italy, to make a study of Pellagra in that neighborhood.

The Lakewood Preventorium. — Supreme Court Justice Gerard of New Jersey has denied the application by Mr. Nathan Straus for an injunction restraining Mr. Nathan and the Lakewood Hotel Company from ejecting the tuberculosis preventorium from the Cleveland cottage in Lakewood. This necessitates the preventorium leaving Lakewood.

Medical Schools to Consolidate.—An effort is being made in Oklahoma to bring about the consolidation of the Oklahoma State University and the Epworth Medical College to enable the third and fourth year students of the two institutions to obtain their instruction together, the new rule to be effective the next school year. The plan, which has been under consideration for weeks, has been approved by Governor Haskell, deans of the medical departments of Epworth and the State university and the board of regents of the university. The only obstacle now is whether the State law, which says the University of Oklahoma must be located at Norman, stands in the way of the consolidation.

Contagious Hospital for Cambridge, Mass.—Appropriation has been voted by the City of Cambridge of the sum of $95,000 for the construction of a new hospital for contagious diseases.

Charitable Bequests.—By the will of the late Elizabeth Hopple of Philadelphia provision is made for the sale of the testatrix's jewelry for the establishment of a free bed in the children's ward of the Presbyterian Hospital at a cost, however, not exceeding $3,000. By the will of the late Charles E. Etting of Philadelphia the sum of $10,000 is bequeathed to the Philadelphia Orthopedic Hospital and Infirmary of Nervous Diseases, for the endowment of two perpetual free beds. By the will of the late Jacob Steinmetz Thorn of Philadelphia, disposing of an estate exceeding $200,000, the sum of $5,000 is bequeathed to the Episcopal Hospital for the endowment of a free bed in the memory of his widow, Florence E. Thorn. Upon the death of the widow the principal of the residuary estate is to be divided among several institutions, including the Home for Incurables, the Medico-Chirurgical Hospital, the Pennsylvania Hospital, and the Sanitarium Association.

Dr. J. Solis-Cohen.—A testimonial dinner was given to J. Solis-Cohen of Philadelphia, on March 15, by former assistants and associates, in celebration of the fiftieth anniversary of his graduation from the medical department of the University of Pennsylvania.

Dr. A. C. Abbott has been appointed by Dr. Joseph Neff, Director of Public Health and Charities, Philadelphia, delegate to the International Congress of Hygiene and Medicine to be held at Buenos Ayres, Argentine Republic, in April. He will make an exhibit of medical inspection of schools.

The Florida Medical Association will hold its thirty-seventh annual meeting at Jacksonville, April 6, 7, and 8, 1910. The *President* of the Association

is Dr. H. E. Palmer of Tallahassee, the *Secretary and Treasurer* is Dr. J. D. Fernandez of Jacksonville, and the *Chairman of the Committee of Arrangements* is Dr. P. C. Perry.

The Harvey Society.—The eighth lecture of the Harvey Society will be delivered by Professor Magnus-Levy of the University of Berlin at the Academy of Medicine, New York, on April 9 (not on April 2 as previously announced), at 8.30 P.M. The subject will be "Pathology and Therapy in Diseases of Metabolism." All those interested are cordially invited to be present.

Association of American Medical Colleges.—At the annual session of this Association, held in Baltimore this week, the following officers were elected: *President,* Dr. J. A. Witherspoon, Vanderbilt University; *First Vice-President,* Dr. H. D. Arnold, Tufts College; *Second Vice-President,* Dr. Charles R. Bardeen, University of Wisconsin, and *Secretary-Treasurer,* Dr. Frederick C. Zapffe, University of Illinois.

The City Hospital of Providence.—The consulting staff of the new City Hospital of Providence, R. I., has been appointed as follows: *Medicine*—Drs. Frank L. Day, Edmund D. Chesebro, William Gleason and Joseph M. Bennett. *Surgery*—Drs. Edgar B. Smith and John W. Keefe. *Ear, Nose, and Throat*—Drs. Edward S. Bacon and N. Darrell Harvey. *Eye*—Drs. Frederick T. Rogers and George Van Benschoten. *Dermatology*—Drs. Gardner T. Swarts, Harry W. Kimball, and J. T. Farrell. *Pathology*—Dr. Frank T. Fulton.

Obituary Notes.—Dr. ALFRED A. STOCKER of Cambridge, Mass., died at his home, March 15, 1910, aged 90 years. Dr. Stocker was a graduate of the Harvard Medical School in 1853. During the Civil War he attained prominence as a military surgeon, having served as major-surgeon to several regiments.

Dr. MARTIN AMADOR of Brooklyn died at his home, March 13, 1910, aged 52 years. Dr. Amador belonged to a family prominent in South American affairs, his father having been President of Colombia and his cousin of Panama. He was born in Cienago de Oro, Colombia, and coming to the United States in his youth was graduated in 1878 from the medical department of the University of New York. After serving for some time as an assistant in the City Hospital on Blackwell's Island he was called as professor of anatomy, physiology, and surgery to the University of Cartagena. Later he was Consul-General of Colombia in Holland and Belgium and afterward was Vice-Consul of the United States in Colombia. He settled in Brooklyn in 1893. He was a member of the Kings County Medical Society, the Associated Physicians of Long Island, and the Medical Society of the State of New York.

Dr. DANIEL EDMUND BARRY of New York died at his home, March 13, 1910, aged 59 years. He was a graduate of Trinity College, Dublin, and of the College of Physicians and Surgeons of New York in 1874. He was a member of the Medical Societies of the County and State of New York, and of the American Medical Association.

Dr. WILLIAM WILLET MOON of Brooklyn died March 13, 1910, aged 40 years. Dr. Moon was a graduate of the University of Virginia, in 1892, and a member of the Homeopathic Medical Society of King's County.

Dr. THOMAS J. BRODERICK of Charlestown, Mass., died at his home, March 5, 1910. He was a graduate of the Harvard Medical School in 1882, and was a member of the Suffolk County Medical Society and the Massachusetts Medical Society.

Dr. EDWARD C. CRUM of Dayton, O., died at his home, March 4, 1910, aged 63 years. Dr. Crum was a graduate of the Miami Medical College in 1870, and was a member of the Montgomery County Medical Society and the Ohio State Medical Association.

Dr. WILLIAM E. DEMPSEY of Fayetteville, W. Va., died at Deland, Fla., March 1, 1910, aged 37 years. He was a graduate of the University of Louisville in 1897, and was a member of the West Virginia State Medical Association and the American Medical Association.

Dr. ROBERT GEORGE ENGLISH, formerly of Des Moines, Ia., died at the home of his daughter, in Osawatomie, Kan., March 4, 1910, aged 92 years. Dr. English was a graduate of the Northwestern University and one of the pioneer physicians of Kansas.

Dr. FREDERICK S. GRAY of Troy, Vt., died at his home, March 10, 1910, aged 53 years. He was a graduate of the University of Vermont, in 1882, and a member of the Orleans County Medical Society, the Vermont State Medical Society, and the American Medical Association.

Dr. ANDREW W. HORTON of Pelham, Ala., died in Atlanta, March 4, 1910. He was a graduate of the Medical College of Alabama in 1899.

Dr. U. S. INGRAM of Pineville, Ky., died in Louisville, March 11, 1910, aged 35 years. He was a graduate of the Hospital College of Medicine in Louisville in 1898.

Dr. WILLIAM F. KNAPP of Monroe, Mich., died on March 10, 1910, aged 55 years. He was a graduate of the University of Michigan in 1878.

Dr. JULES LAZARD of New Orleans died March 4, 1910, aged 34 years. Dr. Lazard was a graduate of the Medical Department of Tulane University, in 1898. He was professor of physiology in the New Orleans College of Pharmacy, visiting surgeon of the Charity Hospital and Touro Infirmary, and consulting surgeon of the Presbyterian Hospital. Formerly he was treasurer of both the New Orleans Medical Society and the Louisiana State Medical Society, and served as statistical officer for the U. S. Marine Hospital Service during the yellow fever epidemic of several years ago.

Dr. JOHN N. MATTHEWS of Mason, Ill., died at his home, March 8, 1910, aged 58 years. He was a graduate of the Missouri Medical College, in 1878, and a member of the Effingham County Medical Society and the Illinois State Medical Society. Dr. Matthews was also well known for his literary attainments as a magazine writer and poet.

Dr. WALTER J. SMITH of Providence, R. I., died at his home, March 13, 1910, aged 53 years. He was a graduate of the Yale Medical School in 1878.

Obituary.

WHARTON SINKLER, M.D.

PHILADELPHIA.

WITH the death in Philadelphia, on March 16, 1910, of Dr. Wharton Sinkler, not only that city but the country has lost one of its leading physicians. Dr. Sinkler who died at the age of 65 years from angina pectoris had for many years been one of the prominent figures in American medicine. He was graduated from the medical department of the University of Pennsylvania in the class of 1868. He

was Physician to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, Neurologist to the Bryn Mawr Hospital, Consulting Neurologist to the State Hospital for the Chronic Insane at South Mountain, President of the Board of Managers of the Pennsylvania Colony Farm for Epileptics, Manager of the Episcopal Hospital, Consulting Neurologist to the Widener Home for Crippled Children, Trustee of the University of Pennsylvania, Neurologist to the Germantown Hospital, Trustee of the Eastern Pennsylvania Institution for the Feeble-minded and Epileptic, President of the Alumni Society of the Medical Department of the University of Pennsylvania, Vice-president of the College of Physicians of Philadelphia. He had been President of the Philadelphia Medical Club, Neurologist to the Philadelphia Hospital, Physician to the Episcopal Hospital, Chairman of the Section of Neurology of the American Medical Association, President of the Philadelphia Neurological Society, and President of the American Neurological Association. He was a member of many medical, social, and secret organizations, and a liberal contributor to medical literature. He described the toe-jerk and he pointed out the prevalence of acute anterior poliomyelitis in the spring of the year.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

KING EDWARD'S HOSPITAL FUND—LATENT APPENDICITIS—EFFECTS OF CALCIUM ON THE BLOOD—TROPICAL RESEARCH—BEIT FELLOWSHIPS—SIMPSON'S LECTURES—HANDLEY ON LYMPHATIC SYSTEM—CANCER HOSPITAL—PELLAGRA—LADY PRIESTLEY LECTURESHIP—OBITUARY.

LONDON, March 3, 1910.

THE annual meeting of the President and General Council of King Edward's Hospital Fund was held yesterday at Marlborough House. The Prince of Wales, as president, occupied the chair, and the honorary treasurer, Lord Rothschild, presented the statement of accounts for the year ending December 31, 1909. The report of the council was also presented, and in moving its adoption the Prince congratulated themselves on the total sum distributed since the foundation of the fund, thirteen years ago, being more than £1,000,000. His Royal Highness also referred to the satisfactory list of legacies received during the year, amounting to £46,400, not including £75,000 from the estate of the late Samuel Lewis, from which latter source the fund has benefited to the extent of £328,000. With reference to the proposed committee of inquiry into the system prevailing in London voluntary hospitals with regard to the admission of out-patients, His Royal Highness hoped that it may be appointed during this year and commence its work at the beginning of 1911. The Duke of Norfolk seconded the report, which was carried, remarking that the fund had now reached a point which His Majesty had in his mind and heart when he first promoted it.

For several weeks a favorite topic of conversation when doctors meet has been latent appendicitis, or, as some now call it, "appendix dyspepsia." It is not a new subject to many of us. Your surgeons are pretty well acquainted with it, and for the last nine or ten years one has heard of it from Germany. Opinions here are divided, so discussion has been pretty free. I reported to you the debate on ulcer of the duodenum, and this seems to follow naturally, for, among other difficulties attending appendicular disease, gastric and duodenal symptoms of all sorts are attributed to it. Mr. Moynihan, whose experience I gave you in a former letter, holds that what he calls "appendix dyspepsia" is far more common than has been believed, far more than he himself supposed until his operative work forced the conclusion upon him. He has found all the symptoms of ulceration of the stomach and duodenum, acute and chronic, including even hemorrhages in cases which, on operation, revealed no trace of such a lesion, but in which he found a diseased appendix and removed it, the result being a complete cure. He now considers that, if on operation no ulcer is found in the stomach or duodenum, it is not right to do a gastroenterostomy until examination has been made of the appendix, and indeed of the small intestine and mesenteric glands. It certainly seems reasonable that when the abdomen has been opened in consequence of an erroneous diagnosis it should be as thoroughly searched for unsuspected lesions as the state of the patient permits. It is not only when the symptoms have been so severe as to induce the patient to submit to operation and so indicative of ulceration as to compel the physician to hand over the treatment to the surgeon, but in quite a number of other cases of pain, vomiting, diarrhea, colic, and so on, which are termed dyspepsia, or perhaps colitis or gallstones, or bilious attacks, on account of the difficulty of being certain as to the precise lesion. In all such an exploratory operation may reveal the exact organic lesion, and the modern surgeon will know how to proceed. But many a medical attendant will be asking whether all these symptoms may not, as he has been taught, be due to functional disorder. Even surgeons will admit the possibility of this and the possible danger of unnecessary operations being performed as the result of wide surgical experience attracting to skilled operators an undue proportion of troublesome cases.

Mr. Bowlby takes the cautious view, and has written a letter expressing a fear that many dyspeptics may be submitted to excision of the appendix and that the "majority may be none the better." His great authority as a surgeon is reinforced in this case by the fact that he has long had his attention diverted to the danger that the inexperienced might mistake stomach attacks for appendicitis. He spoke of this in a clinical lecture published in the *Lancet*, June 9, 1904, and, as he has now restated his views, he has become, as it were, the leader of the opposition to those of Mr. Moynihan. For there is a decided division of opinion among practitioners, even those who have no direct experience to contribute, and the hesitating ones are, I think, in the majority. This is to be expected, for physicians and text books have long been impressing on students the variability of digestive derangements and the indirect and distant symptoms to which they often give rise. Mr. Moynihan speaks of hematemesis as occurring in appendicitis; but this must be very unusual, for none of the writers on the subject mention it, and I have not heard any one say he has met with it. As to simple vomiting, it occurs in so many different conditions that one instinctively asks for other indications. Its cause may be in the stomach, and either functional and of little consequence or organic and of grave import. So it may be indirect or reflex and organic, either of slight or very great importance. It is easy, therefore, to understand the fear that unnecessary operations may be performed, and, on the other hand, the regret that necessary ones have been delayed too long. These different views in some degree are characteristic of two branches of the profession—the operating surgeon sees a considerable proportion of rare or difficult surgical cases; the family doctor finds the average of such quite insignificant in numbers. So it was the surgeons who showed the nature and frequency of appendicitis, which, until this generation, passed under other names. This being so, the existence of latent appendicitis seems no more improbable than various other conditions.

With regard to the permanency of the cure by operation, very positive statements have been made, and they seemed so natural that they have hardly been questioned. If symptoms returned the diagnosis had been erroneous. But cases have occurred in which, after the removal of a diseased appendix, the symptoms have continued or shortly returned. Obviously, the lesion of the appendix was not the sole cause. An apt illustration has just been recorded. Prof. C. A. Ewald wrote to the *British Medical Journal* an account of a case in which the operator found the appendix thickened, inflamed, and adherent to the colon and ovary, adding "the complaints never returned." This only means he had not been further consulted, for Dr. E. A. Roberts writes to say that he feels it his duty to state that "she still suffers from all her old symptoms." Further, the patient assures him that "the operation was not followed by any alleviation of her troubles." Clearly, in this case the appendix was not the root of all the mischief.

The effect of calcium salts on the blood is not so simple as some of our therapeutists have declared. Prof. B. J. Collingwood has lately been experimenting on the in-

fluence of these salts on the blood *in vitro*, and has told the Dublin Academy that the rate at which the blood is shed makes a great difference in the time required for coagulation. None of his experiments gave any evidence that the addition of calcium increased the coagulability. In fact, an amount sufficient to appreciably increase the calcium content of the blood rather diminished the coagulability. From this it would seem that the therapeutical value attributed to these salts depends on other factors than the amount of calcium in the blood. The experiments were carried out at Sir A. Wright's laboratory at St. Mary's Hospital. In a number of trials on himself Professor Collingwood had not found that he could absorb any calcium. He thought that the clinical results reported might depend on vasoconstriction and that injection of serum would be a more rational treatment for the prevention of hemorrhages, but serum differed much according to the time which had elapsed after withdrawal.

Professor Milroy said blood taken by a cannula would not clot for a certain time, but a particle of tissue would cause it to do so at once, so that a drop squeezed from the finger might be influenced by contamination. Professor McWeeney referred to the statement that milk diet increased the calcium, and to this had been attributed the frequency of thrombosis in convalescence from typhoid. Mr. Wheeler said it was usual to give large doses a few days before prostatectomy, but could the medicine retain hemostatic power for days? He believed Moynihan discredited the treatment and adopted an alien serum. In reply, Dr. Collingwood said milk contained other constituents. In typhoid the feebleness of circulation might be a factor. As to continuity of action calcium had been considered by many as a physiological cardiac stimulant.

In the report for 1909 of the advisory committee for the Tropical Diseases Research Fund the revenue is stated as £3,470, of which £1,000 was contributed by the British Government, £500 by that of India, £200 by the Rhodes Trustees, and £1,770 by several Colonial governments. As the five years for which the grants were made is about to expire, the Secretary of State has asked the opinion of the advisory committee as to a renewal. The committee replied most emphatically that the work done had been of the highest value, and it would be a calamity if it were restricted. The Governments concerned have accordingly undertaken to continue their grants for another period of five years.

The trustees of the Beit Memorial Fellowships for Medical Research have elected the first ten Fellows; the appointments date from March 1, and are tenable for three years, the remuneration being £250 per annum. Candidates must be of European descent and must have taken a degree in some British university approved by the trustees. There are no restrictions as to age or medical or religious opinions. The ten Fellows now elected are: Drs. George H. Drew, F. W. Edridge-Green, Edward Hindle, Thomas Lewis, G. C. M. Mathison, Otto May, Edward Mellanby, Fred. P. F. Ransom, Sidney Russ, and Ida Smedley. The subjects adopted for the researches include "Cancer and Neoplasms," "Vision and Color Vision," "Protozaic Blood Parasites," "Mechanism and Irregularities of the Heart," "Nervous Control of Respiration and Effect on It of Blood Changes," "Mechanism of Biliary Secretion and Its Effect on Digestion," "Lesions of Peripheral Nerves," "Excretion of Creatine in Relation to Cancer and Cirrhosis of Liver," "Action of Caffeine Theobromine and Allied Substances on the Muscular and Nervous Systems," "Association of Radioactivity with Cancer and Formation of Fat in the Organism."

The next election of ten Fellows will be about the 15th of December, and the apointments then made date from January 1 of next year. Applications must be sent in before the 15th of November.

Professor Simpson's lectures at the Chamber of Commerce, which I mentioned a fortnight ago, were brought to a conclusion yesterday with one on "Bacteria." The course has not been so well attended by merchants and members of the chamber as was hoped, but a good beginning has been made in spreading an interest among them respecting tropical diseases and hygiene.

Mr. F. Swanzy, chairman of the West African Section of the Chamber, in moving a vote of thanks, spoke of the good work done by the London and Liverpool Schools of Tropical Medicine, and said a further appeal would be made to the city, perhaps at the Mansion House, for funds needed and well deserved. Mr. Batty seconded and supported this appeal, specially emphasizing the research work of the London school. The professor briefly replied to the vote, which was unanimously carried.

Prof. Sampson Handley of the Middlesex Hospital Cancer Research Laboratory, lecturing at the Royal College of Surgeons on the "Surgery of the Lymphatic System," remarked that the subject had been rather neglected, but was of great importance. He expressed the opinion that cancer, being a disease which mainly spreads through the lymphatic vessels, might be looked upon as a branch of the surgery of the lymphatics. He gave an account of his method of burying silk threads in the tissues to replace lymphatics which had been destroyed in the course of cancer. The swollen arm, which is so painful and frequent complication of mammary cancer, treated by his method, he said, was usually successful, unless subsequent effusion interfered with the drainage, the relief generally continuing for the rest of the patient's life.

At the annual meeting of the Cancer Hospital, the president, Lord Northbrook, announced that it had been decided to change the name of the Research and Pathological Department to the "Cancer Hospital Research Institute," and to enlarge it by erecting on a site adjoining the hospital grounds a building where laboratories and every facility will be provided for investigating the disease in every direction. The committee felt it a duty to join in the campaign against this deadly foe of the race now being so earnestly carried on. He hoped and even believed that eventually success would be attained and cancer be brought into the class of controllable diseases. The financial position, the president pronounced satisfactory, compared with previous years. The report was adopted.

The Pellagra Committee is succeeding. To assist Dr. Sambon on the field it has appointed Captain Siler, who has worked on the subject on your side and recently at the London Tropical School; Mr. Baldwin, a St. Bartholomew's student, and Mr. Dawson-Amoroso, microscopist. The two latter gentlemen are Italians and their knowledge of the language and the pallagrous areas in Italy will be of considerable assistance.

The National Health Society proposes to establish a "Lady Priestley Lectureship" in memory of the lady who has done so much for the society ever since it started, some thirty years ago.

Prof. John W. Taylor, F.R.C.S., M.D., M.Sc., died on the 26th of February, aged 59. He was senior surgeon to the Birmingham and Midland Hospital for Women and professor of gynecology in the University of Birmingham, president of the Midland Medical Society, 1897-1898, and vice-president of the British Gynecological Society, 1894. He delivered the Ingleby lectures in 1898 on "Extrauterine Pregnancy," which he embodied in his work on that subject. He translated (jointly with Dr. Edge) Dührssen's Manuals, and contributed freely to the journals and societies. The late professor was a musician of well-marked ability and was possessed of other artistic and literary tastes. His health had failed for the last year or more and for longer still he had had cardiac trouble.

The death is announced of Inspector-General R. S. P. Griffith at the age of 65. He joined the Naval Medical Service in 1867. He was staff surgeon of the Orontes in the Egyptian War, 1882, and received the medal and the Khedive's bronze star. He became Inspector-General of Hospitals and Fleets in 1901 and retired in 1904.

Surgeon-Major-General G. L. Hinde, A.M.S., has died, aged 77. He was L.R.C.P.I., 1855, in which year he entered the army as assistant surgeon. He served in the Crimea and received the medal with clasp. In 1884-1885 he was in the Soudan campaign, obtaining mention in dispatches, the medal with clasp, and the Khedive's star. He was also awarded a C.B. He retired in 1892.

Associated Medical Libraries of Berlin.—It is proposed to unite all of the medical libraries in the city of Berlin into one organization under the above title, of which Professor E. A. Ewald will be the president. The association if formed will include the library of the Berlin Medical Society, of the German Surgical Society, of the Dermatological, Laryngological, Otological, and Roentgenological Societies, of the Imperial Committee for the Study of Cancer, and of the Medical Department of the Empress Frederick Foundation.

Progress of Medical Science.

Boston Medical and Surgical Journal, March 10, 1910.

The Uses of Fear in Preventive Medicine.—M. J. Rosenau is of the opinion that the sum total of fear has greatly diminished with the progress of the world, but that while it is lessoning one would not want it to disappear entirely, for it has its uses in the same sense that pain may be a marked benefit to the animal economy and in the same sense that fever is a conservative process. Reasonable fear saves many lives and prevents much sickness. It is often the fear of a disease that gives the health officer the ways and means to combat it. The fear of cholera is so great that it is never permitted to get a foothold in the country. If there was a corresponding fear of typhoid fever we would soon see it diminish to the vanishing point. Fear has been a great aid in checking epidemics, in urging on the fight against tuberculosis. To get the greatest benefit from fear it must be directed into the proper channels. For instance, when the fear of yellow fever is transformed into fear of the mosquito there will be no more yellow fever in our seaports. While fear has its uses, it may be overdone. The fact that germs are invisible magnifies the supposed danger until extremists suspect that death lurks in every particle of air, food, and dust. Such a fear of danger must be regarded as an indication of an unstable and nervous temperament and must be regarded as pathological. The final conquest will come when the blind fear of disease itself has given place to an enlightened appreciation of the dangers. This is the fear that preventive medicine uses.

Submucous Fibroids.—Philemon E. Truesdale summarizes his paper on this subject as follows: 1. The submucous fibroid, clinically, may be considered a malignant growth. 2. It commonly occurs with one or both of the submural and subserous types, and is then easily diagnosticated. 3. It occurs alone with relative infrequency and is then usually not discovered until late. 4. Hemorrhage at the menstrual periods and between the periods, frequently with dysmenorrhea, characterizes its presence. 5. When it is of large size and sessile, hysterectomy is the operation of safety. In certain cases the choice of the operation may be left with the patient. The comparative risks of the operations and the possibility of malignant degeneration of the tumor should be clearly presented to the patient.

Periodical Hemoptysis.—Theodore J. Eastman finds, in going over the literature, that there are a certain number of women in whom there is a definite pulmonary hyperemia before and during menstruation. During this period the capillaries and larger vessels of the lungs are more engorged with blood than under ordinary conditions and are more liable to rupture. Pulmonary hemorrhage in the clinically sound person is very rarely fatal, and is of very little importance aside from the incident of fright. In the tuberculous person, however, it is of great importance. It is important that women with pulmonary tuberculosis should be more than ordinarily quiet during the few days preceding and during the menstrual period, particularly if they have ever had any hemoptysis. If it is found that hemorrhages tend to recur at intervals corresponding to the menstrual periods, it is wise to keep the patient in bed during the time above mentioned. Percussion and forced breathing should be carefully avoided during this period and no physical examination made except perhaps auscultation of the whispered voice.

New York Medical Journal, March 12, 1910.

Dementia Præcox.—In discussing dementia præcox and its allied states Smith Ely Jelliffe calls attention to the etymological significance of the words. It means not that dementia should occur in a young individual, but that it was characteristic of this group of mental disorders that a certain grade of mental enfeeblement should come early in the affection. He then gives a historical summary of dementia præcox He has thus far found no passable description of precox types in the classical Greek writings, though there is no doubt that this type of deterioration was then present and recognized and grouped for the most part under the large heading of melancholia. Willis, the English anatomist, in 1672 clearly portrayed the condition, though this type of cases was arranged under the general terms stupiditas, idiocy, and imbecilitas. The works of authors of the seventeenth century are replete with classical examples. In the work of Sauvage, published in 1772, one finds an excellent description of "catatonic negativism." It appears that with the ancients a single general process is apportioned off into several pigeon holes and in its various phases is diagnosed as different disorders. In 1809 Pinel reduces the innumerable varieties of mental disorders of Sauvage and others to four forms. Later he added a fifth division and it is certain from his writings that neither Pinel nor his great follower, Esquirol, could fail to recognize most cases of what are now called dementia præcox, and one finds excellent examples of this affection in Pinel's five classifications. Some of his best illustrations are found in his chapter on idiocy. He speaks of idiocy as being the most frequent form of disease in the hospital, just as we now know dementia præcox to be. Benjamin Rush probably included dementia præcox in his groups of manalgia and of demence, or dissociation. It is not a sign of modern acumen to say that psychiatry has made no advances, for it has made as rapid strides through the centuries as other branches of medicine. In France, during the eighteenth and nineteneth centuries, Corry, Camus, Tissot, Armand, Pinel, Esquirol, Guislan, Bayle, Baillarger, and Falret were working, and in Germany Erhard, Hoffbauer, Reil, Horn, Heinroth, Jacobi, Ideler, Friedreich, Nasse, Damerow, Feuchtersleben, Greisinger, and Flemming occupied the contemporaneous stage. In England there were Cullen, Arnold, Crichton, Perfect, Harper, Pargeter, Haslam, Cox, and Marshall. There was evidence to show that every one of these writers had seen cases of dementia præcox and that the most conservative would regard them under at least four heads, while in others one could read their symptoms in at least fifty different places. It was time to introduce some coordination and this work was begun by Bayle in 1828 under the head of chronic arachnitis. The more recent history of dementia præcox concerns itself with the work of Kahlbaum, Hecker, Pick, Dareazkiewicz, and Kraeplin. The present day division of dementia præcox usually includes three fairly marked types, the hebephrenic, the catatonic, and the paranoid. Each of these has a history. It took a period of thirty-five years to bring about a synthesis of this group under the heading of dementia præcox. The writer carefully traces out the evolution of this classification.

Brain Storm.—Frank Woodbury says that "brain storm" is a phrase familiarly used to describe brief states of mental emotional perturbation without reference to their cause. It is a popular and not a scientific term. Such attacks may be induced by atmospheric and climatic conditions to an extent not usually known or suspected. The presumed proximate causes in such cases are only incidental. The real causes lie deeper. Emotional and confusional conditions may occur in apparently normal persons, but are met with more frequently among the insane. The so-called brain storms will be observed most frequently in persons who are neurasthenic and in a depressed vital condition. They are frequently epileptic or epileptiform. They usually indicate a pathological condition of the body or mind. Violent outbursts of rage or emotion have medical importance and when they are of frequent occurrence should be investigated by a physician skilled in mental disorders. The phrase brain storm in medicolegal cases is popularly understood to imply a temporary loss of will power and a diminished responsibility on the part of the individual, which is the very point at issue when the case is brought before the court. The use of figurative and unscientific language by medical witnesses is objectionable since it tends to influence the minds of the jury unduly in weighing the culpability of the prisoner under trial. Under penalty of being suspected of willingness to "darken counsel by words without wisdom" alienists and other medical experts should avoid ambiguous and unscientific terms of this character and should discourage, both in publications and discussions, the use of the term "brain storm."

The Abstraction of Calcium Salts from the Mother by the Fetus the Cause of Fatty Infiltration of the Liver Cells of the Former.—Jennie G. Drennan in two former articles attempts to prove in a case of scarcity of the calcium salts in the mother's blood during pregnancy the fetus may so drain it of these salts that her tissues suffer. During pregnancy and lactation the liver cells surrounding the hepatic vein become infiltrated with fat; this she does not consider to be

physiological, but rather that the condition arises from the fact that the calcium salts which should be available for combination with this fat are being drained off by the fetus and the mother's tissues are suffering from a lack of these.

Tuberculous Ulcers of the Stomach.—The infrequency of this condition is the reason for a brief report of two cases by A. G. Ellis. Both cases were secondary to well-marked lesions elsewhere, and illustrated two types of extension of the tuberculous process to that organ. The first was evidently due to ingestion of bacilli derived from the pulmonary lesion, the second to extension of the process from the contiguous peritoneum.

Journal of the American Medical Association, March 12, 1910.

Survival of Ingrafted Tissues.—C. C. Guthrie has experimented by grafting one entire thyroid lobe in a young dog, with reversal of the circulation, with apparent success, though the operation created considerable disturbance. He thinks that, considering the circumstances, the autoingrafted tissue being perfused with saline solution, its circulation reversed, and the wound infected, all these conditions being unfavorable, still better results will be obtained under better conditions. The results on the parathyroid have not yet been sufficiently studied. It is sufficient to say that the survival of an exceedingly small portion of ingrafted parathyroid tissue seems adequate to prevent the appearance of tetany, etc. The parathyroid tissue would seem to be the most precious of any in the body of which we have specific knowledge. Ingrafting of the whole kidney with anastomosis of the blood vessels was performed in other experiments and the general results are summarized as follows: "Renal isografts with anastomosis of blood vessels and ureters have so far been only temporarily successful functionally, as shown by the death of the animal within a few weeks. Anatomically, congestive, hemorrhagic, and degenerative changes occur so that the normal structure is soon lost. After a year, when sufficient renal tissue was left to perform the required physiological functions, the transplanted kidney still presented a reminiscence of renal structure, but was totally incapable of adequate functioning, as shown by the death of the animal (cat) on the removal of the original normal kidney." The experiments on the transplantation of the adrenals have not been sufficiently studied to admit of conclusions, and the results of a series of experiments on the thyroid and renal apparatus of fowls will be given later. The article is illustrated.

Syphilis and the Negro.—G. W. Murreli points out the disadvantages of the lack of vital statistics of the negro of the south as leading to a misunderstanding of southern conditions. He makes a comparison of the negro of 1859 and the negro of 1909, especially in the matter of sexual disease, greatly to the disadvantage of the latter, and says that disease and dissipation have done their work only too well. Insanity has increased over 1,000 per cent. in fifty years. The high birth-rate immediately following the emancipation has decreased to barely one-fourth of what it was. Morality is very low, and specific diseases have consequently increased and become almost universal. The present degenerate negro dies faster and has fewer children than his ancestors. It is his honest belief, Murrell says, that in another 50 years we will find an uninfected negro a freak. Religion does not seem to help the negro, as he has altered the decalogue to suit his conditions. Murrell considers syphilis a far more common scourge than tuberculosis and the subjects of one have often to combat the other also. The disease, he says, is most severe in its manifestations in the negro and his hygienic habits are as bad as can be. There is a special tendency to the papular-serpiginiform formations around the mucous outlets. On account of the almost invariable only partial treatment there is a great predominance of relapsing syphilids. Mucous patches are not so common, on account of the better average teeth of the negro. Murrell claims that serum treatment in some form is the only hope of eradicating the disease from the race and it would have to be compulsory. In treating the negro, one must do nothing to give him pain, such as hyperdermic injections, nor will he do anything so troublesome as the application of inunctions. With him it is treatment by the mouth or nothing. The disease, he thinks, is a social menace and the future of the negro lies more in the research laboratory than in the schools. Murrell sees no good in his citizenship. He needs a paternal government. Fifty years more, he thinks, will give us another type, more puzzling than those we have now and a still more serious problem.

Nitroglycerin Head.—C. E. Laws describes the symptoms of nitroglycerin poisoning as observed in dynamite factories, etc. Effects are liable to be produced by even slight contacts with clothing, etc., of the workers, in susceptible individuals. The headache is the most distressing. Some persons seem to be immune. All workers in the substance experience some inconveniencs, dyspnea, tachycardia, and genitourinary disturbances, but it does not seem seriously to affect the general health in those habituated. Treatment is generally unsatisfactory in the severe cases and acquired immunity is soon lost.

The Urine in Diabetes.—W. Lintz says that the urinary findings in diabetes not only give the diagnosis of the disease but throw light on the etiology and aid the surgeon and physician when their work is complicated with diabetes. Certain mistakes, however, must be avoided. The sugar test may fail unless a twenty-four-hour sample is taken and it may disappear and be replaced by uric acid and phosphates. The turbidity of diabetic urine is noticeable and it is of practical importance as it is due to the growth of yeast cells which may cause, by fermentation, complete disappearance of glucose if the qualitative and quantitative examination is not made sufficiently early. Many other substances than glucose will reduce the various copper solutions, among which may be mentioned as most frequent, conjugated glycuronic acid, alkapton, creatinin, uric acid in excess, blood, and lactose. A point that he had not seen mentioned elsewhere is that occasionally the urine of menstruating women will reduce the copper solution, on account, as he is fully convinced, of the presence of blood in the urine. This is an important point. Blocking of the secretion of the mammary glands may also produce lactose in the urine and the fermentation test will reveal the difference. It is surprising, Lintz says, how easy it is to eliminate the above-mentioned reducing substances by the simple Fehling test provided it is properly done, *i.e.* after boiling the solution and adding the urine drop by drop. Reboiling is not necessary, warming will do. If the reduction is rapid we may be pretty certain of the presence of glucose, but if it is slow and the precipitate yellow, instead of red, the fermentation test will verify. While the specific gravity of diabetic urine is usually high, it may be low if the absorption of nitrogenous material from the digestive tract is low. The quantity also is not invariably high. The total nitrogen of the urine should be increased on account of the greater ingestion of protein, but it becomes pathological when the body albumin is also excreted with the high sugar output. The greater the nitrogen loss the more the patient suffers. A high ammonia value means a severe case and the ammonia determination gives an accurate estimation of the acidosis present. We can predict the onset of coma by the urinary findings. The finding of beta-oxybutyric acid or diacetic acid in the urine should always serve as a danger signal The increase in the ammonia output is equally important. A sudden diminution or disappearance of glucose, together with turbidity from hyaline and granular casts and the appearance of albumin in urine previously free from it, are also danger signals. Lastly, he mentions the Cammidge reaction as a valuable indication of pancreatic disease which may be present in diabetes though he has had no experience with it in this disorder.

Postoperative Hematemesis.—After reporting a case of this dangerous complication occurring after fracture of several ribs, G. E. Potter remarks that in this case the transference of symptoms from the chest to the abdomen is clear when we recall the anatomic distribution of the anterior rami of the six lower intercostal nerves in the abdominal wall and parietal peritoneum as described by Ramstorm. The postoperative hematemesis is best explained, he says, by the theory of sepsis as suggested by W. L. Rodman. The hemorrhage here was from ulcers in the gastric mucosa which were apparently of recent formation and originated from the infected lung and pleura. The question is whether emboli carried the infection to the gastric mucosa or whether the infectious organisms alone were transported to and caused thrombi with subsequent emboli in the gastric vessels. The mortality of such cases is high and the treatment can only be symptomatic, as the bleeding is from numerous erosions in the stomach. The stomach should be washed out with a 2 per cent. solution of sodium bicarbonate at a temperature of from 100° to 120° F. till it returns clear, and this should be followed by 60 c.c. of a 1 to 1000 solution of adrenalin chloride. Rectal feeding, ice bag to the epigastrium, and subcutaneous or rectal gelatin solution injections may be useful. The patient should be kept as quiet as possible.

The Lancet, March 5, 1910.

The Treatment of Tuberculous Abscesses of Bony Origin by Conservative Methods.—Jacques Calve and H. J. Gauvain state that the first principle governing the treatment of tuberculous abscesses is the avoidance of their spontaneous opening and subsequent sinus formation. They especially consider abscesses in connection with tuberculous disease of the spine, hip, and knee joint. Their conservative method of treatment consists in aspiration, the technique of which is fully described. Among the long lists of chemical products that have been injected into cavities of cold abscesses they call special attention to iodoform dissolved in various vehicles. The indications for this method of treatment are summed up as follows: (1) When a simple aspiration is sufficient to empty the contents of the abscess, even though such aspirations may have to be repeated, a cure may be obtained without further operative treatment and without injection. (2) If in spite of repeated simple aspiration the pus collects again more abundantly each time, the abscess increases in size, and the walls do not show signs of becoming denser by the formation of fibrous tissue, then iodoform ether will be indicated on account of its drying and sclerosing properties. (3) If the contents of the abscess are caseous, then cautious injection of camphor-thymol-ether solution should be employed. (4) The abscess sometimes increases rapidly, is extensive, the tissues are being invaded, and the general condition of the patient is unsatisfactory. In this case one's first duty is to make good the defect in treatment. The oily mixture of iodoform, containing creosote and guaiacol, should be used. Three cardinal principles should be adopted: Maximum employment of general treatment; strict and uninterrupted immobilization in the horizontal position over a prolonged period, if the lesion is one of the spine, hip, or knee; the employment of aspirations with or without injection of modifying fluid. Cure takes place in from 95 to 98 per cent. of the cases so treated.

The Variations of Temperature in Phthisis During the Menstrual Period.—Cuthbert G. Welch has analyzed the records of 500 patients between the ages of 18 and 45 years suffering from tuberculosis and, for convenience sake, he divides them into three classes. In Class A (those with not more than one lobe affected) there were 284 cases. The changes most frequently found were a depression in the temperature, somewhat more marked but otherwise similar to that occurring in the healthy woman; except that the temperature fell on the first day, and not on the day preceding the flow; and, further, the progressive and preliminary rise in the intermenstrual period appeared to occur but rarely, being present in only three of his cases. In Class B (those with two lobes affected) there were 160 cases. A definite rise occurred in more than half of them. In Class C (advanced cases) there were 56 cases. A simple depression occurred in only 14.2 per cent. of the cases, a rise in 57 per cent. The fact that the temperature appeared to rise definitely in the more advanced and febrile cases would seem to indicate that rest in these cases should be more rigidly enforced at the periods, and it would be wise to postpone drawing inferences from the tempertaure chart in a case first seen during menstruation as to the nature and type of the lesion until the period is over, and the influence of menstruation upon the temperature can be eliminated.

A Case of Rheumatoid Arthritis Treated by Thyroid Extract.—George Steele-Perkins reports the case of a woman, 28 years old, with rheumatoid arthritis in both knee joints, with much thickening, and effusion into both joints. Most of the ordinary methods of treatment failed to give relief. Finding that her thyroid was small he commenced giving thyroid extract, with the result that, a month after, her knees in no way troubled her.

British Medical Journal, March 5, 1910.

Optic Neuritis, Choked Disc, or Papilledema.—Sir Victor Horsley considers the treatment, the localizing value, and the pathology of this condition and discusses the following points: 1, The localizing value of papilledema or optic neuritis; 2, the part of the disc which first becomes edematous as a consequence of increased intracranial pressure; 3, proof of Mr. Marcus Gunn's view of the mechanism whereby the macular or star figure is produced; 4, the phagocytes of the retina in neuroretinitis and their origin. The following is his summary: (1) The maximal intensity and age of the papilledema or optic neuritic in cases of increased intracranial tension is of the highest value in clinical localization of the lesion, and is isolateral with the maximal pressure effects of the latter. (2) Papilledema produced by increased intracranial tension commences at the upper border of the optic papilla, and invades last the inferior temporal quadrant. (3) The macular figure, as Mr. Gunn stated, is caused by tension lines centered at the fovea, the greatest stress being just beneath the intima. (4) The phagocytes of the retina consist of several kinds, as follows: (a) wander cells; (b) connective tissue corpuscles; (c) epithelioid corpuscles of the nerve fiber layer; (d) epithelioid corpuscles of the outer granule-layer—the two latter varieties being in close relation to the supporting fibers of Müller. Among eighteen unselected cases, in no less than two the correctness of the localizing diagnosis depended wholly on the degree of the neuritis.

The Action of Cutaneous Anesthetics.—A. Rendle Short and Walter Salisbury endeavored to determine whether the various drugs applied to the unbroken skin with a view to the relief of pain have the action attributed to them. They concerned themselves only with liniments, lotions, ointments, and other means of introducing drugs by absorption through the skin itself. The following preparations for this purpose are contained in the British Pharmacopeia: linimentum belladonnæ, emplastrum belladonnæ, unguentum belladonnæ, unguentum atropinæ, unguentum gallæ cum opio, linimentum opii, emplastrum opii, linimentum aconiti, unguentum aconitinæ, and unguentum cocainæ. They had no hesitation in saying that, as a result of their investigations, none of these has any anesthetic effect on the unbroken skin. They also claim that the time-honored custom of giving opium or belladonna suppositories after operations on the rectum is founded upon a misconception. Any effect they may have is due to the general action of the drug, not to its influence on the nerve-endings in the bowel. There is no drug in common use capable of acting as an anesthetic on the unbroken skin, except the ethyl-chloride spray, which freezes it. In the treatment of sprains, bruises, and neuralgia we must trust to other methods, such as counter-irritation, massage, and analgesics given hypodermically or by the mouth if necessary.

Infantile Glaucoma or Buphthalmia.—Wilfrid Allport reports the case of a child, three years old, who had a marked buphthalmos. The corneæ were considerably enlarged, and showed extensive nebulous opacities. The tension was high, photophobia was present, and the sight was seriously impaired. In April he performed anterior sclerotomy on the right eye; the Graefe knife was carried across the anterior chamber, and the point emerged through the sclera on the other side. By a few sawing movements the intercalary region was incised on both sides of the cornea, leaving, however, a bridge of sclera intact at the upper part. Unfortunately these incisions healed very rapidly and firmly, and the tension soon became as high as ever. He then decided to alter the procedure and, in the following June, he did an anterior sclerotomy on the other eye, but the incision was extended so as to cut entirely through the upper part of the intercalary region. The knife as it emerged through the sclera above the cornea was not allowed to cut through the conjunctiva, but this membrane was undermined for a few millimeters, producing a bridge of tissue which held the flap-like portion of the cornea in position. The idea of this operation was to obtain a scar at the filtration angle which would be sufficiently loose and porous to allow the intraocular fluid to escape through it under the conjunctiva, and so produce a permanent drain. The result more than fulfilled his expectations, the tension soon becoming normal, and the symptoms gradually abated. In September a similar operation was performed on the other eye with an equally satisfactory result.

Notes on a Case of Cyclophoria.—A. Allison Bradburne reports such a case. The patient wore glasses for distant vision which were perfectly correct, but when he came to read with them the rotation of the eyes which took place would lead to a want of parallelism of the lines of his book. These lines would, in fact, tend to cross when the images were fused, but as the brain would not tolerate double images it would make every effort to correct this want of alignment. This was overcome by a special effort on the part of the oblique muscles of the eyes, whose function it was to rotate the eyes. At first the extra exertion would entail little strain on the nervous output of energy; but as time went on its effects of the general nervous system would become more pronounced. The phenomenon of the sloping of the ground, which was noticed after near work, is explained by the cramped position into which the oblique muscles had brought the eyes, causing them to become fixed in a position which made them incorrect for the gaze when directed straight ahead. Some of the troubles complained of were caused by this

highly sensitive condition of his nerves to any external irritants.

Münchener medizinische Wochenschrift, February 22, 1910.

A Typhoid Epidemic with an Initial Hemorrhagic Exanthem.—Curschmann refers to the rarity of a hemorrhagic irruption in typhoid fever. When such a rash occurs it is usually towards the end of the disease and indicates a fatal outcome. He then reports an epidemic in which the character of the disease differed from the usual in that the hemorrhagic exanthem appeared during the early stage in cases of moderate severity. The epidemic occurred in one family, mother and six children being attacked. In all the onset was acute and stormy, usually with vomiting and in two instances with a chill. The fever rose rapidly and reached its maximum in two days. On the second or third day in every case there appeared more or less numerous hemorrhagic, bluish patches on the chest, shoulders, and arms, only in two instances on the abdomen. The spots did not disappear on pressure and left brown staining. The fever in most cases was continuous, in one only being remittent. In the two older children defervescence was by crisis, in the four younger by lysis. In the case of the mother the pulse was slow, in the children rapid. The diazo reaction was positive in the mother, negative in the children. The differential diagnosis between typhoid and typhus is discussed, the diagnosis of typhoid being based upon the following points: There was complete absence of delirium in all cases. The eruption was petechial from the onset, whereas the typhus rash begins as an erythema and later becomes hemorrhagic. There was a marked leucopenia in all the cases. In five of the seven cases the Ficker modification of the agglutination test was positive, and in two cases typhoid bacilli was isolated from the stools. Finally the father of the family at the same time suffered from a typical attack of typhoid fever, with the usual roseola, and died, the autopsy showing typical typhoid lesions in the intestines.

Edema Neonatorum.—Schridde reports some careful pathological observations on three cases of edema neonatorum. The placenta and the umbilical cord showed very marked edema. The edema was general and extreme, being especially pronounced in the upper extremities and the head. On cutting through the edematous skin the subcutaneous tissue was seen to be laden with a thick layer of clear, light yellow, gelatinous material, with fine white lines of fat running through it. The abdomen was greatly distended, the circumference varying from 41 to 43.5 c.c., and in the peritoneal cavity was a large quantity of acitic fluid. There was also excess of fluid in the pericardium and a decided pleural effusion. The spleen was greatly enlarged, in one case reaching to the symphysis. On section the splenic pulp was of a homogeneous gray red color and no malphighian bodies were seen. The liver was less markedly enlarged. On section it was of a brown color. The kidneys were of normal size, but contained many grayish streaks running through them in all directions, and hemorrhagic areas. The mesenteric lymph glands were greatly enlarged. The heart was markedly hypertrophied. The blood vessels showed no changes. The other organs showed no gross lesions. No signs of syphilis could be found. On microscopic examination the spleen was seen to be composed almost entirely of myeloid material. There were many foci of erythroblasts with basophilic protoplasm, and activity dividing nuclei. There were also larger foci of leucocytes, consisting largely of myelocytes. The lymphatic tissue was wholly undeveloped. Relatively frequently were seen spleen cells containing iron pigment. The liver, too, showed the picture of a blood forming organ with foci of erythroblasts. Myeloid cells appeared as in the spleen. The liver showed a marked deposit of hemosiderin. There were no signs of congestion. The kidney changes resembled those of the liver and spleen. The kidney epithelium contained a granular, greenish yellow pigment, which gave no iron reaction. The bone marrow showed an increase of myeloblasts over the myelocytes. The heart muscle was filled with a lipochrome pigment. The placenta and cord showed nothing more than edema. Careful search for spirochete was fruitless. The blood picture under low magnification closely resembled myelogenous leukemia. Under higher power it was seen that an enormous number of erythroblasts were present, showing an extreme degree of myotic figures. Next to these came myeloblasts and myelocytes. Lymphocytes and polymorphonuclear leucocytes were conspicuous by their absence. Among the red cells were many megalocytes. The entire picture showed the presence of a primary anemia. No light is thrown upon the etiology of the disease except that there was no sign of syphilis in any of the three cases.

Deutsche medizinische Wochenschrift, February 24, 1910.

Bacterial Findings in Cheese Poisoning.—H. Dodd reports upon five persons who were taken ill three to six hours after eating cheese with nausea, vomiting, abdominal pain, and diarrhea. Chemical examinations for toxins, poisonous metals, etc., were negative. Bacterial examination showed the presence in nearly a pure culture of a bacterium having the morphological and biological characteristics of *Bacterium acidi lactici* (Hueppe) and was pathogenic in the intestines of rabbits.

French and Italian Journals.

Adiposogenital Hypophysis Syndrome.—P. E. Laonois and M. Clerét give the adiposogenital syndrome as the indication of the presence of a tumor of the hypophysis. There are three fundamental symptoms; increase of adipose, genital atrophy, and presence of tumor symptoms. The fat is everywhere increased immensely, within the body and on the surface. Rolls of fat cover the chest, breasts, abdomen, and thighs, and are deposited in the omentum and mesenteries. The genitals are atrophied in both sexes, and frigidity is the rule. Menstruation is late in establishment and the menopause occurs early; the flow is scanty and irregular in the adult. The presence of a tumor is shown by the usual symptoms of intracranial pressure—headache, convulsions, projectile vomiting, loss of memory, torpor of the intellect, and dimness of vision due to optic atrophy. The use of radiography will enable us to see the shadow of the tumor in the region of the hypophysis.—*Gazette des Hôpitaux*, January 18, 1910.

Treatment of Salpingo-oöphoritis, Fibromata, and Scleroses of the Uterus by the Ultra-penetrating Radium Rays.—Henri Cheron advocates the use of the ultra-penetrating rays of radium in all cases of salpingo-oöphoritis in which the pus collections do not need immediate evacuation on account of their size, and the bad general condition of the patient. They should also be tried before operation in all fibromata of moderate size which are giving trouble, when it is not desirable to retain the ovarian function. Their action on the ovaries is to sterilize them and occasion an early menopause. It is in this way that the rays have their effect on the fibromata. When no effect is obtained in this way the case should be given over to operation if pressure symptoms are present. The treatment is given with small tubes of bromide or sulphate of radium, wrapped in tarletan, so as to cut off all the rays except γ and β rays, and prevent burning. The tubes may be placed in the vagina, cervix, or the body of the uterus. In all such cases this treatment should precede operation.—*L'Obstetrique*, November, 1909.

Development of the Viscera in the Fetus.—Francesco Valtorta desires to establish a standard of the normal measurements and weights of the viscera, with which we can compare the conditions found in abnormal fetuses. He made careful measurements of all the fetuses that died from women who were brought to the Milan Maternity during labor, thus establishing the standard from fetuses that actually died during labor. He gives the average measurements of brain, heart, lungs, thymus, liver, spleen, pancreas, kidneys, stomach, intestines, testicles, uterus, and ovaries. He finds that the thorax is flattened from side to side; when this is the case it is due to lack of development of the organs of respiration. The chest is broad below on account of the relatively enormous size of the liver and abdominal viscera. The organs that are most developed are those that must be used immediately after birth.—*Annali di Ostetricia e Ginecologia*, December, 1909.

Contribution to the Study of Ovarian Endothelioma.—Piero Ligabue states that endothelioma may occur in any of the organs usually attacked by carcinoma. It is essentially a malignant growth, the prognosis is bad, and treatment is operative. The tissues found in the endotheliomata are very varied. The chief constituents are fibrous tissue with wide connective tissue spaces, in which are found large, endothelial cells, developed from the endothelium of the reticulum. They are found in large or small groups near the periphery of the growth. There seems to be no hereditary element in the etiology. They occur at any time of life, but when attacking the ovary they occur especially between the ages of forty and fifty. They do not cause metorrhagia or menorrhagia, and pain, ascites, and edema may be present. The power of metastasis is slight. They may be extremely adherent to other organs. The author gives the history and the histological examination of an ovarian endothelioma operated on by him.—*Il Policlinico*, Jan. 1, 1910.

Book Reviews.

A Handbook of Medical Diagnosis. In Four Parts. I. Medical Diagnosis in General. II. The Methods and Their Immediate Results. III. Symptoms and Signs. IV. The Clinical Applications. For the use of students and practitioners. By J. C. Wilson, A.M., M.D., Professor of the Practice of Medicine and Clinical Medicine in the Jefferson Medical College, and Physician to Its Hospital; Physician to the Pennsylvania Hospital; Physician in Chief to the German Hospital, Philadelphia. Philadelphia and London: J. B. Lippincott Co., 1909.

It has been said by one wise in medical lore that most books are written either by young men who have not had time to learn anything, or by old men who have forgotten all that they knew. It is a pleasure to record that the eminent author of this volume cannot be included in either of these classes, for he seems to have learned much and forgotten little during his many years of clinical teaching. Fourteen hundred and twelve closely printed pages will certainly testify to the amount of his knowledge.

The book is divided for convenience into four parts; the first part on medical diagnosis in general; the second on special methods of diagnosis and their immediate results; the third on symptoms and physical signs, and the fourth on the clinical application of the facts obtained. The chapter on general considerations of medical diagnosis should be read by every student beginning his work in the observation of the sick. In it the writer pleads for thoroughness and care rather than brilliancy, and expresses the feeling that the art of diagnosis is in observation. He says with much truth that errors occur far more commonly from incomplete observation than from want of knowledge, a fact which all of us can verify from our experience with our medical colleagues, the careful painstaking ones often surpassing in the long run the brilliant masters of "snap diagnosis." Besides advising constant attendance in the post-mortem room, the surgical operating theater is also recommended as an excellent place to study lesions of the abdominal and thoracic organs, and it is suggested to the physician that he spend as much time as possible in close proximity to these convenient autopsies *in vivo*. The next section, on the medical topography of the body, covers the usual ground in a more or less conventional fashion, though the author prefers the use of midclavicular line to that of mamillary line. In Fig. 26, showing the position of the spleen, the artist has placed the organ too high, its position does not correspond to the text description. The examination of the patient and case-taking are next considered, and a convenient system of abbreviations is given for recording physical signs. General physical diagnosis is then taken up and covered very clearly. In discussing low blood pressure, Addison's disease might advantageously be added to the list of those showing the phenomenon. Much stress is laid upon the value of immediate percussion. In the section on the examination of the stomach and intestine a somewhat condensed description of the methods of chemical analysis of the gastrointestinal contents is given. Uffelmann's test is included, though it is one of the least valuable of the many tests for lactic acid. The work of Gross can hardly have been taken into account, judging from the sentence in the section on the examination of the feces: "Digestive ferments are not found." Neither is mention made of the benzidin test for blood. The section on the technique of the morphological examnation of the blood is also somewhat unsatisfactory. Under the subject of the Jenner stain it is said that a deposit of dark granules on the blood film is often observed. Such a deposit is the fault of the technique in allowing the stain to dry on the slide, and is never seen if the original directions are carried out. The Giemsa blood stain is also not given, though the old Chenzinsky and the Ehrlich dahlia stain for basophiles are introduced. There is a fairly good colored plate showing the morphology of the white and red cells in health and disease, but no statement is made as to the stain employed. Rosenberger's statement that tubercle bacilli are found in large quantities in the blood of persons with tuberculosis is accepted without challenge. The statement is also made that fresh unstained blood is more satisfactory than stained blood in examining for malarial parasites, because it enables the examiner to observe the activity of the organisms. In such an examination the difficulty is usually to find an organism and identify it positively, and this identification, especially in estivo-autumnal malarias, is very greatly aided by a good chromatin stain, such as can now be readily obtained with any of the standard staining mixtures.

The section on the examination of the urine is good, though there are errors both in the description of the Folin method of determining uric acid, and in the method for the quantitative determination of chlorides. It seems questionable whether it would not be better to leave such laboratory technical methods to the special treatises, and not to attempt to cover these often highly specialized procedures. It is only just to say, however, that this chapter was not written by the senior author. Following this section comes another on the examination of the nervous system, which is very satisfactory, with good illustrations of the methods of obtaining the various reflexes. The part on the examination of the eye is admirably illustrated by a series of colored drawings of various changes in the fundus. A short sketch with a few illustrations is given of the methods and results of examination with the *x*-ray. This brings us to Part III of the work, that is, the general consideration of symptoms and signs which may lead to a diagnosis. A number of excellent photographs give fresh interest to the section on facies. Joint changes are also well pictured. On the whole, this part may be considered one of the best in the book. The last section deals with the clinical applications to diagnosis. Here the senior author's long experience in hospital wards gives to the text a richness of description and a clearness and practical value which are as valuable as they are rare in medical writings. The illustrative photographs throughout are excellent, and have the additional quality of not being hackneyed copies from other writers. The final portion on the nervous system is perhaps not quite so strong as the rest, but the changes in our knowledge of the subject are so rapid in many cases that it is difficult to treat of many of the doubtful points. In illustration of this we need quote but one sentence, under the discription of caisson disease: "The fanciful theory that air bubbles or air emboli cause the softening (in the cord) need not be discussed here."

Taking the book as a whole, however, it seems to the reviewer that it is, despite the shortcomings mentioned, one of the very best and soundest volumes published on medical diagnosis, useful to the student and invaluable to the practitioner.

Das Geburtshilfliche Seminar. Praktische Geburtshilfe in 18 Vorlesungen für Arzte und Studierende, von Dr. Wilhelm Liepmann, Privatdocent für Geburtshilfe und Gynäkologie an der Friedrich Wilhelms Universität. Direktor der Frauenklinik des Deutschen Bundes für Mutterschutz in Berlin. Berlin: Verlag von August Hirschwald, 1910.

In this very excellent manual intended for students and practitioners the author has further extended the system of obstetrical instruction first developed by Prof. Leopold of Dresden, and the lectures of the present series (seminaristischen Uebungen) are set down in the exact colloquial form in which they were delivered by the writer. The latter in each lecture proceeds to state in detail the history of a clinical case, after which the auditors give their opinions as to its prognosis and treatment. In this way it is believed that the student will conform to the habit of formulating his own views, which are in turn reviewed and developed by the instructor. In other words, this is a true "seminar" as distinguished from a didactic lecture, and in reading through the various chapters of Liepmann's book it is quite obvious that the method has much merit. The lectures, which number eighteen, include only the practical phases of obstetrics and are thoroughly well illustrated by a sufficient number of outline drawings, for which an additional word of commendation is demanded. They are simple and unadorned; they illustrate certain obstetrical conditions and are not works of art. Both the book and its make-up are worthy of attention and emulation.

Die Impotenz des Mannes. Für Ärzte dargestellt von Dr. P. Orlowski, Spezialarzt in Berlin. Zweite bedeutend erweiterte Auflage mit 22 Abbildungen in Text und 3 farb. Tafeln. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1909.

After a short review of the anatomy and physiology of the male sexual system, the author devotes considerable space to the etiology of impotence. He mentions colliculitis as the chief cause, secondarily masturbation, coitus interruptus, coitus reservatus, etc. Much less attention is accorded to psychic impotence than its frequency warrants, and practically no consideration is given to prostatitis and seminal vesiculitis as causative factors. He relates many scientific facts, hitherto fairly well known, and illustrates them with clinical experiences. The illustrations are clear and well selected. The lucid literary style commends this work to those not possessing fluent knowledge of German.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held December 23, 1909.

DR. JOHN O. POLAK IN THE CHAIR.

Recent Cases of Pelvic Suppuration.—Dr. ABRAM BROTHERS presented two cases.

CASE I.—This patient had a pelvic suppuration, due to tuberculosis. She was twenty-three years old, married four years, and had two children, both alive and well. Her menstrual history was negative. Two months ago she complained of pain in the right iliac region which was burning in character, and accompanied by frequent and painful urination. She had a marked leucorrheal discharge. She had had a few attacks of chills and fever. She was treated expectantly with but little relief. One week prior to her admission to the hospital the pain in the right iliac region became worse, the leucorrheal discharge increased, and she had chills, fever, and vomiting. There was dyspnea on admission. The leucocytes numbered 16,000 and the polymorphonuclears were 85 per cent. A mass was readily palpated in the right iliac region and rigidity over the right rectus muscle was present. The temperature ranged from 98° to 103° F., and the pulse was between 90 and 120. On November 23, half a dram of pus was obtained through a posterior vaginal section, not enough to account for the size of the mass, however. Subsequently there was rather a profuse purulent discharge which lasted for several days. On November 20, laparotomy was performed. Dense and numerous adhesions between the omentum, intestines, and adnexa were encountered. The omentum and peritoneum were found to be studded with small and numerous tubercles. On December 7 there were 9,000 white cells and 70 per cent. polymorphonuclears. Since the operation the temperature had ranged between 99° and 104° F. The pathologist reported this to be a case of miliary tuberculosis. Since the operation the patient had remained about the same, except that there was less pain in the right iliac region.

CASE II.—This was a case of pelvic suppuration, due to gonorrhea. The patient was twenty-one years old, married four years, and had never been pregnant. She had had a leucorrheal discharge during the past three years. She was admitted to the hospital November 5, 1909, complaining chiefly of dysmenorrhea, dysuria during the past three months, and sterility. She was a well developed and well nourished woman, with no abdominal symptoms or signs, but she had a temperature which ranged from 99° to 102° F.; once it rose to 103° F. The pulse rate was from 90 to 110. Her husband contracted gonorrhea about three months ago. Laparotomy was performed November 19. She had a very fat abdominal wall. Both tubes were found to be involved in many adhesions to the parietal walls, intestines, and omentum. The adnexa were enlarged, thickened, and inflamed. A double salpingo-oöphorectomy was performed, and a ventral suspension done for a retroverted adherent uterus. The patient made an uneventful recovery, except for a slight subcutaneous suppuration at a point where the fat in the abdominal wall was at least two or three inches thick.

Dr. A. ERNEST GALLANT thought that rather than do a ventral suspension of the uterus in this case, it would have been better to have done a complete hysterectomy. He had seen several cases in which an attempt had been made to suspend the uterus and later it had become necessary to remove that organ. Dr. Gallant recalled a case of tuberculous peritonitis which was operated upon five years ago. There was a leakage through the abdominal wall for eight months, and the patient to-day weighed more than double her former weight. With regard to the vaginal opening, he had learned a lesson some years ago. He attempted to remove what he supposed to be an appendix, through the regular incision, but he found a pus tube above the pelvic brim. Since then he had been very careful to find out whether the trouble was located above or below the brim of the pelvis before opening above or below the pubes. In fat patients this was not always possible.

Dr. WILLIAM S. STONE said that the frequent suppuration of these abdominal wounds in fat subjects was caused by the use of infected sutures; puncturing the fatty tissues resulted in an exudate into the wound of a fatty fluid which invited infection.

Dr. C. CLARENCE SICHEL said that he had seen a great many cases in which the abdominal wound became infected because spaces had been left between the layers of tissues which invited infection; therefore, he was now inclined to place deep supporting sutures, going down to the peritoneum, thus bringing the edges well together. Infection was made less likely by leaving no spaces between the tissues. The majority of the cases reported by Dr. Brothers were better off when attacked from above than from below, draining from above and also through the vagina when it was found to be desirable.

Dr. HERMAN L. COLLYER said that some times one was quite surprised when the abdomen was opened, expecting to find pus tubes, to find something else. The reason the abdominal layers of fat did not unite well was because in the first place the tissues were injured. A second reason was that the pus tube was usually ruptured and the fat became infected. It had been his good fortune to have the fat unite by first intention, but he was always very particular not to bruise the fat. He also used alcohol freely on the fat. In operating for pus tubes Dr. Collyer said it was his habit to first open from below and drain. Then it gave the woman a chance to become pregnant, as many had, after recovery from the evacuation of pus tubes from below. If one wanted to remove the tubes afterward, it was easier and better to have evacuated the infectious pus from below.

Dr. SAMUEL M. BRICKNER said that one point in reference to the treatment of fat abdominal tissues had not been mentioned; that was, when the fat was sutured necrosis of the tissues occurred, and subsequently left an infection. The infection was secondary, not primary, as a rule. In his work he avoided touching the fat at all, simply clipping the skin together. By means of two rolled towels the wound could be readily approximated, and it healed without difficulty. So far as drainage from below was concerned, this subject had long ago been threshed out before the section, but it could be summed up in a few words. In any acute infectious process of the tubes and ovaries, do not operate; when the connective tissue of the pelvis was the seat of an abscess, pointing in the posterior fornix, open from below. In subacute or chronic pus tubes, it was safe to operate from above.

Myomectomy for Fibroids of the Uterus Complicating Pregnancy.—Dr. LOUIS J. LADINSKI reported the case of a woman, thirty-one years old, married ten years, no children, but one abortion two months after marriage. She had not been pregnant since. Her last menstruation occurred five months ago, when she began to "spot" and complained of slight abdominal pains. About October 20 the pains became more severe and she was confined to her bed. The doctor who was then called in made a diagnosis of "tumor complicating pregnancy." Two days after she was removed to the hospital, where she remained under observation for three weeks. During this time she grew steadily worse; the abdominal pains became more and more severe, the abdomen increased in size; she was then anesthetized and was told that a uterine tumor had been removed. This procedure did not, however, improve her

condition, and after another week of expectant treatment she was sent home. On November 28 Dr. Ladinski again saw her in consultation, and had her admitted to Beth Israel Hospital. She then complained of abdominal pains, extreme weakness, headache, nausea, and vomiting. She was anemic, almost cachectic. The red cells numbered 2,400,000, and the hemoglobin was 40 per cent. and polymorphonuclears 77 per cent. On palpation there was noted a distinct, hard, irregular mass occupying the lower part of the abdomen. There was distinct evidence of free fluid in the peritoneal cavity. The uterus was enlarged to about twice its natural size, and was pushed upwards and to the left by this mass. The unusual clinical features presented by this case made the diagnosis very difficult. However, after considering the various possible diagnoses, it was decided that one of two conditions existed: papilloma of an ovary with ascites, or advanced extrauterine pregnancy. On December 4 the abdomen was opened, disclosing an immense amount of free, old, dark colored blood. This was evidently not due to a rupture, but was the result of a diapedesis of blood cells into the peritoneal cavity from the congested abdominal viscera. The mass proved to be a gravid sac containing a five months viable fetus. The placenta was attached to the omentum, the small intestines, the right and left adnexa, from all of which it was separated without any great difficulty. During the operation the patient received an intravenous saline solution. This evidently was a case of tubal pregnancy which, after rupture or abortion, was converted into an abdominal pregnancy. The fetus was a monster, and presented a globular pedunculated mass, about the size of a hen's egg, springing from a pedicle which extended from the ensiform cartilage to the pubes in the median line. This mass was everywhere covered with a thin translucent layer of peritoneum through which might be seen the intestines, the liver, and the heart. The heart, after the operation, pulsated for fully twenty minutes. The sac was seen to contain the entire liver, the stomach, small and large intestines, spleen, pancreas, ureters, upper part of the bladder, and the heart. All these structures passed through a defect in the anterior wall. The right half of the diaphragm was entirely missing. The diaphragm had lost its anterior and right attachments to the chest, and was dislocated downwards so that part of it was within the tumor. The fetus presented the following deformities: There was an imperforate anus; both feet were held in a position of extreme equinus valgus; there was edema of the posterior part of the neck, the occiput, and the frontal regions. The specimen presented by Dr. Ladinski was a celosoma associated with a prolapse of the heart into the hernial sac and an absence of the anal orifice, conforming in some respects to the type designated as agenosoma by Saint-Hilaire.

Dr. Hermann Grad said that the specimen presented by Dr. Ladinski was exceedingly interesting. He thought the doctor was to be congratulated upon making the diagnosis. At present there was a case under his care in the hospital where the question of an abdominal pregnancy was raised. It was impossible to make a definite diagnosis in this case. The fetal parts could be felt quite plainly, this being the woman's twelfth pregnancy. The patient gave various symptoms, pain in the abdomen being the most prominent one. These cases were extremely difficult to diagnose; many times a diagnosis was not possible before opening the abdomen. Dr. Grad asked if it might not be that the abdominal organs of the fetus shown was a case of displacement, and not of faulty development. This would be a very interesting thing to learn. Was the displacement of the abdominal organs due to pressure, or was it really a monstrosity?

Dr. Ladinski said that when he had removed the fetus he immediately proceeded to remove the placenta, which was very closely attached to the abdominal viscera, but he felt that it was better to remove it *in toto*. His results justified him in doing it. Twenty-four hours after the operation he removed the drain, which had been left in merely to check the parenchymatous oozing. The wound healed by primary union. The advantage of removing the placenta in this manner had been forcibly demonstrated in this case by the primary union and by the short convalescence. If the case had been tamponed it would have required a long seige of drainage, with a prolonged convalescence, and the final result, because of the probable presence of peritoneal adhesion, with its consequent after effects, could not be compared with that obtained in this case. The additional hemorrhage caused by the removal of the placenta was inconsequential in comparison. There was no doubt at all about the specimen being a monstrosity.

Unilateral Twin Tubal Pregnancy.—Dr. Eugene H. Pool presented this interesting specimen. It consisted of a Fallopian tube about 12 c.c. in length. The inner part, 4 c.c. in length, was only slightly thicker than a normal tube, but the outer part was greatly enlarged, measuring about 8 x 4.7 x 2.5 cm. The surface of this portion was smooth except at the outer part of the posterior surface, where the tube had ruptured. The interior was filled with an adherent blood clot, at the upper part of which might be seen the placenta and the edge of a thin retracted membrane, the remains apparently of a single amniotic sac. From the placenta passed two cords 3 c.c. long, separated 2 c.c. at their attachments. To each cord was attached a fetus. The fetuses were of the same size and development. The patient from whom the specimen was removed was twenty-seven years old, and was admitted to the hospital on November 1, 1909. She complained of severe cramp-like pains in the left lower quadrant of the abdomen, bleeding from the vagina, and weakness. Her last menstruation began on September 27. She had missed no periods. She had been married seven years, and five months after her marriage she had miscarried at the third or fourth month. She had never been pregnant since. The examination revealed a slight enlarged anteflexed uterus behind and to the left of which could be felt a tender, smooth, immobile mass, evidently the left tube. When the abdomen was opened a moderate amount of fresh blood was found and some blood clots in the pelvis. The mass was brought into the wound and proved to be a much enlarged left tube, which had ruptured and which was bleeding freely. There were two fetuses attached by separate cords to one placenta. In one fetus the arms and legs were contracted and extended for about a minute after exposure to the air. Her convalescence was uneventful.

Dr. Hermann Grad said he had seen one case of twin tubal pregnancies. The patient was brought to the hospital and in a state of collapse. She had a very bad internal hemorrhage. Upon opening the abdomen two small fetuses floated out of the incision from the abdominal cavity. The hemorrhage was terrific, and the patient died before she was removed from the operating table. He said he had never seen such an alarming hemorrhage before. This was the only case of twin ectopic he had ever seen.

Premature Menopause.—Dr. Meyer Maurice Stark read this paper. He defined the term menopause as applying to that collection of phenomena appearing with the cessation of menstruation and comprehending the whole process of senile involution of the generative organs. The period of time over which these phenomena might manifest themselves might vary from one to ten years. He reviewed the results of Dalton's work and called special attention to the fact these investigations demonstrated, that the first changes in connection with the menopause occurred in the ovaries. He did not deal with any pathological features attendant upon the menopause, but only called attention to a condition which occurred. The series

which he presented, and which was taken from the clinic of Dr. Louis J. Ladinski at Beth Israel Hospital Dispensary, included only those cases where the periods, which had hitherto occurred in a normal or abnormal manner, ceased without being affected by internal or external influences and without the occurrence of any previous or subsequent disturbances of the economy, or without the objective demonstration of any disease. This series was composed of patients who in every way seemed to be perfectly well; in fact, they were in better physical condition than before the cessation of menstruation. Statistics were very plentiful as to the usual age at which menstruation ceased. Many authorities cited cases in which menstruation persisted at advanced age. It was, however, the consensus of opinion that any menstruation after the age of 53 should be looked upon as pathological. An inspection of statistics showed that in one-half of all cases the menopause occurred between the ages of 45 and 50; in one-fourth of all cases it occurred between the ages of 40 and 45; in one-eighth of all cases between the ages of 35 and 40, and in one-eighth of all cases between the ages of 50 and 55. Most authorities were agreed that the earlier menstruation began, the longer it was likely to continue. Tilt estimated the average duration as 32 years. Menstruation that ceased before the age of 40 was irregular, and if it ceased before the age of 30 it was premature. Dr. Stark had collected 48 cases from the literature, and of these Dr. Edward Krieger had cited 35. Of these 35 cases, three occurred at the age of 21 years, two at the age of 22, one at the age of 23, one at 24, two at 25, one at 26, three at 27, three at 28, three at 29, and sixteen at 30. Wherever the results of genital examination were recorded in these cases conditions appeared not dissimilar to those occurring at the menopause. Whether or not the conditions observed were the cause or the result of menopause was not at all clear unless one accepted the findings of Dalton, which brought out the fact that the first signs of atrophy began in the ovaries and became quite marked before the uterus began to diminish in size. This fact seemed to lead to the conclusion that the different forms of atrophy of the uterus, in their relation to accompanying amenorrhea or menopause, were dependent on preceding changes in the ovaries, and thus the uterus came to be regarded as the retrograde metamorphosis of a gland which had become functionally useless. The changes, therefore, in the ovarian parenchyma were important factors in the question under consideration. In acute febrile diseases and in the exanthemata the parenchyma of the ovaries sometimes suffered sympathetic changes, and these same primary changes resulted in a cessation of menstruation. Courty had reported three cases in which the menopause ensued after cholera. The hyperplasia resulting from frequently succeeding pregnancies should result in early menopause when one considered the inevitable retrogressive changes following such hyperplasia. Mayer reported a case in which the menopause occurred at the age of 29, after six successive pregnancies. Such agencies as peritonitis and excessive involution of the uterus due to lactation were given as etiological factors. Cases had been reported in which fright and sudden affliction seemed to be the cause of premature menopause. Börner and others gave heredity as an occasional cause of prematurity. Obesity was thought by Kisch to be the cause and not the result of the early cessation of menstruation. Currier stated as a constant rule that a woman under thirty who became obese suffered from amenorrhea or dysmenorrhea, and in addition was usually sterile. It was a noted fact that women began to take on flesh at or after the menopause or, in other words, at a period coincident with sterility. This fact was a feature in many of the cases cited in this paper. Sterility and amenorrhea were the matters concerning which this class of patients usually sought advice. Numerous cases, however, had been reported in which pregnancy had occurred after complete cessation of menstruation, not only in early cases, but in the typical ones. Piron reported a case of a woman 72 years of age who aborted a two months fetus. In Tilt's series of 49 cases of menopause between the ages of 29 and 39, there was an average of three children in 26 women. Of the eight married women in Dr. Stark's series of eleven on which this paper was based, four bore children. The occurrence of 11 cases out of 3,301 cases who presented themselves at the dispensary showed a frequency of one in 300, by no means an insignificant percentage. None of the causes cited figured in the series. The absence of previous or subsequent local or constitutional disease was the rule. They seemed to be from the outset types of irregular or scanty menstruation, in which the ovarian function had worn itself out, so to speak, without impairing the health of the patient. Whether this was due to faulty development of the generative organs could not be stated, though it was difficult to look at the cases in any other light than as presenting an unnatural condition due to some defect or disease. Only those women were included in the series who had been under observation for two years, or those in whom menstruation had been absent for four years.

Dr. Herman J. Boldt said that the instances in which heredity was a factor in premature menopause, so far as his observations went, were comparatively few. He had seen a number of cases in which the menopause was established prematurely, below the middle twenties, but it was impossible to tell definitely just what the cause was. However, in most of the instances that had been under his observation there were atrophic changes, and in about 25 or 30 per cent. these had been the results of traumatic lesions, namely indiscreet curetting, but puerperal infections also played an important part.

Dr. Hermann L. Collyer believed that the statistics presented were to be criticised. Undeveloped uteri could not be compared with perfectly developed uteri. These cases that were reported as having an early menopause at 21 were, unfortunately, in women without a perfectly formed uterus and ovaries. He believed that in the classification of the cases of early cessation of menstruation there should be three, viz., (1) undeveloped uteri, (2) traumatic injuries to the uterus, (3) diseased uteri by specific causes, either gonorrheal or syphilitic. He did not think it was right to include in the statistics those cases of undeveloped uteri because menstruation was liable to cease at any time in such cases.

Dr. Hermann Grad said he had not made a very great study of the subject under discussion, but there were three things that should be noted, viz., (1) menstruation was irregular from its beginning, (2) these women had a tendency to become fat; they also had a masculine appearance, with robust and oftentimes clumsy bodies; (3) when menstruation was irregular and they had borne children, traumatism was frequently at the bottom of the cause of the premature menopause. No doubt many cases were due to undeveloped uteri and ovaries as well.

Dr. Stark said that the classification he presented was his own. Nobody heretofore had taken note of the age when premature menopause should be so classed; he, therefore, placed it at the age of thirty. The cases that occurred under this age were rare.

Election of Officers.—*Chairman*, Dr. Samuel M. Brickner; *Secretary*, Dr. Harry Dawson Furniss.

Pelvic Transplantation Metastases.—Palmer says that rectal examination is absolutely necessary in all abdominal tumors. Of 435 consecutive cases of carcinoma of the upper abdomen, six and one-half per cent. showed pelvic transplantation deposits as the earliest clinical sign of inoperability. Seven and two-tenths of stomach carcinomas had this sign.—*Surgery, Gynecology, and Obstetrics.*

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Annual Meeting, Held January 17, 1910.

The President, Dr. Robert T. Morris, in the Chair.

Election of Officers.—The following officers were elected for the ensuing year: *President,* Dr. Reynold Webb Wilcox; *Vice-President,* Dr. Ransford E. Van Gieson of Brooklyn; *Recording Secretary,* Dr. P. Brynberg Porter; *Corresponding Secretary,* Dr. Frank C. Raynor of Brooklyn; *Treasurer,* Dr. A. Ernest Gallant; *Chairmen:* Borough of Manhattan, Dr. J. Blake White; Borough of The Bronx, Dr. Nathan B. Van Etten; Borough of Brooklyn, Dr. J. Scott Wood; Borough of Queens, Dr. Neil Orrin Fitch; Borough of Richmond, Dr. William Bryan; *Member of the Executive Committee,* Dr. Louis F. Bishop.

Some New Tests for Test-Meal and Feces Examinations.—Dr. Anthony Bassler, in this paper, described his methods and apparatus for examining test meals and feces according to the results obtained by bacterial action. He drew attention to the fallacious results noted in many of the other clinical diagnostic measures, notably the Schmidt and Strausberger test diets, the Schmidt connective tissue test, the Günzberg and Sahli packages, and the Einhorn bead test. He claimed that in nearly all cases of early gastric carcinoma and in latent ulcer no value came from the ordinary methods of test-meal analyses, but much significance might come from the bacterial tests with test meals, and that abnormal bacterial conditions of the colon were more times matters of assumption rather than accurate clinical diagnoses—for not all of the bacterial conditions of the gut showed indol in the urine. He said that the dietetic and neurotic conditions of the stomach did not give more than the merest bubble, but that in ulcer and cancer this was higher, and he described his method of feces work for diagnosing the bacterial conditions of the colon on this basis. In the normal individual the feces and water tests showed a low gas result on the strict meat diet, the ordinary mixed diet showed a higher result, while that of the strict carbohydrate diet was highest of all. When in the nutritive media the gas result was higher than normal, the patient was placed upon a strict meat diet and the watery suspension test performed, at which, should the gas result be higher than a meat diet should give, the diagnosis of the indolic form of chronic intestinal putrefaction was suggested; on the other hand, should the gas result in the nutritive media be lower than normal, the patient should be placed upon a strict carbohydrate diet to see if the gas from the watery suspension of feces still remained below what was ordinarily seen in an individual on such a diet, at which, when the result was positive, the diagnosis of the more common saccharobutyric form was suggested.

A Consideration of the Convulsive Toxemias of Pregnancy, Embodying the Results of Recent Important Research.—By Dr. Ross McPherson. The author stated that of all the problems with which the obstetrician had to deal there was probably none which offered more difficulty than the condition known as the toxemia of pregnancy. Not knowing the cause, we were at a loss to secure a satisfactory treatment, and this, up to the present time, had been most empirical and extremely inefficacious in its results. Toxemia of pregnancy was the name which was applied to that class of cases characterized by headache, bowel disturbance, nausea, vomiting, delirium, and coma, and usually accompanied by edema; occurring many times without previous warning or indication of its presence. The mortality, both maternal and fetal, was appalling, and the multiplicity of treatments recommended by physicians gave testimony to the worthlessness of such treatments, as of necessity the large majority had been directed toward the combatting of symptoms, and not toward relieving the cause of the disease. It had been the custom to divide the toxemias into those occurring with convulsions and those occurring without, those where convulsions were not present being spoken of as plain toxemias, and where they were as eclampsias. The condition occurred in approximately 1.7 per cent. of all labors in hospital practice and .09 of 1 per cent. of all labors in private practice. It was almost twice as common in primiparæ as in multiparæ, and was apparently proportionately more often noted in multiple pregnancies than in single ones. The maternal mortality naturally varied somewhat according to the treatment, and the figures given in the literature varied from 5 to 50 per cent., of which the latter was the more nearly correct. In the 250 cases on which this article was based the maternal mortality was, in the hospital wards, 30.8 per cent., and in the out-patient department 23 per cent., the difference between the two being explained by the fact that many of the cases in the hospital were not seen until they had been in the convulsive state for a long time, whereas those cases in the out-patient department were treated immediately. The fetal mortality was very high, varying from 33 per cent. to 50 per cent. The disease was formerly considered to be of renal origin, and as such was considered an uremia. More careful and extended observation, however, had shown that the kidney involvement was entirely secondary. The common lesions found were those of degeneration of the parenchymatous organs, notably the liver, followed by the kidney, less commonly by the spleen and pancreas. This took the form of an albuminous change known as cloudy swelling, passing on to a fatty degeneration early in the disease and later in the more aggravated forms, extending to all the tissues. In the other toxemias of the nonconvulsive type we found zonal necrosis in the liver lobules. In eclampsia, on the contrary, we usually found extensive hemorrhages in and about the portal spaces, with very little zonal necrosis. The hemorrhages were general in character, being especially marked in the brain about the corpus striatum, and in the fourth ventricle. The thyroid gland was hypertrophied and might show cystic degeneration. There was edema in many cases, hemorrhages in the serous and mucous membranes, and occasionally subcutaneous hemorrhages and jaundice. Concerning the cause of these hemorrhages, Welch had suggested that there was circulating in the blood a poison which, by causing agglutination of the red cells, formed emboli, and by solution of the endothelium of the blood vessels allowed an easy means of escape for the blood. Concerning the ordinary sources of the poison, they were generally regarded to be four in number: The foods fermentation in the intestine, cell metabolism, the fetus, and the placenta. Discussing the treatment of the convulsive toxemias of pregnancy, Dr. McPherson said it was divided into the prophylactic, operative, and curative, according to whether the patient showed symptoms of a threatened attack or whether the convulsions had actually occurred. As we did not know the exact cause of the disease, we could not do more than try to remove by means of elimination the burden from the already overloaded organs. As a prophylactic measure we should watch the patient's elimination with the utmost care, and where the normal channels were not working to their best advantage we should aid them in every possible way. Careful and frequent examinations of the urine should be made, proper at-

tention being paid to the presence of albumin, urea, indican, acetone, and diacetic acid. The nitrogen partition might be of use in cases where it could be done. This required, however, the services of a trained chemist and was, after all, of somewhat speculative value. When convulsions occurred the uterus should be emptied without delay. The means by which this should be done would vary somewhat with the experience and preference of the operator. If possible, it was desirable to have the patient in a hospital, for even under the best circumstances the cases were not likely to do well and the facilities for operation and care which the modern hospital afforded added greatly to the patient's chances for recovery. The means of delivery which might be used consisted of artificial dilatation of the cervix and rapid extraction, either by internal podalic version, forceps, craniotomy, vaginal cesarean section, or abdominal cesarean section. Of these, manual dilatation of the cervix, combined with internal podalic version or forceps, would be most often employed. Vaginal cesarean section presented a great many difficulties to the operator not skilled in vaginal work, especially if the patient be at or about term. Dr. McPherson said that in the recent report from the Rotunda Hospital of Dublin a series of cases was quoted where morphine in extremely large doses had been used in the treatment of convulsive toxemias of pregnancy with a marked reduction in mortality, the method of treatment having extended over a period of several years. No other measures were used, the patients not even being delivered with any promptitude or speed. Nitroglycerin to reduce the pulse tension was of considerable value, and the thyroid extract had lately received marked attention. Veratrum viride was used extensively throughout the South and West, but it was difficult to understand why it should be of any particular value, in spite of the fact that many men regard it as a specific. Added to the medication mentioned large irrigations of normal saline solution or instillations of the same were advised in suitable cases, and bleeding, followed by intravenous infusion or normal saline solution, hot packs, and free catharsis, might be used.

Dr. John E. Welch said that his experience with this condition was largely limited to post-mortem examinations, although most of the cases he had also seen prior to death in the Lying-in Hospital. The first question that arose was whether eclampsia and the toxemia of pregnancy were one disease. Out of sixteen cases that had come under his observation, eleven were clinically diagnosed as eclampsia, and of these seven showed the characteristic hemorrhages in the portal region or in the serous or mucous membranes, while five showed a necrosis around the central vein in one of the hepatic lobules. These were the two characteristic lesions of this condition—either hemorrhage or necrosis. Of those clinically diagnosed as the toxemia of pregnancy three showed hemorrhages and four showed central necrosis. Two other conditions were also occasionally met with, namely, one, a general autolysis, and the other, cloudy swelling. Autolysis was the term applied to the condition where the cell was very much swollen, and in which the entire cell contents appeared to have been dissolved out. In the cases showing central necrosis a few of the cells were in this condition of general autolysis. Cloudy swelling was found in two cases, with severe nephritis; possibly they were simply cases of uremia. The kidney lesion in all these cases was very similar, showing marked cloudy swelling, usually with considerable sloughing of the epithelium. The cell changes were not limited to the liver, similar changes being found in the endothelium of the blood vessels. The blood of these patients, Dr. Welch said, was usually more or less toxic; there was considerable hemolysis, with agglutination of the red cells, including the platelets. The extensive thrombi often present were usually formed by the blood platelets, with the subsequent fibrin formation. As to the source of this toxin in the blood it was difficult to say. Autopsies on three fetuses showed considerable degeneration of the liver. It was impossible to say whether the toxin was due to a diseased placenta; in some cases the placenta was apparently healthy, while in others it gave evidence of disease. Personally, Dr. Welch said, he was not prepared to assert whether eclampsia and the toxemia of pregnancy were two diseases or one and the same disease. There was no straightforward pathology for cases of eclampsia. In four of his cases there were extensive hemorrhages in the brain, two of them in the basal ganglia. One of these had convulsions and had been diagnosed as a case of eclampsia; the other case had all the symptoms typical of the toxemia of pregnancy, but showed the hemorrhagic changes in the liver and brain. In two of the cases the hemorrhage was into the pons and had ruptured into the fourth ventricle.

Dr. Charles Jewett of Brooklyn, after congratulating Dr. McPherson upon the results of his work in connection with the convulsive toxemias of pregnancy, said that even without a knowledge of the more recent results of laboratory research, the importance of which could not be overestimated, the treatment of this condition by the obstetrician in the past had been more rational than one would at first be led to assume. On general principles, the treatment had aimed to limit the production of the disease poisons and to promote elimination of those already formed. The diet was restricted and the emunctories, especially the bowels and kidneys, were stimulated. This is the treatment to-day. As an anti-eclamptic, Dr. Jewett said he had recently made some little use of hyoscine and morphine, with satisfactory results. Morphine alone he had not used, believing it would tend to deepen the coma following a convulsion. The treatment of this condition by extremely large doses of morphine, as practiced by Stroganoff and in the Rotunda Hospital in Dublin, was not new. It was advocated a number of years ago by a physician in Canandaigua in this State. As to veratrum viride, the speaker said that some years ago he reported some twenty-two cases in which this remedy had been employed, with a death rate of between 13 and 14 per cent. by eclampsia, a somewhat smaller mortality rate than prevailed at that time. Dr. Jewett said he had never seen a convulsion occur when the woman was sufficiently under the influence of this drug to hold the pulse below 60. Prompt evacuation of the uterus usually was imperative. With reference to the incisive operations vaginal cesarean section he thought was suited only to cases two or three months or more before term. At the ninth month the operation was difficult, and it involved too much traumatism, which might still further be increased by difficult extraction of the child at that time. This method was especially indicated in cases in which the cervix was rigid and immediate delivery was indicated. He had used Dührssen's incisions, laterally, with good results in term labors, as a supplementary procedure in emergency. Cesarean section, at term, he thought was better done by the abdomen. As a rule, however, the usual obstetric methods he believed were best.

Dr. Egbert H. Grandin said that with no intention of decrying or minimizing the importance of these laboratory researches in connection with the toxemias of pregnancy, he had sometimes wondered whether these finer tests were absolutely essential, and whether the general practitioner, overworked and underpaid as he was, into whose hands

the majority of the obstetrical work naturally fell, was not competent to recognize the early symptoms of this condition by the ordinary urinary tests for albumin, casts, and urea, and without ascertaining the nitrogen partition, or the presence or absence of acetone, diacetic acid, etc. Referring to the different types of the toxemia of pregnancy, Dr. Grandin said that in that type associated with severe vomiting, which was dependent on structural changes in the liver, that obstetrician would get the best results who recognized the seriousness of the condition early enough to prevent the so-called "uncontrollable vomiting of pregnancy" from becoming uncontrollable. This could perhaps be done by proper elimination and by stimulating the kidneys, and for that purpose there was nothing better than frequent lavage of the colon with hot saline solution, keeping it up for hours, if necessary. To lower the pulse, venesection might be resorted to advantageously, and when a convulsion was imminent, hyoscine hydrobromate, in doses of 1-50 grain, should be given and repeated as often as was necessary until its effects were apparent. To the use of morphine, which arrested both secretion and excretion, he was opposed. As to surgical measures, both the abdominal and vaginal cesarean section could practically be excluded, so far as the general practitioner was concerned. The purpose he had in view was to empty the uterus as rapidly as possible, and, as a rule, the best method within his reach to effect that was to make deep incisions of the cervix, where the vaginal portion was merged into the lower uterine segment, followed by manual dilatation and usually podalic version. Anything more than that along surgical lines should rarely be attempted outside of a properly equipped institution.

Dr. Frederick E. Sondern said that if the nature and origin of the toxin to which Dr. McPherson had referred could be discovered, our methods of diagnosis and probably treatment would be greatly simplified. While there were many reasons to believe that it is a hepatotoxemia, thus far no plausible theory regarding the origin of the toxin had been advanced, and in the meantime the urine, particularly, had been looked to for guides by means of which we could estimate the severity of the toxemia and determine the time beyond which it was no longer safe to leave the woman undelivered. We should not lose sight of the fact, however, Dr. Sondern said, that the changes observed in the urine were simply the result of the same toxemia that gave rise to the various pathological changes and to the clinical symptoms; that they were dependent on the same toxemia which caused the convulsions and the hyperemesis. We should also remember that the degree of acidosis indicated by the urine did not necessarily indicate the amount of the mother substance beta-oxybutyric acid circulating in the blood. Persons also varied as to the amount of poison the system would tolerate, and doubtless women varied in their susceptibility to this particular toxin as they did to other poisons. Two general errors, the speaker said, had been made in connection with this disease: First, in ignoring the urinary findings that were of use in corroborating the diagnosis of the serious stage of this condition. Second, in considering definite degrees of fault in the figures obtained on analysis as justifying definite clinical conclusions without regard to the clinical aspect of the case. His own experience with a considerable number of specimens from patients of this kind had taught him that it was either a strange coincidence or a fact, that most women who developed a toxemia of pregnancy previously gave evidences of a distinct intestinal autointoxication, as shown by a relative excess of ethereal sulphates and often by an excess of indican in the urine. This he had found to precede a toxemia of pregnancy in at least 90 per cent. of the cases, and the condition it indicated should be remedied if possible. In analyzing the urine of pregnant women if a more complete investigation cannot be made, the tests for indican and acetone should certainly not be omitted. If evidences of an acidosis were present it usually pointed to a toxemia unless explained by partial starvation. If partial starvation due to hyperemesis could be ruled out, then energetic measures should be taken to overcome the toxemia, the only symptom of which might be headaches. If, as the result of treatment, the hyperemesis and other symptoms seem to improve, while the evidences of acidosis in the urine become more pronounced, then the outlook was graver, and the presence first of an excess of urobilin and later of bile pigment in the urine should be looked for. As to the value of the nitrogen partition, we knew that in this as well as in some other toxemias the nitrogen partition was deranged, and while a knowledge of the degree of this derangement was always a valuable factor, it did not necessarily give us a certain indication for the premature emptying of the uterus. In brief, the figures obtained from the nitrogen partition should be used as corroborative evidence and not as a distinct indication. Another point referred to by the speaker was that he found in the laboratory, that the changes in the urine caused by the toxemia continued to exist for a longer or shorter time after the uterus had been emptied; this fact, and the shock attending the procedure should not be overlooked. When emptying the uterus was contemplated, the operation should be done while the patient still possessed sufficient strength to overcome the shock and the toxemia that was bound to persist for a time afterward.

Dr. I. L. Hill said that while the practitioner, up to the present, was largely dependent on the clinical symptoms in dealing with this condition, he thought that for the final solution of the problem we must look to the pathologist. Since its pathology had been elaborated, incomplete as it still was, the profession had come to assume a different attitude toward eclampsia. They did not attach so much importance to clinical treatment, the outlook in these cases depending largely upon the amount of destruction of the liver cells. In the treatment of the convulsive toxemias of pregnancy, Dr. Hill said, he had personally found veratrum viride very useful, and the same was true of morphine, even when not given in combination with hyoscine. Referring to operative measures, the speaker called attention to the difficulty and danger of attempting the rapid dilatation of a rigid cervix. Under such conditions there was very little stretching, but a great deal of tearing of the small fibers. The procedure always produced considerable injury, and not infrequently resulted in rupture of the uterus into the broad ligament. It was questionable whether it should be attempted by one who was not prepared to do a more serious operation, if the necessity arose. Venesection was an admirable measure, providing the convulsion came after delivery, but when attempted before delivery one had to face the unfortunate possibility of having a severe uterine hemorrhage afterwards further deplete the patient.

The discussion was continued by Drs. Morris and Gallant, and was then closed by Dr. McPherson.

College of Physicians of Philadelphia.

At a stated meeting held March 2 Drs. Alfred C. Wood and Augustus A. Eshner presented a communication entitled "Actinomycosis (Streptothricosis) in Man, with the Report of a Case of Pulmonary Involvement." The patient was a man, 36 years old, for many years engaged in the manipulation of furs, who presented himself with symptoms of chronic pleurisy with effusion. He was tapped on several occasions, with the evacuation of varying amounts of turbid serum, and eventually portions of rib were excised, with the discharge of grumous pus. The diagnosis remained in doubt until typical granules of the actinomyces were discovered in the discharge,

but the patient did not long survive. Dr. JOHN H. W. RHEIN presented a communication entitled "Meningitis and Disease of the Radicular Nerves in Tabes Dorsalis." He reported the results of a histologic study of a considerable number of specimens from cases of tabes and syphilis of the central nervous system, showing that changes in the radicular nerves of the cord are not constant in cases of tabes and that meningitis is not constant at all stages of the disease. Like conditions were present in cases of tabes complicated by syphilis, and he considered such changes as episodic and not an essential feature of the disease of the posterior columns. Drs. DAVID RIESMAN and FRANCIS T. STEWART presented a communication entitled "Obliterative Gastritis (Plastic Linitis)." They reported a case of a man presenting symptoms of disease of the stomach of obscure character attended with persistent vomiting and marked emaciation, together with the presence of a tumor-like mass in the abdomen. Operation disclosed a contracted stomach, with enormously thickened walls and obstruction at the pylorus. Pyloroplasty was performed and the patient was greatly relieved, gaining in weight, although vomiting persisted in less degree than previously. Histological examination disclosed the presence of marked submucous hyperplasia, but *Treponema pallidum* could not be discovered in the tissues, although there was a history of syphilis in the case. Dr. EDWARD H. GOODMAN presented a communication entitled "Historical Note on Ludwig's Angle or the Angle of Louis (Angulum Ludovici)." He pointed out that the angulation observed in some cases of pulmonary tuberculosis between the junction of the manubrium and gladiolus of the sternum was named after the great French clincian, Louis, but careful investigation failed to disclose any reference to the sign in the writings of this author. In his description of emphysema of the lungs, however, Louis makes reference to a prominence of the chest between the clavicle and the fourth rib on one or both sides as distinctive of this affection. Dr. ALFRED STENGEL reported "A Case of Actinomycosis of the Cheek with Recovery." The patient was a girl who suffered an injury of the cheek at the hands of a dentist in the process of filling carious teeth. The injured part became swollen and indurated. An incision was made through the mucous membrane, but nothing characteristic was discovered in the discharge. At a later period it became necessary to make a further incision, and at this time examination of the disharge disclosed the presence of characteristic granules. Potassium iodide was administered in doses up to 60 grains a day, without noteworthy improvement, but, later, local applications of tincture of iodine were made in addition, and the patient eventually recovered and is still alive after an interval of six years.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF WASHINGTON.

January, 1910.

ANATOMY.

1. Name muscles attached to the great trochanter of the femur.
2. Into what two classes are muscles divided? Describe each.
3. Describe Poupart's ligament; name anatomical relations and what passes beneath it.
4. Name the twelve pairs of cranial nerves.
5. Name bones articulating with humerus.
6. Describe diaphragm, its principal openings and nerve supply.
7. What forms the internal hamstring?
8. What constitutes the brachial plexus?
9. Name the cranial nerve having greatest distribution.
10. Locate and describe Peyer's glands.
11. Name the nerves of the eyeball.
12. Describe the spinal column, special and peculiar vertebra.

PHYSIOLOGY.

1. Describe how nature stops the flow of blood from a wound, and tell how you would assist her.
2. What is meant by "physiological leucocytosis," and under what conditions found?
3. What is the difference between lymph and serum? Is the former a product of the lymphatic glands?
4. Name at least four functions of the liver.
5. Explain anabolism and katabolism.
6. How can we afford the greatest voluntary assistance to the entrance of venous blood into the heart?
7. Give the nervous control of the heart.
8. What do you understand by "phagocytosis"?
9. Describe the pancreatic juice, giving the ferments and their specific action.
10. What is food? Classify and give its function.
11. Compare the path followed by a motor nerve impulse passing to a skeletal muscle with that of an impulse which reaches an involuntary muscle.
12. Give various causes for the flow of saliva.

CHEMISTRY AND TOXICOLOGY.

Answer ten questions only.

1. Give two tests for albumin in urine. What is the specific gravity of normal urine, and how is it determined?
2. How would you test for sugar in urine that is strongly acid? Which kind of sugar is reduced in the test?
3. Give methods of detecting bile in urine.
4. What are the active principles in saliva, gastric juice, pancreatic juice? What is their chemical function in digestive economy?
5. What substances may be present in a good drinking water? What substances would you consider harmful or undesirable?
6. Give the chemical composition of pure air. In respiration, what is inhaled and what is exhaled? How do the gases enter and leave the body?
7. What is the poison in (*a*) paris green? (*b*) in "rough on rats"? Differentiate between poisoning by arsenic and phosphorus.
8. Give antidotes for poisoning by belladonna, corrosive sublimate, and carbolic acid.
9. What are ptomains? When would you suspect ptomain poisoning? What is the cause of milk and ice cream poisoning?
10. What parts of the body would you prepare for the toxicological chemist, and how?
11. What is the poison in most headache powders? Its effect? Antidote?
12. A patient has died in convulsions; poison is suspected. What poisons might be looked for?

HISTOLOGY.

Answer ten questions only.

1. Describe the blood.
2. Give the histological structure of a nerve.
3. Describe cartilage and name varieties.
4. Differentiate the histological structure of arteries and veins.
5. Name and describe the membranes of the brain and give function of each.
6. Differentiate white fibrous tissue and yellow elastic tissue as to structure and function.
7. Describe a red blood corpuscle. Where do they have their origin?
8. Give the histological structure of the human skin.
9. Describe normal urine.
10. Give the histological structure of the walls of the stomach.
11. Describe the microscopic appearance of the liver in a healthy adult.
12. Name three types of epithelium and give location of each.

GENERAL DIAGNOSIS.

1. What is the normal position of the apex beat, and how is it affected by disease of the heart? What are the two kinds of cardiac murmurs? Name and define the areas over which they are best heard.
2. Define acute anterior poliomyelitis. Give pathology, symptoms, prognosis, and differential diagnosis.
3. Describe a fracture of the upper third of the humerus in a patient at fifteen years of age, and distinguish from other conditions in this region following trauma.
4. Give the differential diagnosis between iritis, corneal

ulcer, and conjunctivitis. Give the causes and sequelæ of each.

5. Give the symptomatology of tuberculosis of the kidney and the differential diagnosis between it and renal calculus, hydronephrosis, and pyelitis.

6. Give definition of acute osteomyelitis, the pathology, symptomatology, and differential diagnosis between it and acute rheumatism.

7. Give the symptoms and physical signs of bronchopneumonia and differentiate from lobar pneumonia and bronchitis.

8. Name the varieties and give the signs of dislocation of the head of the radius, and exclude other conditions about the elbow following an injury.

9. In syphilis, when is the cerebral involvement usually manifested? What structures are involved? Give the symptoms, sequelæ, and differential diagnosis.

10. Give the pathology and symptoms of intussusception, and differentiate this condition from volvulus, fecal impaction, appendicitis, and mesenteric thrombosis.

11. Give the period of incubation, describe the rash of scarlet fever, and differentiate from other eruptions simulating it. What are the most frequent complications and sequelæ of this disease?

12. Trichiniasis; describe the parasite, its habitat, and mode of infection. Give the symptoms and prophylaxis.

PATHOLOGY.

Answer ten questions only.

1. Describe the macroscopic and microscopic appearance of an epithelioma of the lip.

2. Describe the pathological changes in a case of cerebrospinal meningitis.

3. Name varieties of casts found in the urine, and give their clinical significance.

4. Define anemia, hyperemia, leukemia, and leukopenia.

5. What pathological changes usually take place in chronic inflammation of the bones?

6. What is (*a*)an embolus, (*b*) a thrombus, (*c*) an infarct?

7. Describe the formation of an acute abscess.

8. Differentiate sarcoma and carcinoma, and give diagnostic pathology of each.

9. State by what two methods the tubercle bacillus produces its specific tissue changes.

10. Give pathology of locomotor ataxia.

11. Name the intestinal lesions of typhoid fever, and give pathology of each.

12. Name stages of syphilis, and give their pathology.

OBSTETRICS.

1. Name and define the five principal diameters of the fetal head. Tell which is the longest and which plane in a normal labor is in relation to the successive planes of the pelvis.

2. What is meant by placenta prævia? What are the types, symptoms, physical signs, and dangers?

3. What is eclampsia? Give its etiology, symptomatology (both prodromal and during the attack), and diagnosis.

4. Define the term puerperium. Name and give the causes of the principal pathologic processes that may affect the mother during that period.

5. Name and give the causes of the principal disease, both hereditary and acquired, which may affect the newborn infant.

6. Give the mode of onset and symptoms of a puerperal infection, and discuss the prognosis.

7. How would you diagnose a left sacroposterior position, and what are the dangers of the delivery?

8. What do you mean by the mechanism of the second stage of labor? What are the various movements in a normal labor? Discuss each briefly.

9. Describe the changes in nutrition, digestion, urine, and nervous system which may occur in a normal pregnancy.

10. From what conditions would you have to diagnose a pregnancy at the end of the third month? Give the symptoms and signs of pregnancy at that time, and give the distinguishing features in each case.

11. Define presentation, position, and posture. Give each in normal labor, and tell what causes are most liable to modify each and so cause an abnormal labor.

12. Define menstruation, ovulation, placenta, chorion, amnion, allantois, decidua vera, meconium, caput succedaneum, cephalhæmatoma.

GYNECOLOGY.

1. Name the contents of the female pelvis; their normal positions and relations.

2. Give anatomy of floor of pelvis and the results of its destruction.

3. State the uterine displacements most commonly met. Give their chief clinical symptoms.

4. Give some of the most common causes of menorrhagia and metrorrhagia—local, constitutional, and vascular.

5. Gonorrheal infection in the female, acute and latent; give parts involved, symptoms objective and subjective, and other diagnostic methods; give dangers immediate and remote of the disease.

6. Give hygienic regulations for girl at puberty.

7. Give etiology of sterility in the female.

8. Give causes of pruritus vulvæ.

9. Differentiate extrauterine pregnancy from appendicitis and salpingitis.

10. Give effects on general health by fibroid tumors; their subjective symptoms, prognosis, and degenerative changes that may occur.

11. Give diagnostic signs and symptoms of cancer of the fundus of the uterus, and from what is it to be differentiated?

12. From what is a large ovarian cyst to be differentiated, and how done?

HYGIENE.

Answer ten questions only.

1. Give a few important rules for the care and control of tuberculosis.

2. What are the methods of transmission of the more important infectious and contagious diseases? Give illustrations of each.

3. What are the most common sources of infection in diphtheria, and what hygienic precautions should be employed?

4. What measures would you employ for the prevention of the spread of contagious diseases?

5. Differentiate between endemic and epidemic diseases.

6. Through what media is the typhoid infection usually communicated?

7. What gases are most efficient as disinfectants?

8. How would you disinfect (1) rooms, (2) clothing, (3) hands, (4) urine and feces, water closets, etc.?

9. What diseases are incident to school life, and how prevented?

10. What are (*a*) toxins, (*b*) antitoxins?

11. If a chemical analysis of water revealed the presence of nitrites and nitrates, would this condemn it for drinking? If so, why?

12. Mention the principal diseases that should be quarantined? And how would you determine the length of time in each?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF WASHINGTON.

January, 1910.

ANATOMY.

1. Gluteus medius, gluteus minimus, pyriformis, obturator externus, obturator internus, superior gemellus, inferior gemellus.

2. Striated, unstriated, and cardiac. See Gray's "Anatomy" (1908), page 363.

3. See Cunningham's "Anatomy" (1909), page 422; or, Gray's "Anatomy" (1908), page 438.

4. The twelve pairs of cranial nerves are: (1) Olfactory. (2) Optic. (3 Motor oculi. (4) Trochlear or Pathetic. (5) Trifacial. (6) Abducens. (7) Facial. (8) Auditory (9) Glossopharyngeal. (10) Pneumogastric or Vagus. (11) Spinal Accessory. (12) Hypoglossal.

5. Scapula, ulna, and radius.

6. The *diaphragm* is a musculofibrous septum which divides the thoracic from the abdominal cavity; it is fan-shaped; the broad, elliptical portion is horizontal, and the crura are vertical. It is attached to the ensiform, to the internal surfaces of the lower six costal cartilages, to bodies and intervertebral substances of first, second, and third lumber vertebræ. Its *openings* are: (1) The aortic, (2) the esophageal, (3) the opening for the vena cava, (4) the right crural, (5) the left crural. *Nerve supply:* Phrenic, lower intercostal, and sympathetic.

7. The tendons of the Semimembranosus, Semitendinosus, Gracilis, and Sartorius.

8. The *brachial plexus* is formed by the union and subsequent division of the anterior divisions of the fifth, sixth, seventh, and eighth cervical and the first dorsal nerves.

The union of the fifth and sixth makes the upper trunk; the seventh forms the middle trunk, and the eighth cervical and first dorsal make the lower trunk. Each of these trunks is divided into an anterior and a posterior branch. The anterior branches, from the upper and middle trunks, make the upper or outer cord of the plexus; the anterior branch of the lower trunk becomes the lower or inner cord; the three posterior branches unite to form the posterior or middle cord. The plexus lies between the Scalenus anticus and medius.

9. The tenth, or pneumogastric.

10. See Cunningham's "Anatomy" (1909), page 1064; or, Gray's "Anatomy" (1908), page 1304.

11. *Sensory,* from branches of the first division of the fifth cranial nerves; *motor,* from third, fourth, and sixth cranial nerves.

12. See Cunningham's "Anatomy" (1909), pages 88, 75, 79, etc.; or, Gray's "Anatomy" (1908), pages 67, 50, etc.

PHYSIOLOGY.

1. Nature's way of stopping the flow of blood from a wound is by the coagulation of the blood. This may be helped by anything that aids coagulation, such as styptics or the application of gauze, bandages, etc.

2. *Physiological leucocytosis* is an increase in the number of the white blood corpuscles occurring under normal or physiological conditions, such as: Digestion, exercise, after a cold bath, or during pregnancy.

3. *Lymph* is diluted blood without the red corpuscles; *serum* is practically blood plasma, with the exception of the substances which enter into the formation of fibrin. Lymph is not a product of the lymphatic glands.

4. The *functions of the liver* are: (1) The secretion of bile; (2) the formation of glycogen; (3) the formation of urea and uric acid; (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.

5. *Metabolism* is the entire series of changes that occur in a cell or organism during the processes of nutrition. It is of two kinds: (1) Assimilative, or constructive (*anabolism*), and (2) destructive (*katabolism*).

6. By taking deep inspirations.

7. The *nerves which control the heart* are: (1) The pneumogastric nerve, which slows or inhibits the heart beats; (2) the sympathetic nerves, which accelerate or augment the beats; and (3) the intrinsic cardiac ganglia, which enable the heart to continue beating for some time after it is removed from the body.

8. *Phagocytosis* is the faculty of certain cells (notably the mononuclear and polynuclear leucocytes) to take up and destroy bacteria.

9. The *pancreatic juice* is a colorless, viscid, odorless, salty fluid, alkaline in reaction, and of a specific gravity of about 1030. *Composition:* Water and solids, the latter consisting of three enzymes (trypsin, amylopsin, and steapsin), proteid material, soaps, fats, lecithin, and inorganic salts (carbonate of sodium, chloride of sodium, and phosphates of sodium, calcium, and magnesium).

Ferments: (1) *trypsin,* which changes proteids into proteoses and peptones, and afterward decomposes them into leucin and tyrosin; (2) *amylopsin,* which converts starch into maltose; (3) *steapsin,* which emulsifies and saponifies fats; and (4) a milk-curdling ferment. All of these act in an alkaline medium only.

10. *Food* is material which, after being taken into the body, is capable of building up the body, of repairing tissue waste, and of supplying heat and energy. *Foods are classified* as:

I. Inorganic. { Water. / Salts.

II. Organic.... { Nitrogenous—Proteids. / Non-Nitrogenous. { Carbohydrates. / Fats.

Function of proteids: Formation and repair of tissues and fluids of the body, regulation of the absorption and utilization of oxygen, formation of fats and carbohydrates, production of energy. *Function of carbohydrates:* Production of heat and energy, and formation of fats. *Function of fats:* Supply of heat and energy, supply of fatty tissues, nutrition of nervous system. *Function of salts:* Support of bony skeleton, supply of HCl for digestion, regulation of nutrition and energy. *Function of water:* It enters into the composition of all the tissues and fluids of the body, it moistens the surfaces and membranes of the body, it keeps the fluids of the body at their proper degree of dilution, it removes waste matters, distributes and regulate body heat.

11. To a *skeletal* muscle the motor nerve impulses start in the cortex cerebri, and pass through the corona radiata, internal capsule, crus, pons, medulla, crossed and direct pyramidal columns to motor cells of anterior horn of spinal column, thence through nerve root and motor nerve to muscle. To *involuntary muscle:* The efferent fibers of the sympathetic nervous system arise in the intermediolateral column of gray cells. They pass out by the anterior root from the spinal chord. From here they go by a white ramus to a sympathetic ganglion. From the sympathetic ganglion they may pass in two directions: (1) they may form synapses about these cells and from these cells new axons may arise and pass outwards in the visceral nerves, or back through the gray ramus connected to the ganglion, into the spinal or somatic nerve to the blood-vessels as vasomotor nerves, or sweatglands as secretory nerves, or to hairs as pilomotor nerves; (2) or they may pass through the ganglion on to one situated more towards the periphery, in which they form synapses and are continued onward by new axons."

12. *Causes of flow of saliva:* The taste, sight, or smell of food; the hearing of sounds associated with the preparaton of food, various drugs (sialagogues), section of chorda tympani, or stimulation of its peripheral end when divided; section of sympathetic nerves supplying the salivary glands, or stimulation of the peripheral end, when divided; the thought of savory food; the feeling of nausea which precedes vomiting.

CHEMISTRY AND TOXICOLOGY.

1. TWO TESTS FOR THE DETECTION OF ALBUMIN IN THE URINE: "The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent it is to be treated with a few drops of magnesia mixture and again filtered." I.—*The heat test:* "The reaction is first observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3."

II.—*Heller's modification of the nitric acid test:* "Place in a test-tube a layer of HNO_3 about 2 c. in thickness; then with a pipette, carefully float upon the surface of this a layer of the urine in such a manner that the liquids do not mix. If albumin be present, a cloudy ring appears *at* the point of junction of the two layers, the borders of the cloud being sharply defined. A cloudy ring may be formed by the presence of an excess of urates, but in this case it is not *at,* but *above,* the point of junction of the layers, and its upper border is not sharply defined, but fades off gradually." (Witthaus' *Essentials of Chemistry.*)

The specific gravity is about 1015 to 1025, and is determined by means of a urinometer.

2. *Boettger's test for sugar:* Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color. The kind of sugar reduced is glucose.

3. *Test for bile pigment in the urine:* Put 3 c.c. HNO_3 in a test-tube; add a piece of wood, and heat until the acid is yellow; cool. When cold, float some of the urine to be tested upon the surface of the acid. A green band is formed at the junction of the liquid, which gradually rises, and is succeeded from below by blue, reddish-violet, and yellow.

4.

SECRETIONS	ACTIVE PRINCIPLES	FUNCTION.
Saliva.....	Ptyalin.	Changes starches into dextrin and sugar.
Gastric juice...	Pepsin.	Changes proteids into proteoses and peptones in an acid medium.
	A curdling ferment.	Curdles the casein of milk.
Pancreatic juice	Trypsin.	Changes proteids into proteoses and peptones, and afterward decomposes them into leucin and tyrosin; in an alkaline medium.
	Amylopsin..	Converts starches into maltose.
	Steapsin.	Emulsifies and saponifies fats.
	A curdling ferment.	Curdles the casein of milk.

5. Good drinking water may contain the following in very small amounts: Free ammonia, albuminoid ammonia, nitrogen as nitrates, nitrogen as nitrites, and chlorine. Harmful or undesirable substances would include all the above in larger quantities, and the following: Sewage, leaves, surface washings, manufacturing refuse, lead, other metals, leakage from gas pipes, insects, fungi, bacteria, entozoa.

6.

	INSPIRED AIR	EXPIRED AIR.
Oxygen	21 per cent.	16.6 per cent.
Nitrogen	79 per cent.	79 per cent.
Carbon dioxide...	0.04 per cent.	4.4 per cent.
Other gases.....	Rare.	Often present.
Watery vapor....	Variable.	Saturated.
Temperature	Variable.	That of body.
Volume	Varies.	Diminished.
Bacteria	Always present.	None.
Dust	Always present.	None.

The gases enter and leave the body by the process of diffusion, or differences in pressure in the alveoli of the lungs.

7. The poison in *Paris green* is arsenic; in *Rough on Rats,* is phosphorus. *Arsenic:* The symptoms usually begin in from twenty to forty-five minutes; nausea and faintness; violent, burning pain in the stomach, which becomes more and more intense, and increases on pressure. Persistent and distressing vomiting of matters, sometimes brown or gray, or streaked with blood, or green (Paris green); purging; more or less severe cramps in the lower extremities.

Phosphorus: Eructation of gas having the odor of garlic. The mouth, when observed in the dark, is frequently faintly luminous (phosphorescent). After several hours, pain in the throat, a sense of heat in the epigastrium, nausea, and vomiting. The vomited matters are sometimes bloody, and frequently luminous when agitated in the dark. The abdomen is tender, and there are diarrhea and colicky pains. After one or two days these symptoms cease, there remaining only pain in the back and limbs and a feeble pulse. Death sometimes occurs suddenly in from two to four days. Usually about the fourth day the patient becomes jaundiced, suffers from headache, insomnia, and retention of urine, rapidly becomes delirious and comatose, and dies. (From Witthaus' *Essentials of Chemistry and Toxicology.*)

8. Antidote for *belladonna,* none; pilocarpine and morphine are often given. For *corrosive sublimate,* milk or white of egg in moderate quantity, followed by an emetic. For *carbolic acid,* a soluble sulphate, such as sodium or magnesium sulphate, or alcohol.

9. *Ptomains* are basic nitrogenous compounds, produced from protein material by the bacteria which cause putrefaction. They are found in protein foods which have partly undergone decomposition. *Ptomain poisoning. Symptoms:* Chilliness, headache, vertigo, muscular twitchings, hallucinations, imperfect vision, weak and rapid pulse, nausea, vomiting, diarrhea, cyanosis, early dyspnea, often subnormal temperature, and occasionally cutaneous eruptions. The cause of milk and ice-cream poisoning is tyrotoxicon.

10. In case of suspected homicidal poisoning, the following parts of the cadaver should be preserved: "The alimentary canal from the cardia to the middle of the rectum, *unopened,* and the contents enclosed by ligatures at the esophagus, duodenum, and lower end of gut; the liver, including the gall-bladder; one kidney; the spleen; a piece of muscular tissue from the leg; the brain, and any urine which may remain in the bladder.

"They are to be placed in *clean* and *new* glass jars, closed with glass or cork covers or stoppers. Jars with metallic caps should never be used. Tapes or cords should be tied about the jar and cap, to which they should be attached by sealing wax bearing impressions of a seal, in such a manner that access can only be had to the interior after breaking the seals or cutting the tapes or cords. Great care must be exercised that no sealing wax can get into the jars. Each portion should be placed in a jar by itself." (Witthaus' *Essentials of Chemistry.*)

11. ACETANILIDE. *Effect:* Chilliness, cold sweat; nausea; pulse is soft, slow, and feeble; respirations slow and shallow. *Treatment:* Lavage, diffusible stimulants, application of heat, coffee or strychnine, inhalation of oxygen, or saline infusion.

12. Convulsions occur in poisoning by: Strychnine and picrotoxin.

HISTOLOGY.

1. The blood is a fluid somewhat viscid, red, specific gravity from 1055 to 1062, alkaline reaction, saltish taste, characteristic odor, variable temperature (average about 100° F.). The *constituents of the blood* are plasma and corpuscles. The *plasma* consists of water and solids (proteids, extractives, and inorganic salts). The *red corpuscles* consist of water and solids (hemoglobin, proteids, fat, and inorganic salts). The *white corpuscles* consist of water and solids (proteid, leuconuclein, lecithin, histon, etc.). There are also *platelets,* which are very small, colorless, irregular shaped bodies, about one-fourth the size of the red corpuscle.

2. See Cunningham's "Anatomy" (1909), page 444; or, Gray's "Anatomy" (1908), page 819.

3. *Cartilage* is a form of connective tissue; it is firm and elastic; opaque, and of a bluish color. The varieties are: (1) *Hyaline,* in which the cells are relatively few and are imbedded in a quantity of ground substance. (2) *White fibrocartilage,* in which the ground substance contains bundles or layers of white fibers, between which are encapsulated cells. (3) *Yellow fibrocartilage,* in which the ground substance contains a network of yellow, elastic fibers, and the cartilage cells are in the meshes of this network.

4. See Cunningham's "Anatomy" (1909), page 781; or, Gray's "Anatomy" (1908), page 586.

5. See Cunningham's "Anatomy" (1909), page 597; or, Gray's "Anatomy" (1908), page 972.

6. The *function of the dura* is protection: It forms the internal periosteum of the skull; it forms three partitions for the support of the parts of the brain; it forms sinuses or venous channels for the return of the blood from the brain, and it forms sheaths for the nerves as they leave the skull. The function of the *arachnoid* is lymph supply; of the *pia,* blood supply and nutrition.

7. The *red blood corpuscles* are biconcave discs, about 1-3200 of an inch in diameter; they are nonnucleated, and there are about 4,500,000 or 5,000,000 of them in each cubic millimeter of blood. They are elastic and soft, and their shape is changed by pressure, but is promptly regained on the removal of the pressure. Their color is yellowish. They contain hemoglobin. They originate in the marrow of the long bones.

8. See Cunningham's "Anatomy" (1909), page 772; or, Gray's "Anatomy" (1908), page 1190.

9. *Normal urine* is a straw- or amber-colored fluid, with specific gravity from about 1015 to 1025; its chemical reaction is acid. The normal constituents are: Water urea, uric acid, urates, hippuric acid, kreatin, kreatinin, xanthin, hypoxanthin, sulphates, chlorides, and phosphates of sodium and potassium; phosphates of magnesium and calcium, nitrogen and carbon dioxide. The average quantity voided in twenty-four hours is about fifty ounces.

10. See Cunningham's "Anatomy" (1909), page 1058; or, Gray's "Anatomy" (1908), page 1281.

11. See Cunningham's "Anatomy" (1909), page 1121; or, Gray's "Anatomy" (1908), page 1345.

12. (1) Columnar epithelium; in stomach, intestines, and ducts of most secreting glands. (2) Cubical epithelium; in thyroid, testis, and some of the glands. (3) Ciliated epithelium; in upper air passages, Fallopian tubes, ventricles of brain, Central canal of spinal cord, vasa efferentia, and tail of spermatozoa.

GENERAL DIAGNOSIS.

1. The apex beat is normally in the fifth left intercostal space, about three inches to the left of the midsternal line. It may be displaced (upward, downward, to left, to right; the impulse may be increased, weakened, or absent; the frequently may be increased or decreased; the extent may vary). The two kinds of cardiac murmurs are: (1) Hemic, and (2) Organic. The former is heard best over the base: the latter, generally over the apex or sternum, sometimes at base (the exact location varying with the valve affected).

2. See French's "Practice" (1907), page 1034; or, Osler's "Practice" (1909), page 914.

3. See Rose and Carless' "Surgery" (1908), page 5502; or, Da Costa's "Surgery" (1908), page 486.

4.

CONJUNCTIVITIS	IRITIS
1. No change in iris.	1. Discolored and altered iris.
2. Pupil normal.	2. Pupil small, gray, sluggish, irregular after use of atropine.
3. Anterior chamber normal.	3. Exudation in anterior chamber.
4. Conjunctival injection, coarse meshes, most pronounced in fornix and fading toward the cornea.	4. Ciliary (circumcorneal) injection; pink zone of fine vessels surrounding cornea and fading toward fornix.

CONJUNCTIVITIS	IRITIS
5. Mucous or mucopurulent secretion.	5. Lacrymation, but no secretion.
6. Discomfort, but no real pain.	6. Pain, worse at night.
7. Conjunctiva reddened and opaque.	7. Conjunctiva usually transparent.
8. No interference with vision.	8. Vision diminished in acuteness.

CONJUNCTIVITIS. *Causes:* Foreign body, irritation, heat or cold, exposure to light, eyestrain, infection. *Sequelæ:* Scars, ulceration, perforation, staphyloma. IRITIS. *Causes:* Syphilis, gout, rheumatism, tuberculosis, diabetes, nephritis, infections, traumatism, inflammations. *Sequelæ:* Opacities, synechiæ. CORNEAL ULCER. *Causes:* Traumatism, extension of inflammation. *Diagnosis:* It is detected by oblique illumination, the ophthalmoscope, or convex lens, and by dropping fluorescin upon the cornea, the denuded area being colored green. Pain, photophobia, lacrimation, swelling of the lids and conjunctiva, and destruction of tissue are symptoms. *Sequelæ:* Corneal opacities, staphyloma, perforation, adherent leukoma, atrophy of the eyeball, and prolapse of the lens and vitreous.

5. See French's "Practice" (1907), pages 383, 911, 910, and 907; or, Osler's "Practice" (1909), pages 346, 710, 707 and 704.

6. See Rose and Carless' "Surgery" (1908), page 570; or, Da Costa's "Surgery" (1908), page 440. In *acute rheumatism* there is successive involvement of many joints; the tenderness, pain, and swelling are over the joints, and not over the bones; profuse sweats are present, and the condition responds to treatment by salicylates.

7. See French's "Practice" (1907), page 672; or, Osler's "Practice" (1909), page 624.

8. See Rose and Carless' "Surgery" (1908), page 625; or, Da Costa's "Surgery" (1908), page 594.

9. See French's "Practice" (1907), page 423; or, Osler's "Practice" (1909), page 271.

10. See French's "Practice" (1907), page 799; or, Osler's "Practice" (1909), page 519; or, Rose and Carless' "Surgery" (1908), pages 1119 and 1123; or, Da Costa's "Surgery" (1908), page 837.

11. See French's "Practice" (1907), page 315; or, Osler's "Practice" (1909), page 130.

12. See French's "Practice" (1907), page 492; or, Osler's "Practice" (1909), page 39.

PATHOLOGY.

1. See Rose and Carless' "Surgery" (1908), pages 211 and 801.

2. See French's "Practice" (1907), page 141; or, Osler's "Practice" (1909), page 159.

3. *Hyaline* casts occur in all forms of nephritis, in congestion of the kidneys, in jaundice; *waxy* casts, in chronic parenchymatous nephritis; *epithelial* casts, in acute parenchymatous nephritis; *granular* casts, in chronic nephritis and in acute nephritis; *fatty* casts, in chronic parenchymatous nephritis; *blood* casts, in hemorrhagic nephritis; *pus* and *bacterial* casts, in suppurative nephritis.

4. *Anemia* denotes a condition in which there is reduction of the quantity or quality of the blood (generally used with reference to the red corpuscles). *Hyperemia* denotes excessive blood in a part. *Leukemia* is a condition in which the white blood corpuscles are increased in number, and is accompanied by pathological changes in the spleen, lymphatic glands, and bone marrow. *Leukopenia* is a condition in which the number of white blood corpuscles in the peripheral circulation is below the normal.

5. See Rose and Carless' "Surgery" (1908), page 578.

6. An *embolus* is a plug in a blood vessel brought thither by the blood current. A *thrombus* is a blood clot formed in the blood vessels during life. An *infarct* is an area of tissue in which, owing to the plugging up of an end artery or terminal artery, nutrition is prevented.

7. See Rose and Carless' "Surgery" (1908), page 627; or, Da Costa's "Surgery" (1908), page 132.

8. *Carcinoma* is apt to occur at a later age; is found in structures derived from the epiblast or hypoblast; possesses a fibrous stroma, in which are found both blood vessels and lymphatics; metastasis is by the lymphatics.

Sorcoma is apt to occur earlier; is found in structures derived from the mesoblast; there is no stroma between the cells; the blood vessels are in direct contact with the tumor cells; there are no lymphatics; metastasis is by the blood vessels.

9. Irritation and degeneration.

10. In *locomotor ataxia* the posterior columns of the spinal cord and the posterior nerve roots are involved.

The posterior columns of the spinal cord are gray and shrunken, and show considerable overgrowth of connective tissue in the columns of Goll, Burdach, and Lissauer; this process extends upward from the lumbosacral region; the posterior nerve roots degenerate and become atrophic. The meninges over the affected parts become opaque and adherent. Some of the cranial nerves may also atrophy, notably the optic, but also the motor oculi and vagus.

The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective tissue, and sometimes congestion; the spinal ganglia may be affected.

11. See French's "Practice" (1907), page 85; or, Osler's "Practice" (1909), page 65.

12. See French's "Practice" (1907), page 420; or, Osler's "Practice" (1909), page 267.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), page 153; or, Hirst's "Obstetrics" (1909), page 92.

2. See Williams' "Obstetrics" (1909), page 809; or, Hirst's "Obstetrics" (1909), page 572.

3. See Williams' "Obstetrics" (1909), page 524; or, Hirst's "Obstetrics" (1909), page 628.

4. See Williams' "Obstetrics" (1909), pages 332 and 851; or, Hirst's "Obstetrics" (1909), pages 347 and 644.

5. See Williams' "Obstetrics" (1909), page 599; or, Hirst's "Obstetrics" (1909), page 155.

6. See Williams' "Obstetrics" (1909), page 852; or, Hirst's "Obstetrics" (1909), page 712.

7. See Williams' "Obstetrics" (1909), page 284; or, Hirst's "Obstetrics" (1909), page 419.

8. See Williams' "Obstetrics" (1909), page 256; or, Hirst's "Obstetrics" (1909), page 396.

9. See Williams' "Obstetrics" (1909), page 173; or, Hirst's "Obstetrics" (1909), page 186.

10. See Williams' "Obstetrics" (1909), page 190; or, Hirst's "Obstetrics" (1909), page 204.

11. See Williams' "Obstetrics" (1909), pages 205 and 207; or, Hirst's "Obstetrics" (1909), page 388. *Posture* is the altitude of the fetus in the uterus.

12. *Menstruation* is a periodical disturbance in the female characterized by a bloody mucous discharge from the uterine cavity; it lasts during the period of woman's sexual activity, but is temporarily suspended during pregnancy and early lactation. *Ovulation* is the development and ripening of ovules in the ovary and their discharge therefrom. *Placenta* is an organ on the internal wall of the pregnant uterus, to which the fetus is attached by means of the umbilical cord. *Chorion* is the outermost of the three fetal membranes. *Amnion* is the innermost of the fetal membranes. *Allantois* is one of the fetal membranes, which enters into the formation of the true chorion and the placenta. *Decidua vera* is that portion of the decidua (or hypertrophied mucous membrane) which lines the uterine wall during pregnancy. *Meconium* is the greenish-black stools of the newborn infant; it consists of intestinal mucus, bile, epithelium, vernix caseosa, cholestrin, phosphates, and fat. *Caput succedaneum* is the edematous swelling developed on the presenting part of the fetus during birth. *Cephalhematoma* is a swelling occurring on the head of a newborn infant, due to subpericranial hemorrhage.

GYNECOLOGY.

1. See Cunningham's "Anatomy" (1909), page 1181, etc.; or, Gray's "Anatomy" (1908), pages 1440, 1498, etc.

2. *The pelvic floor* is composed chiefly of fascia, muscles, and connective tissue. Its superior surface is lined by peritoneum. Next below, and in close contact with the peritoneum, comes the "internal pelvic fascia." Immediately below the internal pelvic fascia are two thin muscles, viz.: (1) The *levator ani*, each half of which arises from the body and horizontal ramus of the pubes and from the arcus tendineus, and passes downward and inward to meet its fellow of the opposite side in the median line, where it is inserted into a tendinous raphe extending from the coccyx to the rectum, while some fibers pass between and to the sides of the bladder and rectum, and to the vaginal and rectal sphincters. (2) The *coccygeus*, which is a narrow, triangular slip, situated parallel with and posterior to the levator ani, closing in a little space which the latter muscle failed to cover. Below these muscles the pelvic floor is further strengthened by the *perineal fascia*. Its posterior portion consists of a single layer, while its anterior part is divisible into three layers. Within these latter layers are lodged the pudic vessels and nerves, and the superficial muscles of the perineum. These muscles are the *constrictor vaginæ*, the *sphincter ani*, and the *transversus perinei*, and to these structures must be added the integument and the

very numerous interstitial layers of elastic connective tissue, which latter weld the parts together and add strength and elasticity to the whole fabric.—(From King's *Obstetrics.*)

"*Tears of the perineum* destroy the integrity of the pelvic floor and result eventually in rectocele, cystocele, hemorrhoids, and displacements of the pelvic organs. If the tear involves the sphincter ani, incontinence also results. Lacerations of the cervix retard or check involution of the uterus and predispose to endometritis, menorrhagia, displacements, eversion of the cervical mucous membrane, cystic degeneration, and malignant disease. Deep lacerations of the vaginal vault may open into the base of the broad ligaments, and in the majority of instances genitourinary fistulas are caused by traumatisms of labor. All lacerations are immediately dangerous on account of the increased liability to sepsis, while the remote results are generally due to interference with involution or the pelvic circulation and to the destruction of the normal supports of the pelvis." (Ashton's *Gynecology.*)

3. *The common displacements of the uterus* are: Retroversion, retroflexion, anteflexion, and descent or prolapse. The following symptoms may follow displacements of the uterus: Backache, bearing-down pains, a feeling of pressure in the pelvis, constipation, hemorrhoids, frequent or painful urination, leucorrhea, menstrual disturbances, as dysmenorrhea or menorrhagia, sterility; there may also be *general symptoms,* as headache, indigestion, nausea, anorexia, neurasthenia, and general malaise.

4. Common Causes of Menorrhagia. *Constitutional:* Purpura, scorbutus, hemophilia, hepatic cirrhosis, over indulgence in food and alcoholic drinks. *Local and Vascular:* Uterine congestion and displacement, endometritis, subinvolution, fibroids, and other tumors. Common Causes of Metrorrhagia. *Constitutional:* None. *Local and Vascular:* Disease of uterus or appendages, polyps, extrauterine gestation, the hemorrhages in connection with pregnancy.

5. *Parts involved* are: Vagina, vulva, and urethra; uterus, tubes, ovaries, peritonenn; rectum. *Diagnosis* is made by finding the gonococcus characteristically grouped in the cells of the secretion. *Symptoms* are: Pain, discharge, painful urination, tenderness, redness, inflammation of parts affected. *Dangers:* Spread of the disease to adjoining parts or tissues, sterility, peritonitis, blindness, and spread of the gonorrhea to others.

6. *Hygiene of Puberty:* Constipation must be remedied; diet must be nutritious but simple; frequent rest, moderate amusements, and adequate exercise are necessary; the girl should be instructed with regard to menstruation and the menstrual periods; overwork at school, and nervous excitability, late hours, and much company should be avoided; books, amusements, and associates should be carefully selected.

7. *Etiology of Sterility in the Female:* Gonorrhea, absence or errors in development of any part of the genital tract, malformations of genitals, fistulæ, lacerations, obesity, alcoholism, pelvic inflammations, dyspareunia, inflammations of uterus, tubes, or ovaries, elongated cervix.

8. *Pruritus vulvæ* may be *caused by:* Parasites; diseases of the vulva, as inflammation, edema, vegetations, congestion; irritating discharges: lack of cleanliness; diabetic urine; it may also be of nervous origin, or idiopathic.

9. In *extrauterine pregnancy,* there will be signs of early pregnancy, hypogastric or inguinal pains, probable history of a previous sterility, probable expulsion of decidual membrane or shreds, softening of the cervix, enlargement of the uterus, presence of a distended tube, contractions of the wall of the gestation sac; if rupture occurs, there will be sudden, excruciating pains over the lower abdomen and on the affected side, shock, collapse, and symptoms of internal hemorrhage. In *appendicitis,* there are no signs of pregnancy, there are sudden pain and tenderness in the right iliac fossa, rigidity of right rectus muscle, fever, nausea, vomiting, constipation, no history of menstrual irregularities. In *salpingitis,* the tubes are inflamed usually secondary to inflammation of uterus or to infection (either gonorrheal or puerperal), backache, pain in lower abdomen, history of menstrual irregularity, leucorrhea, tube is enlarged and tender.

10. Fibroids. *General effect:* Health deteriorates from the hemorrhage, pain, leucorrhea, and pressure on neighboring organs; anemia, constipation, loss of weight, edema, and hepatic troubles may ensue. *Symptoms:* Hemorrhage, leucorrhea, pain, vesical symptoms, hemorrhoids, constipation, and enlargement of abdomen. *Prognosis:* Variable: fibroids *may* cease to trouble at the menopause; but they may also degenerate, and they certainly cause much invalidism. The prognosis is better after early operation. *Degenerative changes:* Fatty mucoid, and cystic degeneration; calcification; septic infection; malignant changes.

11. *Cancer of fundus of uterus* is diagnosed by the presence of tumor, cachexia, hemorrhage, pain, and offensive discharge; microscopic examination big aid in the diagnosis. It is to be *differentiated* from: Polypi, fibroids, retained placenta, and chronic endometritis.

12. Large ovarian cyst may be differentiated from: Pregnancy, ascites, and possibly uterine tumors. *Pregnancy* gives history and signs of the condition.

ASCITES	OVARIAN CYST
1. Previous history of visceral disease.	1. No such history.
2. Enlargement comparatively sudden.	2. Gradual.
3. Face puffy; color waxy; early anemia.	3. Facies ovariana. Anemia absent, or later.
4. Patient on back, enlargement symmetrical; flat in front.	4. Asymmetrical until tumor is quite large; prominent in front.
5. Sitting up, abdomen bulges below.	5. No appreciable change.
6. Navel prominent and thinned.	6. Navel usually unchanged.
7. Fluctuation decidedly clear, diffuse throughout abdomen, but avoids highest parts in all positions, and always has a hydrostatic level.	7. Less clear; limited to cyst; not modified by change of position. No hydrostatic level.
8. Intestines float on top of fluid; hence percussion gives clear tympanitic note over the highest parts of abdominal cavity, and dulness in lowest parts for all positions—*i.e.* areas of resonance and dullness change with position.	8. No change in areas of dullness and resonance with change of position. Dullness over cyst. Clear resonant note in all parts beyond cyst limits, *i.e.* in flanks and toward the diaphragm.
9. Vaginal touch detects fluctuation, bulging into vagina.	9. Vaginal fluctuation less clear or absent.
10. Uterus in prolapsed location, but position unchanged. Size and mobility unchanged.	10. Uterus displaced forward or backward, or laterally by pressure of cyst.
11. Hydragogues and diuretics temporarily remove the fluid.	11. Medicines have no effect.
12. Fluid light straw color and thin. Coagulates spontaneously.	12. Fluid light or dark and of varying consistency; albuminous, but does not coagulate spontaneously; may contain colloid matter.

—(From Dudley's *Gynecology.*)

HYGIENE.

1. "The preventive measures which may be taken to reduce tuberculosis may be summarized as follows: (1) The compulsory notification of phthisis. (2) The removal of those conditions of domicile and of occupation which are known to promote the incidence of the disease, including the regulation of certain dusty trades. (3) The diffusion of knowledge (by medical men, leaflets, etc.) regarding the nature and modes of spread of the disease, and the precautions which should be taken in order to prevent its extension. (4) The testing of sputum and other suspected discharges, and of milk, meat, etc., supposed to be tuberculous—reports to be furnished free of charge. (5) Local authorities to undertake, without charge, the disinfection of houses recently occupied by phthisical persons. (6) The establishment of sanatoria and isolation accommodation for the cure of phthisical patients, and the isolation of those who are a distinct source of danger to fellow lodgers or workers. (7) The enforcement of measures against spitting in public conveyances and in places of public resort. (8) The efficient sanitary supervision of dairy farms, dairies, and milkshops. The periodical veterinary inspection and testing (by tuberculin) of milch cows, and the slaughter of tuberculous animals. The prohibition of the sale of milk of cows affected with tuberculosis. (9) The proper inspection of meat in public abattoirs, and the adoption of due precautions for the control of imported meat and milk." (Parkes' *Practical Hygiene.*)

2. *Disease may be transmitted by:* (1) *Air,* as tuberculosis; (2) *Food,* as tuberculosis; (3) *Insects,* as malaria, yellow fever; (4) *Milk,* as typhoid; (5) *Fomites,* as measles, scarlet fever; (6) *Contact,* as syphilis, gonorrhea; (7) *Wounds,* as tetanus.

3. Diphtheria is conveyed through the air, or by the mouth, and occasionally through wounds. *Hygienic precautions* should include isolation of the patient, strict antiseptic precautions on behalf of all who come in contact with the patient, and fumigation with sulphur or formaldehyde.

4. Isolation; quarantine; asepsis and antisepsis; common sense; cooperation with health boards; vaccination, antitoxin or other similar prophylactic.

5. *Endemic* disease is one found in a given locality more or less constantly. *Epidemic* disease is one which affects a very large part or the whole of a certain community.

6. Food, fingers, flies, milk, water, and "typhoid carriers."

7. Formaldehyde and sulphur dioxide.

8. For *disinfection of:* (1) *Rooms,* use formaldehyde gas; (2) *Clothing,* use solution of phenol (5 per cent.) for an hour, then boil for an hour; (3) *Hands,* wash in soap and water, and immerse in cresol or carbolic acid solution; (4) *Urine and feces,* etc., should be passed into vessels containing dilute solution of formalin. *Water closets,* dilute formalin solution.

9. *Diseases incident to school life:* Measles, scarlet fever, chicken pox, mumps, diphtheria, adenoids, ringworm, pediculi, myopia, trachoma, strabismus, smallpox, spinal curvature. For *prevention* see index in French's or Osler's "Practice."

10. *Toxins* are harmful or poisonous products of bacteria. *Antitoxins* are substances formed in the body, of a protective character, and capable of rendering inert the poisonous products of bacteria.

11. *Nitrates* are generally due to the oxidation of organic matter of animal origin. *Nitrites* generally indicate sewage contamination. The presence of nitrites should condemn the water; so should a marked amount of nitrates.

12. *Quarantinable diseases:* Cholera, yellow fever, smallpox, plague, typhus, leprosy, diphtheria, scarlet fever, measles, mumps, chicken pox, erysipelas. For *length of time,* see index in French's or Osler's "Practice."

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	June —
Arizona*	Ancil Martin, Phoenix	Phoenix	April 4
Arkansas	F. T. Murphy, Brinkley	Little Rock	May 10
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	April 5
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	April 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 12
Delaware	J. H. Wilson, Dover	Dover	June 21
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	April 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	April 4
Georgia	E. R. Anthony, Griffin	Atlanta	April —
Idaho*	W. F. Howard, Pocatello		April 5
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	July 12
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	F. P. Hatfield, Olathe	Topeka	June 14
Kentucky	J. N. McCormack, Bowling Green	Louisville	July —
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 17
Maine	F. W. Searle, Portland	Portland	July —
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 21
Massachusetts*	E. B. Harvey, State House, Boston	Boston	May 10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 14
Minnesota	W. S. Fullerton, St. Paul	St. Paul	May 10
Mississippi	S. H. McLean, Jackson	Jackson	May 10
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	June 13
Montana*	Wm. C. Riddell, Helena	Helena	April 5
Nebraska	C. A. Carr, Lincoln	Lincoln	Aug. 3
Nevada	S. L. Lee, Carson City	Carson City	May 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	July 6
New Jersey	H. G. Norton, Trenton	Trenton	June 21
New Mexico	J. A. Massie, Santa Fe	Santa Fe	April 11
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	May 24
N. Carolina	B. K. Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	April 4
Ohio	Geo. H. Matson, Columbus	Columbus	June 14
Oklahoma*	F. P. Davis, Enid	Guthrie	April 12
Oregon	B. E. Miller, Portland	Portland	July 5
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg	June —
Rhode Island*	G. T. Swarts, Providence	Providence	April 7
S. Carolina	H. H. Wyman, Aiken	Columbia	June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown	July 13
Tennessee	C. A. Abernathy, Pulaski	Memphis / Nashville / Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Austin	June 28
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	April 4
Vermont	W. Scott Nay, Underhill	Burlington	July 12
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	T. C. McFadden, Seattle	Spokane	July 5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling	April 12
Wisconsin	I. M. Beffel, Milwaukee	Madison	July 12
Wyoming	S. B. Miller, Laramie	Laramie	June 22

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of March 19, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	759	198
Diphtheria	460	60
Measles	1,651	20
Scarlet Fever	733	27
Smallpox	—	—
Varicella	180	—
Typhoid Fever	24	11
Whooping Cough	34	4
Cerebrospinal Meningitis	7	4
Malarial Fever	—	—
Totals	3,848	324

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 18, 1910:

			CASES	DEATHS
CHOLERA				
India, Bombay	Feb.	2–8	..	1
Calcutta	Jan.	23–29	..	81
Madras	Jan.	29–Feb. 4	..	1
Philippine Islands:				
Manila	Jan.	16–22	10	9
Provinces—				
Bataan	Jan.	16–22	9	8
Bohol	Jan.	16–22	8	4
Cavite	Jan.	16–22	15	11
Cebu	Jan.	16–22	6	5
Misamis	Jan.	16–22	11	11
Pampanga	Jan.	16–22	31	25
Rizal	Jan.	16–22	1	..
YELLOW FEVER				
Brazil, Manaos	Feb.	6–12	..	6
Para	Feb.	13–19	6	3
Ecuador, Babahoyo	Feb.	1–15	1	..
Guayaquil	Feb.	1–15	20	5
PLAGUE				
Arabia, Aden (From the Austrian mail steamer from Bombay)	Jan.	21–23	1	1
Brazil, Bahia	Jan.	22–28	2	2
Para	Feb.	13–19	1	1
Chile, Iquique (Present in endemic form)	Feb.	12	..	..
Taltal	Jan.	15	2*	1
Ecuador, Babahoyo	Feb.	1–15	3	2
Guayaquil	Feb.	1–15	18	9
Milagro	Feb.	1–15	5	..
Egypt: Provinces—				
Assiout	Feb.	11–17	3	2
Beni Souef	Feb.	11–17	2	2
Fayoum	Feb.	12	2	1
Hawaii: Hilo	Mar.	12–14	2	2
Honokaa	Mar.	14–15	2	2
Japan, Kobe	Feb.	6–12	1	1
Russia, Astrakhan Government	Feb.	14–20	6	4
Naourzali-Tchagil	Jan.	26–Feb. 2	13	15
Venezuela, Puerto Cabello	Feb.	24	2	..

*From the Veröffentlichungen des Kaiserlichen Gesundheitsamtes, February 16, 1910.

SMALLPOX				
Brazil, Bahia	Jan.	22–28	30	23
Rio de Janeiro	Jan.	24–Feb. 13	9	1
Canada: Nova Scotia—				
Halifax	Feb.	27–Mar. 5	1	..
Windsor	Dec.	1–Jan. 31	40	..
Chile, Antofagasta (In the lazaretto)	Feb.	6–12	8	..
China, Canton	Jan.	16–29	20	3
Hankow (present)	Jan.	23–29	..	..
Egypt, Alexandria	Jan.	1–31	1	..
Germany, general	Jan.	6–12	4	..
Great Britain, London	Feb.	12–18	1	..
Newcastle-on-Tyne	Feb.	13–19	3	..
South Shields	Feb.	13–19	1	..
Greece, Athens	Feb.	13–19	..	3
India, Bombay	Feb.	2–8	..	24
Calcutta	Jan.	23–29	..	1
Rangoon	Jan.	23–29	..	11
Italy, general	Feb.	14–20	19	..
Naples	Feb.	14–20	14	7
Java, Batavia	Jan.	22–29	1	..
Mexico, Chihuahua	Feb.	22–28	6	1
Mexico	Jan.	27–Feb. 5	..	2
Philippine Islands, Manila	Jan.	16–22	4	..
Portugal, Lisbon	Feb.	13–19	13	..
Russia, Moscow	Feb.	6–12	20	5
Odessa	Feb.	6–19	73	11
St. Petersburg	Feb.	6–12	55	18
Spain, Barcelona	Feb.	15–21	..	5
Valencia	Feb.	13–19	2	..
Turkey, Salonica	Jan.	1–31	..	3
Uruguay, Montevideo	Dec.	1–31	..	24

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Original Articles.

VISCERAL SARCOMATA: CASES OF SARCOMA OF THE STOMACH, HEART, MEDIASTINUM, ETC.*

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THE inoperable visceral sarcomata constitute a group of tumor cases of very great interest on account of their comparative variety, multiplicity of type and tendency to spread by metastasis. In adding five cases to the literature I have considered mainly the clinical aspects of each, with comments upon the relative frequency of similar growths, as far as the meager knowledge of the subject permits.

FIG. 1.—Case I.—Melanosarcoma of left eye, showing protruding tumor.

CASE I. *Melanosarcoma of Eye and Liver.*—The occurrence of melanotic sarcoma of the eye and liver is sufficiently rare to make the following case of exceptional value. The patient was a housewife, 34 years of age, whose heredity and previous personal history was unimportant. When first seen she presented a tumor of the left eyeball (Fig. 1) and a very large liver, in which numerous hard tumor masses were easily palpable. The eye symptoms covered a period of three years, commencing with darting pains and failure of vision in the left eye. Six months later the patient was operated upon for the result of an iritis and glaucoma. Subsequently hemorrhagic spots appeared in the sclera, and for the past year a tumor was observed protruding from the outer anterior surface of the eyeball and accompanied by much pain. Vision in the right eye remained normal. The patient's general health and nutrition were remarkably good until within a month of her admission to the Presbyterian Hospital, when she had frequent nausea with vomiting of mucus and sometimes blood, especially after eating. Examination of the abdomen revealed no pain or rigidity, but the liver, which extended almost to the pelvic brim, caused considerable bulging of the abdominal wall, over which area, as well as upon the face, there was much dark brown pigmentation in spots and plaques. Subsequently jaundice developed, there was hemorrhage from the gums, and the patient died from asthenia, with delirium, cyanosis and dyspnea. The autopsy, reported by Dr. Meakins, showed a melanosarcoma of the left eye, liver, perihepatic glands and pancreas. The spleen was normal, but the heart and kidneys presented fatty degeneration. Although there had been much hematemesis, the stomach exhibited merely a few submucous hemorrhages. The tumor of the left eye was black in color and projected at the outer side of the pupil 3 mm. above the conjunctiva. The eyeball was filled with a semi-fluid sanguineous mass. Section of the tumor revealed closely packed large, irregular spindle cells, in alveolar arrangement, but with very little stroma. Within and around the cells were masses of blood pigment.

The liver weighed 6,500 grams and measured 38 cm. in vertical diameter and 10 cm. in thickness. The transverse diameter was slightly less than the vertical. (In the accompanying photograph (Fig. 2) a normal liver is also shown for comparison). The liver stroma was nearly all replaced by tumor cells, identical in structure with those in the eye, but in parts the cells were deeply pigmented, in parts free from pigment, and in other areas there was pigment alone. Between the tumor lobules there was dense fibrous tissue. The glands at the liver hilum and along the pancreas showed similar tumor structure. The hepatic capillaries were smooth and glistening, mottled blood-red. The liver tissue appeared firm on section, but in some of the hemorrhagic areas an inch in diameter there was a semi-fluid mass. The pancreas presented small hemorrhagic nodules.

Striking features of this case were the long duration of the eye symptoms (three years), the preservation of nutrition in much greater degree than is usual with the carcinomas of the liver, and the absence of involvement of the stomach, despite the frequent hematemesis.

As the patient was not seen until within a fort-

*Read before the Practitioners' Society, February 4, 1910.

night of her death, it was difficult to determine whether the primary focus of disease was in the skin, eye or liver, but it is fair to assume that it was in the eye, for there was no history of an early pigmented growth in the skin, the eye symptoms were known to have lasted three years, and jaundice from compression did not appear until shortly before death. Moreover, primary melanotic sarcoma of the liver is almost unknown, and Hanot, in a review of the subject, could find only one authentic example. The coincident and relatively frequent involvement of the eye and liver is as obscure a morbid phenomenon as the origin of this rare form of tumor itself. Dr. N. R. Norton has lately informed me of a similar case of eye-liver association in sarcoma occurring at the Lincoln Hospital. John S. Thatcher[1] reported a case of melanosarcoma of the eye in which the liver was secondarily involved, and another of melanosarcoma of the liver alone.

Hirschberg (*Berl. klin. Woch.*, 1905, Nos. 4 and 5) reported two cases of melanosarcoma of the eye in which metastases were first observed in the liver fully 9 years later.

Fig. 2.—Case I.—Sarcomatous liver, weighing 6,500 grams. On the right a normal sized liver is shown for comparison.

Case II. *Lymphosarcoma of Mediastinum.*—The following fulminating case of lymphosarcoma illustrates the rapidity with which the disease may become fatal. The patient was a remarkably robust lad of 19 years, employed as a truck driver, who died within a month of the outset of symptoms and remained at work until a fortnight before death. He first noticed a diffuse uniform swelling of the face and neck, and fullness in the head with dry cough and slight dysphagia. There were no other subjective symptoms of any kind until within an hour of sudden death. On admission to the Presbyterian Hospital the patient's neck was symmetrically swollen, evidently as a result of venous congestion. The superficial veins of the neck, upper sternal region, shoulders and upper arms were greatly swollen and tortuous on both sides. In the left axilla and groin were a few moderately enlarged lymphatic glands. Across the lower thorax anteriorly were a half dozen red elevated plaques, about an inch in diameter, resembling urticaria, and in fact the eruption was mistaken for urticaria by a dermatologist who first saw the lad. I noticed, however, that although the redness disappeared on pressure, the swellings seemed firmer than the usual urticaria wheels, and in connection with the swollen lymph glands and mediastinal pressure, I regarded the case as one of probable lymphosarcoma, and directed the house physician, Dr. C. T. Roome, to excise one of the cutaneous tumors for microscopic examination.

Meanwhile the *x*-ray (Fig. 4) showed a heavy shadow in the upper mediastinum, through which masses resembling enlarged glands could be differentiated. There were no pulmonary symptoms other than an area of dullness corresponding with the shadow, and a tracheal compression type of breathing. The cough was brassy, like the laryngeal cough of aneurysm.

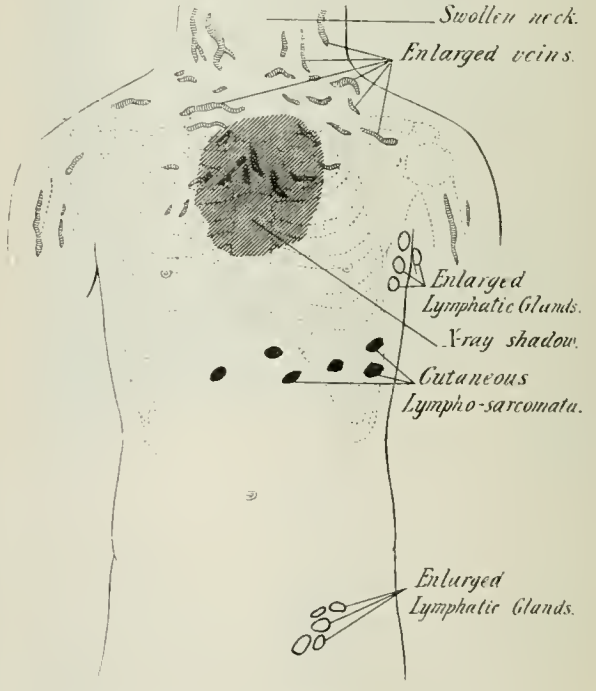

Fig. 3.—Case II.—Lymphosarcoma of mediastinum.

There was no fever, and blood count was practically normal, as follows: Hemoglobin, 95 per cent.; erythrocytes, 5,268,000; leucocytes, 11,600; polynuclear cells, 66 per cent.; lymphocytes, 33 per cent.; mast cells, 1 per cent. It was easy to exclude a diagnosis of aneurysm, abscess, tuberculosis,

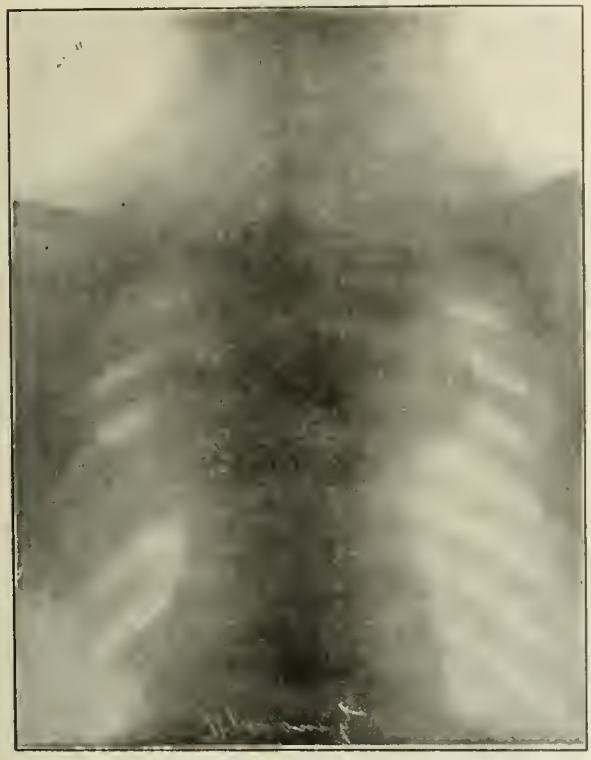

Fig. 1.—Case II.—Radiograph, showing thickening of neck, and extensive shadow in upper anterior mediastinum.

syphilis, and other types of mediastinal growth than the one suspected.

The pathological examination by Dr. Opie and Dr. Cecil of the excised tumor was as follows: "The tumor measured 10 x 6 x 3 mm., was attached to the skin, and had a leathery consistence. The corium was greatly increased in thickness and infiltrated with cells of lymphoid type, occurring both in masses and scattered form. There were karyokinetic figures and irregular nuclei; the subcutaneous tissue was infiltrated with masses and strands of lymph cells, the largest being grouped about the sweat glands. In these areas were eosinophiles. Diagnosis: lymphosarcoma."

On showing the section of the skin tumor to Dr. Ewing, he expressed doubt as to the possibility of classifying it accurately, the specimen presenting some suggestion of an epithelioma or alveolar sarcoma.

The patient felt so well that he was permitted to sit in a chair, when he was suddenly seized with intense gasping dyspnea, cyanosis, and an imperceptible pulse. Thinking the dyspnea was in part due to laryngeal paralysis, Dr. Roome intubated the patient and gave vigorous heart stimulation, but the patient died from loss of breath within an hour. Unfortunately for a complete clinical picture, no autopsy could be obtained, so it was impossible to determine the number and size of the mediastinal glands involved, except as they may partially be determined by the radiograph. The manner of death resembled that from enlarged thymus in childhood, and the thymus has been found involved in similar cases. The case is unique from the rapidly fatal course and the restricted development of secondary foci outside of the mediastinum.

The literature of mediastinal sarcomata is necessarily meager. In Hare's classical monograph on mediastinal growths[2] he excluded cases of sarcoma reported prior to 1870, owing to the imperfect technique prevailing before that date, but collected 98 cases reported in the succeeding nineteen years.

Among a total of 520 cases of mediastinal growths, nine of the sarcomata occurred in the second decade of life. Eight years later Irving S. Haynes[3] collected 18 more cases for an article in the Loomis-Thompson System of Practical Medicine.

Almost all the lymphosarcomata of the mediastinum are primary. They are of very rapid development, and usually involve the anterior mediastinum, originating in the thymus or tracheo-bronchial lymph nodes. Haynes suggests that the foreign material absorbed from the lungs or bronchi after inhalation and conveyed to the lymph nodes may prove an exciting cause by irritation. Sarcoma is the most frequent variety of histogenetic tumor occurring in the mediastinum, outnumbering the carcinomata three or four to one. The latter tumors, moreover, usually involve the posterior mediastinum, where there are more varieties of tissue from which they may develop, and they grow more slowly than the sarcomata, giving time for constitutional symptoms to arise. The case above reported corresponds in the site, rapidity of growth and absence of constitutional symptoms with these observations. Excepting the obvious swelling of the neck, the patient both looked and felt almost perfectly well until within the hour of his death.

Case III. *Melanosarcoma of Skin, Lungs, Heart, and other Organs.*—In contrast with the few secondary growths in the previous case, is that of a woman still under observation, who with sarcomata of the lung presents 185 tumors of the skin and superficial lymph nodes. Her history, in brief, is as follows: The patient is an Austrian, 40 years of age, formerly employed in a clothing manufactory. She was in good health until within nine or ten months of her admission to the Presbyterian Hospital. For many years she had had a dozen small, black pigmented moles distributed over the dorsal surface of both feet and the lower part of the abdomen. One of these, on the left foot, became bruised and irritated by scratching, so she had it removed. Shortly afterward she noticed a bunch of about a dozen nodular tumors extending downward in the left femoral region. These were also excised. A few months later numerous subcutaneous nodules began to appear all over the body, which have gone on multiplying and increasing in size, most of the 185 having appeared within a period of two months. They vary in size from a diameter of half an inch to two inches. They are most prominent over the lower thorax, both groins, middle of the back and both arms, but there are few areas of the surface larger than half a dozen inches in diameter where some may not be found. The larger nodules cause considerable elevation of the surface of the skin, but the skin appears movable over them. A few are somewhat bluish in appearance, but none are deeply pigmented. From time to time there is local pain over groups of nodules, but it is neither constant nor very severe. The nodules are painful when first appearing, but the larger growths are neither painful nor tender.

During the past few months the patient has lost

about thirty pounds in weight, and has complained of progressive weakness, fever, sweating, occasional vomiting, cough with bronchial expectoration (sometimes blood tinged) and occasional pain in the left chest, with a sensation of fullness there. She has also had chills at intervals. The examination of the urine, sputum and blood cultures are all negative. For a month after admission to the hospital the patient exhibited an abruptly septic type of fever, with daily fluctuations of about 4° Fahrenheit and a maximum rise to 105° Fahrenheit. (Fig. 5.)

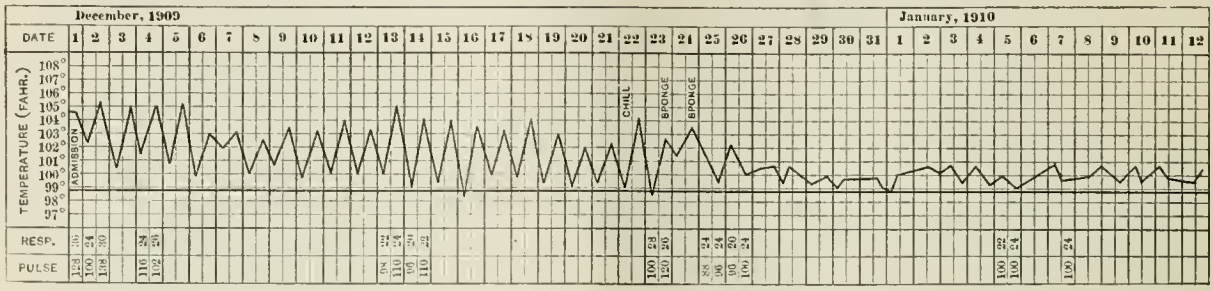

Fig. 5.—Case III.—Septic type of fever with universal sarcoma.

Explanation of this temperature was sought in the possible breaking down of one of the sarcomatous nodules, but none could be found, and the only demonstrable visceral involvement is in the left lung, which appears solid from the base to above the angle of the scapula. A radiograph (Fig. 6) shows this portion of the lung to be absolutely air free, aspiration gives a negative result, and the physical signs are those of dense consolidation over this same area in

Fig. 6.—Case III.—Radiograph, showing combined atelectasis and consolidation with sarcoma nodules of entire left lung.

which the patient has complained of pain and oppression. All the other viscera appear normal. The only adequate explanation of the prolonged high septic temperature would appear to lie in some disturbance of metabolism connected with the very rapid dissemination of so many new growths, but it was not accompanied by marked emaciation. In other reported cases of this type no mention is made of such a phenomenon, but it is well known that a similar irregular fever may occur during the course of Hodgkin's disease.

Blood examination is as follows: Hemoglobin, 67 per cent.; red cells, 4,840,000; leucocytes, 25,800; polynuclear cells, 82 per cent; transitional, 2; large mononuclear, 5; lymphocytes, 9; basophiles, 0.5; eosinophiles, 1; many plates. The last day of December, 1909, the patient attempted to get out of bed unaided and fractured the neck of the right femur. As the violence was trivial, the accident suggested abnormal brittleness of the bone. A partial fracture was demonstrated by the x-ray. (Autopsy showed the fracture to have been due to a metastasis in the bone.)

Previous to entering the hospital the patient had some sort of serum treatment, the nature of which could not be determined, but the result was negative. I asked Dr. William B. Coley to see the patient, and he was of the opinion that the case was of melanotic type, and not amenable to treatment by his serum. I had a subcutaneous nodule removed by Dr. Roome, and Dr. Cecil, of the pathological department of the hospital, reported that it was a neoplasm composed of round cells closely packed and supported by a scanty stroma. Blood vessels were found in intimate contact with the tumor cells.

The face and the feet are the sites from which melanomata of the skin most often arise. J. A. Fordyce[4] reports two cases originating from the foot, although he believes that the pigmented congenital mole is not a necessary antecedent of melanomata, for some of the latter appear without such association, and pigmented moles are exceedingly common in comparison with the rarity of melanoma. The case above reported illustrates again the well-known fact that metastases of melanomata are more numerous than those of any other type of cutaneous malignant tumor, although they are not invariably present in the skin in cases of visceral melanotic sarcoma. Thus none were observed in the eye-liver case above reported (Case I), although the disease had lasted two or three years. The reason for the rapid spread of the metastases sometimes seen in melanoma appears to be dissemination through both blood and lymphatic channels. The original idea that the melanin is derived from blood pigment is controverted by the fact that iron is absent, whereas sulphur is present in the dark amorphous granules, and another explanation which has been offered is that some form of nuclein becomes altered into pigment. Not all the cutaneous tumors contain pigment, whereas some are filled with it. In the case above cited the general appearance of those tumors which are nearest the surface varies from white to a distinctly bluish color, and in the specimen excised for exam-

ination no pigment was observed. This variation accords with the usual finding in similar cases which have been reported.

The disastrous result which so closely followed upon the removal of a pigmented mole in this case emphasize again the well-known possible danger of this procedure, and is a strong argument in favor of treatment by radium, according to Dr. Abbe's method.*

Case IV. *Sarcoma of Stomach, Heart, and Kidneys.*—This was the case of an Irish woman 47 years of age, who was in good health to within two months of her death, when she suddenly complained of abdominal, especially epigastric, pain, frequent nausea and vomiting, and weakness. Despite these symptoms she was able to perform house-work until within ten days of her death, although she lost about 25 lbs. in weight. There was no hematemesis or jaundice. The patient lived only four days after admission to the Presbyterian Hospital, during which time she had frequent vomiting, constipation, slight dyspnea and edema of the feet. The vomitus contained much mucus, with bile, pus cells, and red blood corpuscles. No hydrochloric acid was found, either free or combined. The urine was of low specific gravity—1009—and contained red blood corpuscles, fat cells, and a trace of albumen, but no casts. There was decided secondary anemia, the hemoglobin measuring 64 per cent. The leucocyte count was 9000, with 68 per cent. polynuclear cells and 26.5 per cent. lymphocytes. Examination of the large, flabby abdominal wall showed no rigidity or tenderness, but both kidneys were very large and palpable, the right one being markedly prolapsed. Palpation over the epigastrium gave the impression of a deep-seated mass, and the diagnosis of gastric carcinoma seemed justified. The patient died from exhaustion, and the suspected carcinoma turned out to be a sarcoma of the stomach associated with extensive secondary growth in the heart, kidneys, pancreas, ileum, colon, and mesenteric glands. The following is abstracted from the report of the autopsy by Dr. Cecil. The tumor mass in the stomach was hard, white, homogeneous and glistening and composed of small closely packed lymphocytes in a delicate fibrous stroma. It largely replaced the mucosa, and, in part, had ulcerated through it. The few remaining glands of the mucosa were atrophic. There were a few minor tumor nodules. In the ileum and colon were small flat tumor masses, oval, which in some cases appeared to occupy the Peyer's patches as well as to replace the mucosa. There were also necrotic areas. Microscopically the intestinal tumors comprised the same closely packed lymphoid structure as the stomach tumor. The heart weighed 385 grams, the valves and pericardium were normal, but in both ventricular walls were seen many smooth, pinkish, oval tumor masses about 2 cm. in diameter, without very distinct margins. Microscopically the tumors comprised the same type of lymphoid cells seen elsewhere, which were found to pack the intermuscular spaces and separate the muscle fibrillæ. The latter appeared intact despite the density of the new growth, which fact, in a measure, explains the remarkable absence of cardiac symptoms while the growth was in process of development. In certain other reported cases of sarcoma of the myocardium, a similar absence of symptoms has been commented upon.

The kidneys were very large, the right weighing 390 gm. and the left 430 gm. The capsules were nonadherent, and the normal kidney tissue appeared entirely replaced by nodules and irregular glistening white conglomerations of lymphoid cells. Many tubules and glomeruli were destroyed, others showed epithelial desquamation and distention with hyaline substance. The liver, spleen, and suprarenals were normal.

The infrequency of occurrence of sarcoma of the stomach may be gathered from a study made in 1905 by Corner and Fairbanks[5] of London, who collected 175 cases from the literature of primary sarcomata of the alimentary canal, of which 58 involved the stomach and 65 the small intestine. About one-third of these growths were of round-cell structure. Subsequently Norman Dalton[6] reported a round-cell sarcoma involving primarily the stomach and abdominal lymph nodes in a boy 15 years of age.

Harlow Brooks[7] reported in 1905 four cases of primary sarcoma of the stomach, one of which was of round-cell type, one a fibrosarcoma and one an angiosarcoma. His conclusion that sarcoma, while it is less apt than carcinoma to involve the gastric mucosa, is also less liable to form metastases, does not appear valid in view of the findings of the other cases herein quoted.

Sarcoma of the Heart has been less often observed than carcinoma, when the total number of cases of each are compared, but although sarcomata in general are less common than carcinomata, the relative proportion of sarcomata in the heart is somewhat greater. All varieties have been found in the heart, and although all are rare, the melanotic, round cell and lymphosarcomata are most often encountered. Less often cases have been recorded of the spindle cell, fibro-, myxo-, and osteosarcoma types, together with various mixed and doubtful varieties. As a rule the growths are secondary, but about a score of primary tumors have been reported, although in many of the latter cases the autopsies have not appeared complete as to microscopic details of other organs.

Curt Boether,[8] in an inaugural dissertation for the doctorate in 1897, tabulates 31 published cases of sarcoma of the heart, mostly from German sources, including four of melanotic type. They involved collectively all parts of the heart, two affecting the tricuspid valve.

Boruch Blumensohn[9] of Russia, in an inaugural dissertation for the doctorate in 1907, refers to 10 published cases of primary sarcoma of the heart, and a somewhat longer list of secondary growths, to which he adds 12 cases from the Pathologico-anatomical Institute of Basel, four of which were melanosarcomata. In six cases the valves were involved.

Ludwig Hektoen[10] has figured a remarkable spindle-celled sarcoma of the right ventricle, secondary to a growth in the tibia, occurring in a lad of

*Since writing the above description the patient died. Autopsy by Dr. Cecil showed an extraordinarily wide distribution of hard white sarcoma nodules, varying in size from a pea to several inches in diameter, which were of non-pigmented round-cell type. The spleen and liver curiously escaped, but nodules were present in their capsules, as well as in the pleura, bronchi, heart, pericardium, diaphragm, kidneys, suprarenals, thyroid, stomach, intestine peritoneum, abdominal lymph nodes, pancreas, ovaries, and bone marrow. The appendix was a mass of nodules, yet there were no symptoms of appendicitis. The destruction of the suprarenals gave rise to no bronzing of the skin. The nodules in the heart involved the septum auriculorum, and projected into the right auricle.

12 years.[7] In the same article he reports a primary round-cell sarcoma of the epicardium, and another case of a melanosarcoma of the right ventricle secondary to a growth in the breast.

A. Jacobi reported a case of fibrosarcoma of the heart, and S. W. Gross, one of round-cell type.

Epstein[11] reported the case of a male, 22 years of age, who presented a sarcoma of the stomach with secondary nodules in the kidney and a degenerated sarcomatous mass lying between the right auricle and ventricle.

E. Bonardi[12] reported a case of sarcoma of the heart secondary to a melanosarcoma of the choroid.

B. Luzzato[13] was able to make a correct diagnosis of a sarcoma of the heart secondary to growths in the leg and lung, owing to the supervention of a mitral stenosis while the patient was under observation. The diagnosis, which has rarely, if ever, been made correctly, was confirmed by autopsy.

Charles Norris described a case of melanosarcoma of the heart in a boy of 16 years which accompanied similar growths in the skin, kidneys, and liver.

The late H. P. Loomis[14] reported a case of diffuse round-cell sarcomatous infiltration of the heart and kidneys, secondary to a sarcoma of the breast, which was not unlike the personal case I have above detailed. (Case IV.)

Peter Neu[15] reported a lymphosarcoma of the left ventricle, "as large as an apple," apparently secondary to the removal of a tonsillar growth, and complicated by cerebral embolism.

Alexander Lambert[16] has described the case of a man 39 years of age, in which a small round-cell sarcoma involved the lung, pleura, pericardium, and left ventricle, which was remarkable from the fact that the patient was able to work shovelling snow until within a month of his death from dyspnea. The rapidity of development of this growth is analogous to that in Case II, above described.

John S. Thacher's[17] case was one of small round-cell type involving the stomach, with a secondary growth in the left auricle.

E. Libman[18] described a lymphosarcoma of the small intestine, the only one among 60 recorded cases in which there were metastases in the heart muscle.

Karl Bodenheimer[19] (Inaugural Dissertation) reported a case of primary sarcoma of the heart from the Bern Klinik.

Byron Bramwell[20] pictures a large double sarcomatous growth of the heart, one mass lying upon the exterior of the right ventrical, beneath the pericardium, the other situated within it, below the tricuspid valve.

The sarcomatous nodules may be situated within the myocardium, as in case IV herein reported, or lie upon it as in Case III, or beneath the endocardium, but are less liable than carcinomata to involve the pericardium unless by extension from mediastinal growths. The pericardium may, however, become affected separately, and Kaak has reported (1904) a myxocystosarcoma occupying this site. The usual pericardial growth takes the form of a diffuse infiltration.

A striking feature of all the reported sarcomata of the heart is the infrequency of associated embolism and cardiac rupture.

To this list I add the two cases above reported (Cases III and IV).

Case V. *Small Round-Cell Sarcoma of Stomach.*—The following case of lymphosarcoma of the stomach was operated upon by the late Andrew J. McCosh at the Presbyterian Hospital, and has not previously been reported:

The patient was a housewife, 39 years of age, who for a year had complained of gastric symptoms, mainly pain and vomiting, accompanied by loss of weight. Melena was present, and free hydrochloric acid was absent from the stomach contents. A mass of considerable size could be palpated in the epigastrium. A gastrectomy was performed, when the mass, which was the size of an egg, was found to occupy the pyloric end of the stomach, extending into the greater curvature. No secondary nodules were discoverable.

The tumor mass removed from the stomach measured 6 x 4 cm. It was hard and glistening, and composed of small round cells, larger than lymphocytes, imbedded in a small amount of stroma. The mass destroyed the submucous coat, and remains of the muscular coat were distributed through it. There was much lymphoid tissue also in the muscular coat, and the neighboring mucous membrane presented many ecchymoses.

Virchow[21] in his classical work, "Die krankhaften Geschwülste," stated the general proposition that "almost all those organs which show a great predilection for malignant tumor formation have little tendency to beget metastases, and conversely," yet the visceral sarcomata present so much variation in metastasis that it would seem unwise, with our present knowledge, to apply any such general rule to them.

Most of the 43 sarcomata received into the Second Division service of Bellevue Hospital during the past five years were sent in for operation, and the tumors of this group showed the usual predilection for the jaw, pelvic bones, and thigh. There were also seven cases involving lymph nodes in the neck, but in none of these latter, although the growths were multiple, was there any tendency to visceral or cutaneous metastases. One visceral case involved the kidney and one the occipital lobe of the brain, without metastases. The occipital tumor was as large as an orange, and caused blindness, deafness, headache, vomiting, convulsions, and noisy delirium. There was one case of lymphosarcoma of the intestine in a patient 53 years of age, but there was no involvement of the other viscera or skin. In two cases the tumor was situated in the right orbit, without extension to the liver or other organs. There were two cases of melanosarcoma of the skin with multiple growths which were very numerous. They were also without metastases, apart from the skin, at the time at which they were under observation. One of these cases involved the trunk and lower extremities, the other the trunk and upper extremities. The latter case was that of a man 50 years of age, who had canterized a pigmented mole. Six months later a nodule appeared beside the umbilicus and was excised, when five months later the tumors became generalized throughout the skin. This series of cases emphasizes the comparative infrequency of visceral metastases, even when the local growths had attained to considerable size, whereas in the four cases of my personal series, the visceral extension was the most serious part of the disease. As they belong to different species of sarcomata it is interesting to observe the extent of the involvement. That there did not happen to be any visceral metastases in the Bellevue series is doubtless due to the fact that the patients in many

instances came in for early operation, before the disease had spread.

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THE SURGICAL MANAGEMENT OF URETHRAL STRICTURE AND ITS COMPLICATIONS.*

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NEW YORK.

In attempting to treat briefly an extensive subject like the one under consideration, salient points only can be touched upon, the idea being to acquaint the profession generally with the author's views, some of which are at variance with past teachings. A word regarding the pathology of, or what really constitutes, stricture is necessary to an intelligent understanding of treatment. Stricture signifies a narrowing more or less complete of the urethral caliber sufficient to cause noticeable obstruction to urination. Obstructions to urination or retention from other causes will not be here considered. Aside from the formation of granulation tissue which not infrequently developes on the urethral mucous surface at the site of a lingering inflammatory process and causes obstruction by choking the urethral caliber, urethral stricture is made up of round cell infiltration, of chronic urinary extravasation, or of true cicatrix. A given stricture may be made up of any one, of two, or of all three of these pathological elements. Those who have given little thought to the subject seem generally to suppose that stricture is made up of the third only of these elements, namely cicatrix. This faulty idea has in the past determined operative treatment to a large degree and recent surgical advancement in this direction has been possible only by discarding this idea and fully realizing that round cell infiltration and chronic urinary extravasation are the other and perhaps the more important elements. This feature will be taken up again in connection with the operative procedures.

The occurrence of false passage due to the unskillful use of instruments—and it may be that the term unskillful is far too mild an expression—is unfortunately a common complication in connection with urethral stricture. Such a complication is not only serious for the patient in that it predisposes to chill, retention, and sepsis, but it also often makes a grave operation necessary in a case where the stricture existing without this complication could easily have been managed without resort to the knife. The position of stricture, or, in other words, its location, whether in connection with the anterior or penile portion of the urethra or with the posterior or deep portion, is of some importance, since it may be that an anterior stricture can more generally be treated without resort to major operation.

A stricture caused by traumatism or as commonly termed traumatic stricture, generally represents a severe lesion and one not amenable to non-operative treatment.

Treatment of stricture without resort to the knife, often termed non-operative treatment, is really synonomous with treatment through instrumental dilatation. From time to time forms of treatment have been advocated in connection with which the claim has been made that stricture can be cured by absorption or otherwise through the topical application of medicaments or of electricity in some form. What has been found, however, when such claims have been impartially investigated is that whatever benefit may have apparently been associated with these methods has been due to the dilating quality of the instruments employed in applying the devices rather than to any curative virtues attributable to them. The only possible exception to this statement is, perhaps, in cases where the urethral obstruction is caused solely by a tuft of granulations. In such an instance it might be that the topical application of a solution of nitrate of silver or of some astringent would so shrink the granulations that temporary benefit might follow even though the granulations were not broken down and destroyed by the instrument making the application. The application of electricity so strong that the heat generated serves to open a way through a stricture by burning the tissue may, of course, temporarily seem to have removed an obstruction until the resulting contraction serves to rid the patient of his delusion.

The great majority of strictures are amenable to treatment by gradual dilatation. Many cases can be so radically relieved by such treatment as to justify the use of the term curative in connection with it. Most such cases, however, have from time to time to resort to more or less dilatation to guard against a recontraction. Skill in the use of bougies, sounds, filiforms, and other urethral instruments is a most important and necessary asset for any surgeon hoping to win a place of distinction in genito-urinary work. It is to be deplored that this subject has not received sufficient attention. Surgeons who are heavy handed in the use of these instruments are unfortunate, since they cannot retain their patients. A man who has to submit to urethral instrumentation is quick to detect the skillful operator and thankful for the slight degree of pain such a surgeon inflicts. Besides being thankful and loyal to the skillful surgeon, he is apt to loudly decry the one whom he has judged unskillful. That the patient also is unfortunate who falls into unskillful hands is often made evident by the frequent finding of false passages and other unnecessary lesions in connection with the urethræ of those who have been generally treated. The skillful oper-

*Read at a Stated Meeting of the New York Academy of Medicine Held March 3, 1910.

ator will very many times thoroughly relieve through urethral instrumentation patients previously supposed to be in such a serious condition that resort to the knife was imperative.

As a prelude to the subject of operative treatment the clinical history of the following case will be recited, the reason being that this case which occurred sixteen years or so ago served to revolutionize the ideas held by the author at that time and has always been looked back upon as a surgical experience of great value.

The patient, a hod carrier, thirty-five years of age, was referred to me as a supposed case of malignant disease involving the perineum. Examination showed in the perineal region extending from the scrotum back to the rectum a bulging fungous bleeding and oozing mass the size of a half orange. Palpation showed the entire perineum hard, infiltrated and apparently attached on either side to the rami of the ischii. The infiltration involved the deep urethra and extended upward to the apex of the angle of the pubes. It was found that no urine at all escaped from the meatus, but that all of it trickled through the fungous mass which tumefaction was discovered to be riddled with sinuses. An attempt was made to pass an instrument of some description along the urethra and into the bladder, but this was found to be impossible, the urethral occlusion being apparently complete. The patient was put in the lithotomy position and the attempt made to lay open the deep urethra, but the tissues were found to be so hard and cartilaginous in consistency that this effort failed. A section of tissue was, however, removed for microscopical examination. I then decided to establish a suprapubic fistula, thinking that the patient's distressing condition might be relieved by wearing a suprapubic drainage tube which could be connected with a rubber urinal suspended from a waistband. The patient remained in the hospital about four weeks and was then discharged with the suprapubic tube and the rubber urinal satisfactorily collecting the urine. The patient seemed then very comfortable. He was directed to come back to the clinic in a week or so for observation. Comparatively little attention had been paid to the perineum after the operation. The patient did not come back to the clinic as directed after his discharge from the hospital, and the case was rather forgotten for the time, though the report had come from the laboratory that there was no malignancy in connection with the tissue removed.

About six months after the time of this operation a robust, husky workman called at my office and made himself known as the individual whom I have just described as having discharged from the hospital with the suprapubic fistula. He stated that he was perfectly well and that urination was free and normal in every respect. The suprapubic scar was there, showing where the tube had been. The perineum was perfectly normal in appearance and palpation showed the tissues to be soft, yielding, and natural. A full-sized sound slipped into the bladder easily, showing no trace of stricture or in fact of anything abnormal. The urine was clear and free from bacteria or pus. The patient stated that he went to work as a hod carrier a week after leaving the hospital and for over three months wore the rubber tube and the urinal attachment. By that time he tired of the attachment, and as he thought he felt all right he removed the suprapubic tube and the urinal. In a short time after this the suprapubic fistula closed and he then found that he could urinate as well as he ever could. As he happened to be going by the office he called, although he had hesitated before doing so, as he thought I might scold him for disobeying orders in removing the tube.

I had certainly gotten a complete cure in this case, although the operation had not been undertaken with that happy object in view. The question arose how had the cure been accomplished? It was easily answered for all that had been done as far as the stricture and the perineal lesion were concerned had been to divert the urine from that region. In this case the urethral obstruction and the perineal lesion and tumefaction were made up of chronic urinary extravasation and round cell infiltration. The diversion of the urine had caused the extravasation to gradually disappear and the round cells had then been absorbed by the reestablished circulation, which finally completed the cure by healing the sinuses and the lesions of the urethral mucous membrane.

Shortly after this Moullin of London reported an important series of observations bearing on this same point. His cases represented stricture of the anterior urethra. In each case the caliber, extent and quality of the stricture was recorded. Then a perineal cystotomy was performed and a perineal vesical drainage tube introduced, the object being simply to divert the urine from the anterior urethra. The tubes were kept in place for about two weeks, if my memory serves me, and the perineal openings then allowed to close. A month or so after operation the anterior urethræ of these individuals were again examined. In a very large number of the cases the penile stricture had entirely disappeared and in the remainder marked and varying degrees of improvement were discovered. My own case and the confirmatory evidence furnished by Moullin were sufficient to establish in my mind the importance of the diversion of urine from a diseased urethral area, and in my subsequent operative work this principle has often been employed with great benefit.

One is commonly asked in regard to a case of urethral stricture whether internal or external urethrotomy is to be performed. Internal urethrotomy has been, and probably is still, by a majority of surgeons held to be the operation of choice for non-dilatable strictures of the anterior urethra. It has been years since I have performed the operation and I hardly expect ever again to make use of it. Enlarging by incision the meatus and the fossa navicularis is, of course, not classed in this connection as internal urethrotomy. The chief argument against internal urethrotomy is the danger of incurvation of the penis being left as a result. Hemorrhage and urinary extravasation into the sheath of the penis are other disagreeable dangers. Then, again, the curative results as regards the stricture are uncertain. The old idea was that the operation should be repeated in case a first result was unsatisfactory. Years ago in hospital clinics and in private practice it was common to observe the bad results wherein such multiple operations had been performed. One can, of course, see the fallacy of cutting in this manner through a stricture made up only of chronic urinary extravasation or of round cell infiltration.

External urethrotomy or urethrotomy accomplished through perineal section or incision is the operation generally advisable in the treatment of

strictures not amenable to non-operative methods. If the stricture be in the anterior urethra the incision into the perineum need be little more than a puncture with the knife, which puncture can be secondarily dilated sufficiently to allow the introduction of a perineal vesical drainage tube. As such a tube will serve to divert the urine and thus avoid the danger of postoperative penile urinary extravasation, it is consequently safe to then cut the penile stricture. The old rule in cutting a penile or anterior stricture in the performance of internal urethrotomy was always to make a longitudinal incision along the roof of the canal as one through the floor was out of the question owing to the danger of urinary extravasation into the sheath of the penis. The incision through the stricture, the perineum being open, can now be, and should be, made along the urethral floor, thus avoiding the vascular tissues lying about the urethral roof and also ridding the patient of the risk of being left with a postoperative cicatrix, the frequent cause of urethral incurvation, a complication which may be sufficient to so cripple the power of erection as to make sexual intercourse impossible.

Where the deep urethra is the part involved it is best to make a free median longitudinal incision extending from the posterior base of the scrotum down to the rectal sphincter, thus splitting apart the entire perineum and opening the whole length of the bulbous and membranous urethra. The diseased urethral area is thus fully exposed and the chance given the surgeon to do in an exact manner whatever may be necessary in connection with the urethral lesion. The question now comes up, what may it be necessary to do? This opens an extensive field for consideration, and is, of course, dependent on the character of the lesion existing in a given instance. It may be that the perineal incision along the urethral floor made for the purpose of exposing the deep urethra in connection with the perineal section so thoroughly divides the stricture that no more cutting is necessary. The finding of such an uncomplicated condition is not, however, usual. When the deep urethra is exposed it should be then carefully examined. To do this the perineal tissues should be made as taut as possible, this being accomplished by flexing the thighs back against the abdomen. The ordinary lithotomy position with the thighs simply vertical is not sufficient. One or two silk threads can be passed through the cut margins of the urethra on each side so that through the employment of gentle lateral traction the urethral surface can be thoroughly exposed. The existing lesions should next be repaired. Aside from stricture search should be made for pouches, diverticula, and false passages. These, if found, should be cut out and the urethral roof made so smooth that a curved steel sound of small caliber used by way of a test can be demonstrated to pass without being obstructed. If the deep urethra so exposed is found to be markedly constricted by annular stricture, the cut through the floor may not be sufficient to establish a full caliber to the canal in the area involved. That being the case, a longitudinal incision through the roof also of the urethra in the constricted area is advisable, sufficient to restore the caliber. In severe instances of urethral stricture where much structural disorganization exists, as is not infrequent, especially in cases of traumatic stricture, simply cutting through the urethra, in the manner described, may not be sufficiently radical. These are the cases to which the operation of urethral resection is usually applied. Formerly my ideas in connection with urethral resection were more radical than at present, and I now find myself cutting away far less tissue and with much better results than formerly. In cases where severe deep urethral disorganization apparently exists, the case of the hod carrier previously related comes to mind, and in them it is better surgery to first do the suprapubic cystotomy, divert the urine from the urethra and then later, as a secondary operation, if such be necessary, open the perineum to repair what remains of the original lesion. In operating on the deep urethra in cases of the class usually demanding resection, my rule is before removing any tissue to first make the longitudinal cut through the urethral roof. This cut should extend along the entire area of the stricture and should be so deep as to fully divide the strictured tissue. Then with curved scissors cicatricial nodules should be cut away from both lateral strips of urethral tissue. Such cutting away, however, should not be extensive enough to remove all the outlying layers of these strips, but enough tissue should always be left to guard against a breaking away and a retraction of either strip. This operation is at most only a partial urethral resection, the one of complete resection having been by me abandoned except in cases where the urethra has by reason of some previous process, such as gangrene, disappeared in a particular area.

The surgical treatment of the strictured area after the cutting, such as described, has been accomplished, is next in order. The old and ordinary postoperative feature of passing a steel sound every few days so as to prevent the cut urethral surfaces from growing together and thus reforming the stricture has been by me wholly abandoned. I have always considered this practice most objectionable. It was the frequent cause of urinary chill and sepsis due to the breaking down of the agglutinated tissues. To guard against such resulting sepsis from becoming serious, the perineal incision was necessarily left open to close slowly by process of granulation. Perineums so left open not infrequently failed to close completely, a urinary fistula persisting. Such fistulæ would be especially apt to result in cases where the perineum had been freely opened so as to allow a thorough exposure of the strictured area, such as I have recommended. Accordingly, if sounds were to be used in the after treatment and the perineal wound left open the incision into that part should be narrow, too small, in fact, to allow a careful or complete operative treatment of the stricture. The trauma caused by sounds in these cases also tended to produce a dense cicatrix, besides inciting round cell infiltration and urinary extravasation into the raw areas after the urine began to pass by the urethra. To obviate the use of sounds and to allow a suturing of the perineal incision, I make use of the "urethral splint." An ordinary perineal vesical drainage tube is first passed along the lowest part of the perineal incision into the bladder. Next the urethral splint, a rubber tube the full caliber of the urethra, generally 30 to 32 Franch, is passed along the urethra and down to the perineal tube. The lower end of the splint is cut off at an angle so that it fits snugly to the perineal tube. The deep urethra is then sutured over the urethral splint and the perineal incision closed except for the tract along which the perineal tube passes out. The splint and vesical tube are usually kept in position ten days. Ten days after the removal of the splint it may be well to gently pass a moderate calibered

blunt-ended sound to see that no granulations have formed, but in no case should a conical sound of large caliber be used for the purpose of stretching the tissues at the seat of operation.

Hemorrhage severe and difficult of control may be encountered in connection with operation for deep stricture. Such hemorrhage may be primary, that is, in connection with operation; or secondary, not occurring perhaps for eight or ten days after operation. The old and extremely inefficient device known as the "shirted" cannula used to be employed to control such hemorrhage, or packing was pushed in about the perineal tube. Both these devices simply temporarily stopped the external flow of blood. The bleeding being diverted backward, the bladder would become filled with clot. This would result in retention of urine, and tenesmus would follow. Such tenesmus would increase the tendency to hemorrhage, and then the bleeding forward would begin again in spite of the packing there employed. Most such cases so managed terminated fatally. Such hemorrhages can be effectually controlled, and the life of the patient saved by promptly opening the bladder suprabically, removing the intravesical blood clot and then packing the perineal wound, both intravesically—retrograde, as it were—and externally through the perineum. In such a case the perineal drainage tube should be removed, so that the packing may be complete and a suprapubic vesical drainage tube inserted. This radical treatment immediately frees the patient of all tenesmus, so that there is no danger of a displacement of the packing until such time as it can with safety be removed. Hemorrhage which may take place during operation and which can only be checked in the manner described generally occurs in connection with the cutting through of strictured tissue or the removal of such tissue in cases where the lesion lies above the deep urethra and extensively involves the structures in the apex of the angle formed by the convergence of the rami of the pubes. In this narrow space it may be impossible to compress a bleeding vessel by the ordinary appliances. Secondary hemorrhage may be from any vessel along the tract of the wound.

Perineal section, without a guide, is classed as one of the most difficult operations of surgery, and when one watches an operator not especially skilled in this particular making a demonstration of this procedure, the classification given to the operation seems correct. The operation ought not, however, as a rule, to prove tedious or to strike the observer as especially difficult if only the operator bears in mind the directions here recommended. A urethral instrument, often a whalebone filiform, is first passed as far as it will go and then the perineum is laid open in the median line along its entire length, just as has been already described. The first attempt of the operator should be not to cut down on the end of the urethral instrument, but to open freely the normal urethra anterior to the stricture in the upper portion of the perineum. This will allow a minute inspection of the anterior face of the stricture. As the stricture is carefully exposed, it is often found that the end of the arrested filiform or instrument employed lies at the bottom of a false passage, and is consequently in an extra urethral position. In such a case a careful examination of the urethral surface with a probe in the region of the anterior margin of the stricture will generally reveal the urethral channel close by the entrance to the false passage. If the true entrance is not so found a gradual opening of the cicatrix in the median line associated with the frequent and careful prodding of the probe along the surface as it is exposed will soon reveal the channel except in cases where complete urethral disorganization exists.

Where complete urethral disorganization exists and no urethral tract can be followed through an exposure of the part by perineal incision, it is, of course, then possible to perform suprapubic cystotomy, and by resort to retrograde catherization to cut down on the projecting end of the retrograde instrument, thus locating the posterior face of the stricture. The next step can be to remove by resection the disorganized structure, make use of the urethral splint, and close the perineum around it as already described. Although the employment of retrograde catheterization can be and is of great value, I personally should now hardly expect to find a need for its use to help me out in a case wherein I had failed to enter the bladder through the aid of the perineal opening. I make this statement because I do not consider it wise to try by one operation to repair and cure extensive deep urethral disorganization. Extensive deep urethral disorganization is almost always associated with complications which make it inadvisable to try to repair the disorganization while these associated complications remain. The only exception to this rule is in connection with traumatic rupture of the urethra wherein the patient comes to operation very promptly after the accident, extravasation of urine not as yet having had time to take place. In acute disorganizations of the deep urethra which signifies a rupture of the part by some form of traumatism, acute extravasation of urine, gangrene, and abscess are the resulting associated complications. In lasting or chronic serious disorganizations, abscess formation and burroughings, fistulæ, chronic extravasation, and infiltration are the associated complications. In all such cases the primary operation advisable is a diversion of the urine through the establishment of suprapubic fistula, together with free surface incisions into the perineum in those of them wherein urinary extravasation, gangrene, or abscess coexist. The perineal incisions in these cases are simply for drainage. Then at the end of three weeks or so the deep urethral lesion, being free from complication, is in condition for a secondary or repair operation. In connection with that secondary operation it may be that retrograde catheterization will be found useful. If so, the instrument can be easily passed through the suprapubic fistula. In cases wherein perineal gangrene has existed, a considerable section of the urethra, together with much of the perineal structure, may have been destroyed. It is in these cases that a series of plastic operations may be required in order to reestablish the urethra and to close the perineal opening. In such cases I have found it advisable to first try to reform the urethral roof by resection and the application of the urethral splint, and then by a later plastic operation to close the urethral floor. In such a plastic operation flaps from the buttocks and scrotum have to be utilized. In these cases where deep and firm suturing is very necessary I have made much and satisfactory use of metal cleats to securely hold the sutures and to maintain the flaps in position. To serve the purpose of such cleats, 25-milliampere fuse sold in electrical supply shops has been found most serviceable. A special consideration of this interesting topic would, however, be beyond the range of the present paper.

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FREUD'S VIEWS ON THE MECHANISM OF HYSTERIA.*

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The mechanism of hysteria is explained by Freud as follows: Any experience of a painful emotional character may be called a psychic trauma. If such experience is not reacted to adequately and appropriately it remains in the mind and gives rise to an "affect-memory"—the term implying the recurrence of the emotional element when the memory of the original experience is recalled. This "affect-memory" remains in the subconscious mind, acting somewhat as a foreign body does in a somatic way; and if sufficiently organized may usurp control of the bodily innervation, as well as of the psychic activities, thus producing various hysterical phenomena.

The causes of psychic trauma, as postulated, are (1) severe emotional experiences, or (2) experiences in themselves inadequate, acting on a predisposed subject. Every gradation between a predisposed and an acquired hysteria exists, the required trauma being inversely proportional to the predisposition. The so-called "idiopathic" cases of hysteria Freud believes to be merely those in which the trauma cannot be discovered, though really existing.

The psychic trauma may consist of a single experience, or of a group of experiences; or it may result from indifferent occurrences coinciding with a time of special nervous susceptibility, as a state of fear. To illustrate this the following cases, among many, are cited. A patient had a painful emotional experience during a meal. This acting as a trauma, produced nausea and vomiting, which persisted for months. A second patient while in a semi-conscious state had terrifying hallucinations. As a coincidence her right arm, which was hanging over the back of a chair, fell asleep. Subsequently she developed in this arm anesthesia and hysterical paralysis with contractures.

The connection between the psychic trauma and the resulting phenomena may be obscure. In examining patients it is often extremely difficult to elicit the history of the original experience which acted as a trauma. Often it has been entirely forgotten by the patient, and here the value of hypnosis is obvious. Moreover, these experiences are often unpleasant to relate, and even difficult to a marked degree, as the habit of inhibition in regard to them is frequently firmly established.

The affect-memory may produce a single acute attack of hysteria, or a series of more or less persistent symptoms of a hysterical nature; or, as more frequently happens, the result may be a combination of these two. The individual symptoms are Protean, covering the entire range of psychic, motor, secretory, and sensory phenomena. Even when the symptoms are purely somatic it may be postulated that a submerged affect exists.

Hysterical attacks may occur (1) spontaneously, as in times of fatigue, or under other conditions in which dissociation takes place readily; or (2) they may be provoked either (*a*) directly, when the affect-memory is recalled, or (*b*) indirectly, through some experience analogous to that which caused the trauma—the hysterogenetic zone responding to excitation in both instances.

Before considering the peculiar reaction to psychic traumata which forms the basis of the hysterical state, the normal manner of reacting should be called to mind. A certain degree of fading ordinarily occurs with the passing of time in regard to any memory. Even when the recollection is retained the affect disappears. We do not weep over the remembered woes of childhood, nor resent the slights of years long past. This fading, however, takes place normally only when the individual reacts adequately to the experience, and finds full expression for the affect in its appropriate reflexes. Speech alone may be an adequate reaction, as in the confessional; or full expression may require voluntary or involuntary reflexes, from weeping to an act of vengeance. The common saying, "cry it out," shows a general conception of this necessity for an adequate reaction, and the use of the word "mortification" for a silently borne injury suggests its traumatic nature.

A second method of righting a psychic trauma exists. The experience may become incorporated in the general complex of associations which constitutes the normal consciousness, arrange itself with other experiences and suffer correction; as when fear is gradually effaced as the fact of present security is realized. An experience involving chagrin or humiliation will be similarly corrected by the consideration of one's dignity or importance in a general way.

Many causes may prevent adequate reaction from taking place. These causes fall naturally into two groups.

The first group includes (*a*) experiences to which no reaction is possible, as the death of a loved one; and (*b*) those which the individual voluntarily excludes from the field of consciousness, as often occurs in regard to sexual matters, the elaborative processes of association ("apperception") being thus inhibited. Here the nature of the trauma excludes the reaction.

In the second group the normal reaction is prevented by the nature of the attending circumstances. We may have (*a*) experiences accompanying fear, or other severe affects; or (*b*) occurring under abnormal conditions, especially the dissociated states of consciousness, such as revery, autohypnosis, etc. In the latter case no associative binding takes place between the normal and the abnormal states of consciousness.

An affect-memory may belong to both of these groups at the same time. A trauma occurring in a state of dissociation which prevents its being righted by its proper reaction does not tend to right itself by subsequent associative elaboration, as would occur under normal conditions.

The phenomena of dissociation are analogous to those of dreams. As in a dream we have experiences and emotions quite detached from our waking consciousness, so in the condition to which Freud applies the term "hypnoidal" the experiences are detached from the normal consciousness. Dreams, however, do not influence the waking state, while the products of the hypnoidal condition obtrude themselves into waking life as hysterical phenomena, sometimes affecting the bodily innervation without affecting the consciousness, and sometimes

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appearing in the psychic life. In either case, they lie outside the stored-up memories of normal consciousness.

Even in normal persons a severe psychic trauma or a forced suppression of an affect brings about a splitting of groups of ideas. We often say a person is "distrait" or "absent-minded" under such conditions. In time, however, the associative processes deal with these experiences so as to assimilate them, and the memory of them fades away. In hysterical subjects, however, the split-off group remains split-off, and long retains its original vividness.

A series of hypnoidal memories may associate with each other and obtain a high degree of psychic organization, thus forming what may be called a "second self." Both the degree of organization and of exclusion from the normal field of consciousness vary greatly, ranging from the merely rudimentary second self which exhibits hysterical symptoms, to the highly organized "second personality," which may usurp control in a severe attack of hysteria.

The pathogenic complex frequently has somatic sequelæ, such as motor phenomena, which the normal consciousness may perceive during the attack without any knowledge of the psychic accompaniments. Each hysterical attack acts to some extent as an additional trauma, thus reinforcing the tendency to subsequent attacks.

The two psychic conditions—*i. e.* the normal consciousness and the hypnoidal consciousness—tend to establish a system of alternating activity which admits each assuming control in turn without really influencing the other.

We come now to the notably valuable contribution which Freud has made to the therapeutics of hysteria. He applies the name "psychoanalytic" to the following method of treatment, which consists of two distinct steps. First, the original exciting cause of the hysterical symptoms must be fully recalled to mind. This may be accomplished by careful questioning on the part of the physician, or by suggestion with or without full hypnosis. Second, the accompanying affect must be fully expressed or reacted to in speech or in action. To this second essential step in the therapy of hysteria Freud has given the name "catharsis." The first step without the second is unavailing. "The entire psychic process which has taken place must be repeated as vividly as possible—brought back to its 'nascent state,' so to speak—and then expressed."

In some cases this treatment will effect a permanent cure immediately. In others a gradual disappearance of the psychogenic complex will be brought about by the normal processes of association, after the affect-memory has been restored to the field of consciousness. As these buried complexes are often long forgotten, though not extinct, hypnosis is frequently most useful in bringing them to light. Often the same result may be accomplished in a semi-hypnotic condition where the patient is merely in a suggestible mood.

The hysterical diathesis, of course, cannot be removed by this or by any method; but, as "the hysterical suffers mostly from reminiscences," in this way he can be freed from the cumulative effect of past traumas. This method (of catharsis) is ineffective during the productive stage of an acute attack, since as each hysterical phenomena is removed it is quickly superseded by another.

The question might arise whether the expectation of cure by the patient acts as an unintended suggestion, thus forming a potent factor in causing the cure. Freud thinks this is not the case, and refers to the fact that the first cure was brought about unwittingly (in 1881, before the era of suggestion) by a successful attempt to bring to light and explain the submerged affect-memory in a hysterical patient. The recovery which followed was an entire surprise to the physician, who was unaware of the therapeutic value of the procedure.

THE ATHLETIC LIFE IN ITS RELATION TO DEGENERATIVE CHANGES IN THE CARDIOVASCULAR SYSTEM.*

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The present time appears to be an unusual one for great interest and activity regarding athletics. No doubt the popularizing of school ahletics has contributed in a measure to this interest. A short time ago a gentleman said to me: "Doctor, I have two boys attending high school who wish to take up athletics. Would you advise against such contests?"

This is a rather difficult question to answer offhand unless one knows the boys thoroughly both in regard to their constitutions and temperament. Hereditary influences as well as idiosyncrasy also play a part. Given a boy with a certain constitution and temperament with no tendency to any organic weakness, we could decide very promptly, but a review of all the available literature may help us to a certain extent. As a rule it is impracticable to generalize respecting a subject of this character, the personal equation at all times being a very important factor.

To make it a little easy to discourse on the theme, we shall consider the subject matter from several standpoints and subdividing the same according to the age of the individuals. For obvious reasons the male sex alone will be considered, as up to the present there is really little indication of girls and women becoming athletic in the sense that it is generally considered in boys and men. We note, however, the sudden death recently of a young girl who excelled as a basket-ball player, the autopsy revealing a large heart, which the coroner's physician believed was due to her athletic life.

The four ages to consider will be early life, including infancy, boyhood, youth, and adolescence up to the twenty-first year; manhood, from the twenty-first year up to the fortieth year; middle age, from the fortieth to the fifty-fifth year; beyond middle life up to old age.

It is easy to understand that the same advice could not be given in a general way to the different persons constituting these divisions, and that indeed it would be difficult to advise the same treatment to the different persons constituting any one division, but in a general way, for convenience sake, this may be done; and so we shall consider each class or division from several standpoints: (1) from the standpoint of the same being a benefit to the individual; (2) from the same being injurious to the individual, either temporarily or permanently.

Beginning with infancy, we may observe the inclination of the child toward activity. When healthy and well he is very active during his waking moments, and he has the power which nature gives him to exercise both his voluntary and involuntary muscles. Nothing can compare quite with the grip of the infant. He likes to grip, and he grips at all times in an extraordinary manner. When he starts

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to walk he does so because the time has arrived for him to use his lower extremities as well as his arms and hands. Once the art of walking is learned, he is on the way to great activity. He covers many a mile in a day, and would rather run than walk at any time. At all times he seems to have surplus energy.

Soon he reaches "the savage age when a boy abhors all regular occupation." The play problem is fairly open. It is well said, "the boy without a playground will become the father without a job."

The seventeenth is the healthiest of all years for boys, yet the eighteenth is sickly. The year of lowest death rate or greatest power to resist disease is the thirteenth. The mortality is less for girls than for boys in the period preceding puberty.

In a discussion regarding athletics in boys' schools a middle ground seems to be occupied by the Medical Officers-of-Schools Association. Says *The Hospital* (April 3, 1909) in an editorial: "These medical officers adopt the extreme position of neither side; that is, they advocate neither grandmother coddling nor the Spartan survival-of-the-fittest attitude of many athletic persons. They point out that neither age nor distance is in any way an exact criterion of the strain inflicted on any given boy by any given race. The quarter-mile is a far more exhausting race for most boys than are the long-distance races; and to this we would add the half-mile, in which schoolboys have done at various times very notable performances, but, now and then, with considerable detriment to themselves. The association lays it down that the plan of running all the boys, old and young, over the same course or distance is not to be recommended; but we are not sure that in this particular we quite agree. For if a separation is made it must be on some rough line, such as age; and that means that a compact, well-developed youth capable of any exertion may be sent into a junior division to set the smaller boys a hot pace over a short run, while an overgrown and much less precocious boy a month older may be put to compete with the most athletic of his fellows over a longer distance. When all the boys run together, the best runners may finish a five-mile cross-country run half an hour before the worst, but at the same time this gives those who, by reason of youth or retarded development cannot excel at this exercise, a chance to complete the run and benefit by it without undue strain. Provided there is a thorough medical examination of every boy on entering school, provided that the effects of various games on the younger boys are carefully supervised, provided that certain common-sense rules, which boys themselves do not appreciate, are enforced upon them, then the risk of ordinary school exercises, including cross-country runs and flat races not exceeding one mile, is so reduced as to be quite negligible. If the masters and school medical officers do their duty in observing the limits laid down by the association, parents may safely leave their boys to follow their own inclinations and their school traditions in these matters without fear of the consequences."

Dr. Tyrrell Brooks of Oxford has said it was his experience that the most vigorous undergraduates came from the schools whose athletics were of the most strenuous type. Of the organs likely to be damaged from athletics in excess the heart was the chief. Valvular damage, due to exertion, was very rare, but it was to be remembered that slight dilatation of the heart was difficult to estimate. It was almost certain that the natural resilience of the heart was so great in boyhood that mere muscular exercise could hardly seriously damage the heart. Special care in permitting active exercise after convalescence from acute illness was a very important precaution. On the whole, the trend of opinion among British medical men was distinctly favorable to athletics under proper condition and supervision.

H. H. Riddle of Cambridge University, England, believes that the athlete, if he has been sensibly trained and has not noticeably overstrained his powers in his youth, has the best chance of a healthy and active old age. In reference to the difficulty experienced by British authorities in obtaining physically strong recruits for the army a writer has the following to say: "It seems to be at least generally recognized that the mind is not likely to be healthy unless the body is in sound condition."

An American writer states that New York City has more than 200,000 young aspirants for record-breaking honors in its Public School Athletic League. In the country at large are about 10,000,000 amateur athletes, a large proportion of whom are still in the growing age.

Dr. Brooks of Oxford says that in coming to any conclusion as to the precise value of athletics in causing morbidity of the heart it is necessary to know the history of the patient under examination, as excessive smoking, abuse of alcohol, gluttony, insufficient rest—any or all might enter into a young man's life and produce exactly the same symptoms as were attributed to athletics.

Dr. Moritz had a good opportunity to study the hearts of several wrestlers after severe exertion which their occupation demands. In no case was there any dilatation of the heart, and like results were noted in several bicycle riders (*Münchener med. Woch.*, June 23, 1908). Indeed, Moritz claimed to have noted even a diminution in the heart following moderate or severe exertion. The possibility of an acute dilatation is not denied by the author, but such a phenomenon, according to him, is a sign that the heart is not free from some pathological defects.

In summing up the work of Dr. Benedict and Dr. Carpenter which was done in Wesleyan University, a medical editor has the following to say: "The human body is a machine of such a degree of efficiency that one-fifth of the energy expended by it can be utilized as work, and that this efficiency is constant in men of all types. The longest and the most thorough training does not change this ratio. The professional athlete, if he is able to do more work than the novice, does it not because his muscles are of such a quality that he can get more work out of them from the same amount of energy, but because he is able to put more energy in the shape of tissue change into the action. It would seem then that training, besides preparing the heart to stand greater strain, acts to increase the subject's power of using up his tissues and by giving him more muscle tissue to use rather than by teaching him to conserve his energies. To adopt a metaphor from the mechanical world, the professional has a more powerful engine because he is able to use more fuel, not because he wastes less steam.

Dr. Roeder of Berlin has presented an interesting report at the Union of the Berlin School of Physicians on the hygienic results of walking trips. He examined school children before and after a walking tour to see whether the favorable results of such a trip were only subjective, or whether objective benefit occurred. Fifty-six children were sent on walking trips in three groups, each under the leadership

of a teacher. The children walked on an average ten to twenty miles a day. For breakfast they were given coffee, milk and white bread, during the day bread and butter, and in the evening a warm dinner. As the result on body weight one series of well-nourished, strong children did not change weight during the six days' tour. A small number either lost weight or gained from one to three pounds. It was of interest, however, that during the following three months fifty of the fifty-six children gained weight from three to twenty-two pounds. From this it would appear that the violent muscular exercise stimulated the organism to increased metabolism and more rapid growth. Especially of interest is the comparison of nine girls who took the tour with twelve from the same school who had not been on the trip but had taken vacations at the same time. The girls who had walked gained 6.7 pounds during the next three months; those who had not walked only 4.8 pounds.

We shall now take up the unfavorable reports and statements relative to the subject, as up to the present all the testimony appears to be more or less favorable. Mr. R. H. A. Whitelocke of Oxford has explained the phenomenon of "second wind" by supposing a kind of physiological emphysema to be produced in the lungs, due to the violent exercise. The first effect of violent and sustained efforts was dilatation of the heart, the right ventricle being first affected. Those who had been subjected to or who had suffered from heart strain in youth seemed to show a distinct tendency to recurrences in later life when attempting such exercises as mountain climbing. One writer states that on numerous occasions the competitors in feats of endurance have been subjected to careful medical examination before and after the event, nearly always with the result that a warning has been uttered against indiscriminate efforts to obtain the fame that is to be gained in this way. That while such feats of endurance may not necessarily be followed by directly injurious consequences, they involve the risk of producing districts of lessened resistance which at a later time may invite serious organic disease, and that these hazards are especially great in youthful individuals.

One medical officer of one of the National Guard has said that he did not believe that professional athletes should be recruited, as they made poor soldiers.

There appears to be any amount of evidence against Marathon races. During the past year a number of deaths have occurred. Fallen runners along a Marathon course, many in a state of exhaustion verging on collapse, while others are reported delirious, is testimony enough that such races menace athletes. In commenting on these races one writer closes the subject as follows: "Charles Kingsley's praises of 'muscular Christianity,' of the cold plunge, and the hard fought field cost England, it is said, the lives of thousands of young men whose courage and will power were stronger than their bodies—often precisely the young men who were of most value to their country. Parents, teachers, trainers in athletic clubs and others in authority are in a position now to check a similar sacrifice."

In a humorous vein one writer asks the following: "Melvin W. Sheppard's successes at the Olympian games are frankly insulting to the New York police surgeons who rejected him as physically unfit to enter the department. What business has a man whose heart is officially condemned by the second largest city in the world to win victories in international athletics?" Another asks the following question: "What is invalidism or disability to one who has made a record, and how trivial seems the hypertrophied heart to the winner of the Olympic games?"

Dr. Warren Chapin is quoted as being very much opposed to school athletic contests. He states that school athletic competitions push the young well-nigh beyond the limit of their endurance and unfit them for their present and for their work in after life. Dr. Charles E. Quimby has said that the effect of this over-indulgence in athletics nowadays is a general breakdown. Neither Dr. Chapin nor Dr. Quimby will allow their sons to take part in competitive athletics that call for extreme exertion.

The death of Griswold early in January of this year was a blow to rowing races. It was occasioned, it is said, by typhoid fever, which was preceded by shattered health dating back to the Yale-Harvard race of last year, when Griswold, Yale's stroke, collapsed in the boat.

The conclusion that college athletics is not injurious, deduced by Dr. William G. Anderson, director of the Yale gymnasium, from mortality statistics of the graduates of the university, is declared by *American Medicine* (Sept. 1908) to be most dangerous. The picked men of the teams, the writer thinks, should show a far lower mortality than the average, and should be extra good risks. Boys need not be stimulated to develop a fatal degree of musculature; if anything, they need restraint. Numerous instances may be mentioned of record holders having been compelled to give up athletic work because of organic disease. Two examples of late are Whitney and Ewry.

From the twenty-first year to the fortieth little may be said of the evil effects of athletics as most young men have by this time passed out of athletic life and gone into their chosen vocations. The eagerness to make a living and the desire to succeed in life compels them to be up and doing. As a rule degenerative changes are not so apparent, and though the man may be working under high pressure, no notice is taken of such changes till middle life is reached. This is the time, however, when habits of life are formed. The enlarged heart may call upon the ex-athlete for some stimulation, and instead of exercising he takes to drink or maybe opens up a saloon. Once athletically inclined, always athletically bent, would be a good rule. When Dixon, the lightweight pugilist, died last year the writer communicated with the physician in attendance for the purpose of finding out the real cause of death. The reply he received was to the effect that his patient died of myocarditis preceded by alcoholism. The fate of his successor to the title was pretty much the same except that he was attacked with a mental disorder and now resides in a sanatorium.

At a meeting of The Medical Association of the Greater City of New York in which the athlete's heart was brought up for discussion by the writer of this paper (Medical Record, February 8, 1908) Dr. William Henry Porter said that he was glad the question of the so-called athletic heart had come up for discussion, as it was very important, and, like all other affections of the heart, required a clear conception of the laws governing the nutrition of the heart muscle to be fully understood. The one thing to be remembered was that the nutrition of the heart and of all the tissues of the body depended upon a uniform expansion and contraction of the

ultimate arterioles, so that the blood could be passed slowly or rapidly through the arterial capillaries, at which point all nutritive interchange occurred and was regulated, according to the demands of the tissues. By destroying this peculiar physiological control, the varying forms of pathological lesions were brought about. In the athletic heart, in consequence of great exertion, there had been a large demand for nutritive material by the muscle fibers, and they underwent physiological hypertrophy at the expense of the intermuscular connective tissue. Stop the exercise and the muscle fibers atrophied, but without corresponding hypertrophy of the intermuscular fibers. Hence, a weak heart resulted, the cavities dilated, and sudden death often occurred without apparent reason.

In reference to the athletic heart Mr. Riddle of England has the following explanation of degenerated heart muscle: "Like every other muscle, if given more work, it increases in size. New fibers are formed, the walls become thicker, and the power of the organ is increased, so that it may supply the amount of blood the muscles demand. As day after day this demand falls on the heart during training, runs, etc., the heart, unless the athlete breaks down, becomes more and more powerful. Naturally no harm results from this condition, for the whole output of strength available is constantly being used. When, however, through force of circumstances or advance of age, the athlete gives up periodic training and its accompanying demand on his heart, there is no longer any use for the extra heart fibers. Therefore, just as any other muscle will deteriorate and may undergo fatty degeneration if not fully exercised, so the hypertrophied heart of the athlete undergoes changes which leave him below the normal in heart efficiency when once he has begun to go down the hill of old age.

We now pass on to a consideration of individuals from the fortieth to the fifty-fifth year, the so-called middle-life period. A noted athlete has lately made the following observations in regard to life in the cities: "The New Yorker wants bottled stuff to cure him; he hasn't time for exercise. Let a doctor tell a man to take exercise to cure his rheumatism or gout or neurasthenia or any of those ills that the golden drug brings on, and he'll call the doctor a fool and demand pills or bottled drugs that will cure him while he sleeps. It would take too much time away from the desk or store to exercise."

Dr. F. Gelsbock reports as the result of experiments that a low blood pressure after muscular exertion, such as climbing stairs, is often due to some affection of the muscular substance of the heart. Arteriosclerosis may result from long continued high blood pressure, or conversely, high pressure may be caused by diffuse sclerosis of the arterioles. Among persons with remarkably high blood pressure was a group of men over forty years of age, presenting the appearance of florid health. They were corpulent, prosperous, and active in business, but were under great responsibilities and mental strain.

The three things to relieve hypertonia according to Dr. L. F. Bishop are: A restricted diet, physical exercise, fatigue of the voluntary muscles will relieve or relax the involuntary muscles of the blood vessels; and the third is relief from mental strain. Kisch concludes that the pulse tension, taking into account the maximum tension when the body is at rest and comparing it with that during the performance of a certain work, furnishes a measure of the degree of resistance present in the arterial system in arteriosclerosis and of the reserve energy as well as the functional capacity of the heart.

The physical tests in the United States Navy for the officers show plainly the opinion regarding the ability of men in middle life to take exercise. Many believed that such tests would be a great danger, but the results have shown that the officers have kept themselves in pretty good condition.

It is reasonable to suppose that myocardial disease was responsible for the death of Edward Hanlon, the oarsman, who died at the age of fifty-two after a two-day's sickness of pneumonia. Hanlon is said to have been the most graceful oarsman who ever pulled an oar. He rowed in two hundred races, and held the record for a four-mile row. As one of his old opponents said to the writer, he actually rowed the other man blind. It was known to be a fact that he took no exercise whatsoever for ten years preceding his death.

Before concluding this division of our subject I would like to report briefly one case lately seen in consultation which illustrates our point.

Mr. C., age 52, bookkeeper, was always a man of very good habits inclined to be athletic. Said he never drank to excess. Indulged in a moderate amount of exercise up to 1896 when he took to riding the wheel. He became a very good rider, and like many others during that period, reeled off his century every once in a while. This he kept up till about two years ago, when the bicycle fad ceased. His wheel was put away, and likewise his desire to take any more exercise. He bought an exerciser which he used a little on rising in the morning. After letting up on the severe exertion he noticed that he desired a glass of beer several times through the day. This desire increased until he became to be known for his ability to consume beer. As his weight did not increase he felt that it was not doing him any harm, for the same reason he believed he did not require much exercise. With his desire for beer the smoking habit also grew on him. One evening he was suddenly taken with great shortness of breath upon walking up a gradual incline. The next morning upon getting out of bed he was seized with his first attack of angina pectoris. Diagnosis: Myocarditis, dilated heart, arteriosclerosis, including the coronary arteries.

The lesson to be learned in a consideration of those cases is continued exercise beyond the fortieth year; once an athlete always an athlete. The penalty of early athletics is athletics all of one's life. To lay aside athletics and exercise is to invite tissue changes in the vascular system, particularly the heart and arteries.

Men beyond the fortieth year are a community's greatest asset. They are at the head of all great enterprises, they are the individuals with big ideas and who put through big schemes; they are our engineers, inventors, bankers, incorporators, professors, and successful professional men. We, as physicians, should try and study this subject so that we may prolong these valuable lives instead of allowing ordinary laymen to direct men regarding their health. Who has not heard of our great statesmen putting themselves in the hands of crude trainers and ex-trainers of prize fighters? Without medical knowledge and training the general results cannot be good, except for the fact that these men need exercise as a rule and need it badly.

We now pass on to the period beyond middle life

up to old age. This is the period where one finds a good many conflicting opinions, but the evidence appears to be in favor of regular exercise and plenty of it up to old age, especially if one has been active in early and middle life. H. Toeppen (*N. Y. Med. Jour.*, Feb. 2, 1907) mentions a man in Holland who was seventy when he won a well-contested skating race. Also a man past seventy who came in ninth in a three hundred and fifty mile race which occurred in France a couple of years ago. He sums up by stating that it is futile to try and lay down general age limits for the different kinds of athletic sports. One of the most remarkable feats for an aged man ever recorded is the great performance of Edward P. Weston, who at the age of seventy walked from New York to San Francisco in one hundred and five days. One year prior to this he walked from Portland, Maine, to Chicago, averaging nearly fifty miles a day and covering 1,200 miles. Weston has been an athlete all his life, as in an interview with a reporter he said he exercises every day excepting Sunday. His habits have always been good and he is a strict temperance man.

The recent death of Professor Lombroso at the age of seventy-three calls to our minds that he was a famous bicyclist and frequently journeyed through Europe on his wheel.

The death, a short time ago, of Joss Radcliffe recalls a wonderful feat which he performed at the age of forty-two. He backed himself to run, swim, row, ride a horse and a wheel each a quarter mile within a quarter of an hour. The times he made were: Rowing, 1:43; swimming, 5:39; fastening on shoes, 0:53; running, 1:53; cycling and riding horse together, 2:40; total time, 12:48.

Last year a pedestrian named Hughes, it is said, walked fifty miles in ten hours. His age was stated to be sixty-eight.

In commenting on the death of William Blaikie, lawyer, athlete, and author, a writer states that there was something sadly significant in his death at the age of sixty-one. Mr. Blaikie when young and in middle age was very much interested in athletics. As he grew older he devoted about all his time to his law practice, and it is said that he took no exercise the last year of his life. The strain caused by a very important law case is supposed to have paved the way for a fatal stroke of apoplexy. So interested was he in this case that he frequently worked far into the night on the papers. Here is another illustration of a man who did not keep up his heart muscle, as it is very evident that degenerative changes occurred promptly when he ceased taking his usual exercise, as he was a natural athlete up to his sixtieth year. When a young man he was a stroke oarsman in the Harvard crew which defeated Yale in the year 1866. When seventeen years of age he lifted with his hands alone 1,019 pounds. Another feat was walking from Boston to New York (225) miles, in four and one-half days.

All the best authorities appear to believe that walking is the best exercise of all provided it is done in the open air. Blake thinks walking may be prescribed as a therapeutic measure in certain conditions. Dr. Gaskell says: "A good, brisk walk in the fresh air, with free breathing and good style, is as useful a form of physical exercise as any I know."

Conclusions.—1. In summing up all the testimony for and against school athletics the evidence at hand seems to be against such athletic contests; but this may be due to the lack of precautions, as mentioned by the best authorities in England, where more attention has been given the subject. Without those precautions the results must be disastrous.

2. Marathon races for boys and men are to be mentioned only to be condemned. There is no evidence in their favor and really no excuse for them. On witnessing a Marathon race one can hardly keep from saying, "What fools these mortals be." The death of the first Marathon runner as he announced a great victory should have been an object lesson for all time.

3. As medical men we are not particularly interested in the professional athlete, only so far as his life might become an example to the growing young, many of whom seek our advice when about to enter into athletics. There is great chance of injury being done to the heart by violent exercise in competitive games.

4. From the twenty-first to the fortieth year habits of life are apt to be formed and the athlete may give way to the temptations of the table and the glass as his heart muscle cries out for stimulation.

5. After forty degenerative changes are the most likely sequences to an early active life, especially if, as occurs often, the individual becomes sedentary in his habits. As a rule men over forty do not exercise sufficiently to keep up metabolism. One should be on the lookout for high blood-pressure at this time.

6. It is evident that more attention should be given the subject of degenerative changes in the vascular system in men who have passed the fortieth year.

7. As there does not appear to be any limitation of sports in those beyond middle life active exercise should be advised especially in those who have led the athletic life.

8. Walking in the open air with good style is the best exercise.

9. Finally, there is a close relationship between the athletic life and degenerative changes in the vascular system, especially in the heart and arteries, when the voluntary and the involuntary muscles are not kept in tone by regular systematic exercise, particularly in middle life and beyond into old age.

428 Forty-seventh Street.

Diabetic Gangrene.—In discussing this subject Pilcher says that there is no midway course between simple expectant supporting treatment on the one hand, and amputation high up on the other.—*Long Island Medical Journal.*

Subcutaneous Sporotrichosis.—L. Landouzy enlarges on the importance of the general practitioner being able to make a diagnosis of even rare diseases, such as sporotrichosis, which is perfectly curable under proper treatment, but may go on indefinitely if no measures are undertaken to destroy the parasite, and may lead to useless and disfiguring operations. Such patients may be treated for syphilis and a bad prognosis made for final recovery, and the history may lead to the belief in congenital syphilis in the offspring of the patient. The author cites a case of sporotrichosis which had become generalized, there being many gummatous and ulcerative lesions occupying many different locations in the skin. The general health of the patient was good, and she was able to go about her daily work. The large number of lesions contrasted with the excellent general health, many of them being softened in the center. There was no enlargement of the glands. The spores were cultivated on glycerinated gelatin with success, and characteristic colonies developed. The oblong sporotricha send out prolongations which sporulate. By letting the pus fall on the side of the glass tube, colonies are formed which may be examined with the microscope while in the tube. The macroscopic appearance is pathognomonic. The patient was treated with potassium iodide internally and the local lesions washed with iodine solution. Cure was complete in eight weeks. This treatment is specific for the disease.—*La Presse Médicale.*

REPORT OF A CASE OF ACUTE HEMORRHAGIC PANCREATITIS, WITH AUTOPSY.

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PATIENT, a male, age 65, single, well nourished (inclined to adiposity), considerable arteriosclerosis.

Previous history is incomplete. However, for the 12 years in this hospital had had no serious illness, although patient stated that for past 4 years had had rather severe colic each autumn. This had never been severe enough to interfere with his routine duties as a kitchen helper. For 3 or 4 days preceding onset, had some diarrhea, but on day of onset was constipated.

December 3, 1909, about 4 P. M., the patient was suddenly seized with a chill, profuse perspiration, extreme prostration, colicky pain in upper part of abdomen, accompanied by persistent nausea and vomiting of watery, bile-stained fluid. The vomitus contained small, finely divided particles and had no bad odor. The character of the vomitus continued the same throughout the attack.

When seen that evening he was in considerable distress, temperature normal, pulse 130, almost continuous vomiting. Abdomen was very much distended, more marked *below* the umbilicus. It was more or less soft, however, and not especially tender on pressure, except in the epigastric region immediately over the pylorus and somewhat to the left. Here it was exceedingly tender, and the least pressure precipitated more vomiting.

Next morning the patient continued the same, although recovered from the initial shock. A slight icteric tinge was discernible on the face and arms. The presence of a small amount of fluid in the abdomen was made out. The vomiting continued throughout the day, but at less frequent intervals, and the epigastric region was less tender. Patient was catheterized; the urine showed no sugar, a trace of albumin, many granular and hyaline casts, and no bile pigment. There was considerable improvement in patient's condition, although the pulse stayed about 120, and temperature rose to 100.6°. He, however, was able to retain a small amount of liquid nourishment, and during the night had three copious bowel movements, the result of several enemata. The nurse reported the stool to be normal in color and consistency.

The next morning, December 5, the general improvement of preceding day continued till about noon, when there were evidences of collapse; pulse became very weak and irregular, the leucocyte count was 13,600. Operation was decided upon and a median exploratory incision was made. As soon as the abdomen was opened the diagnosis was apparent, as the whole omentum was shot full of areas of fat necrosis. A large mass (comprised mostly of the head of the pancreas) was found with a small amount of bloody fluid in the immediate vicinity. Stones were made out in the gall bladder. The tumor was opened, drainage left in and the abdomen closed. Patient died early the following morning.

The autopsy showed an enlarged hemorrhagic pancreas, full of areas of fat necrosis, as indeed were the omentum, mesentery, and preperitoneal fat. The gall bladder contained several small stones. One stone was present in the common duct, about 2 inches from the duodenum and another triangular facetted stone was lodged immediately below the pancreatic duct in the ampulla of Vater, thus showing beautifully how the pancreas could have become infected from bile. The intestines were congested with a few adhesions in the neighborhood of pancreas, but no actual new lymph formation.

The special features of this case were: 1. The general abdominal distension. 2. The small localized area of tenderness and pain in the region of the pylorus and somewhat to the left. 3. The persistent nausea, hiccoughing, and biliary vomiting, without fecal odor. 4. The marked initial shock with succeeding improvement in patient's general condition. 5. The presence of biliary calculi, and especially the position of those in the duct. 6. The markedly swollen and hemorrhagic condition of the whole pancreas, with the large distribution of fat necrosis. 7. The presence of a small amount of bloody fluid in the abdomen. 8. The absence of glycosuria. 9. The occurrence of slight jaundice *early* in the attack. This, according to the literature on the subject, being unusual. (See "Twentieth Century Practice of Medicine.")

I am indebted to Dr. Hurd, Superintendent of the Hospital, for permission to report this case.

URO-URETER FROM NEOPLASM.

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URO-URETER from neoplasm occurs with unfortunate frequency. It is mainly observed in autopsy, death occurring primarily from the neoplasm and

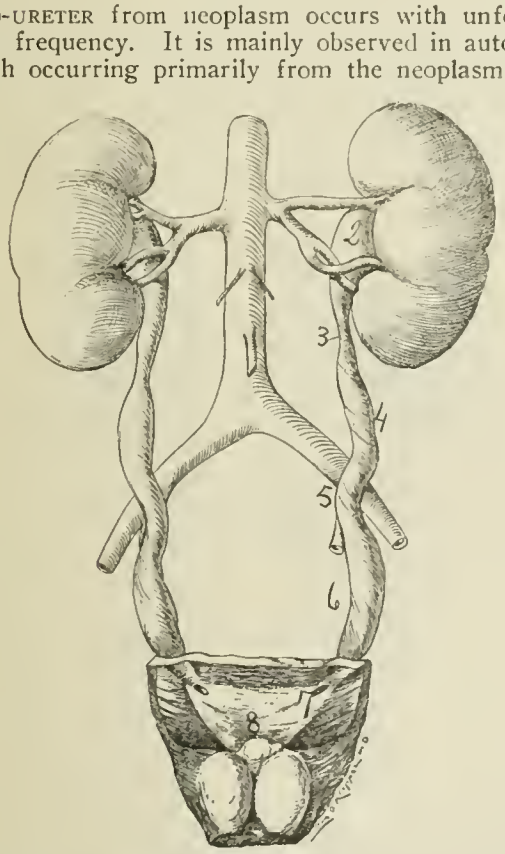

FIG. 1.—This subject possessed marked bilateral ureteral dilatation from prostatic hypertrophy especially for the enlargement of the middle lobe. The 3 ureteral isthmuses (3, 5, 7) and the 3 ureteral dilatations are marked. (Drawn from specimen in Rush Medical College Museum through courtesy of Dr. Le Count).

the uro-ureter being a secondary phenomenon. Uro-ureter may arise from the numerous neoplasms located external to the ureter. First and foremost is the carcinoma from the female genitals. The car-

cinoma closely adjacent to the course of the ureter presents the greatest number of cases of uro-ureter. The inflammatory process accompanying the carci-

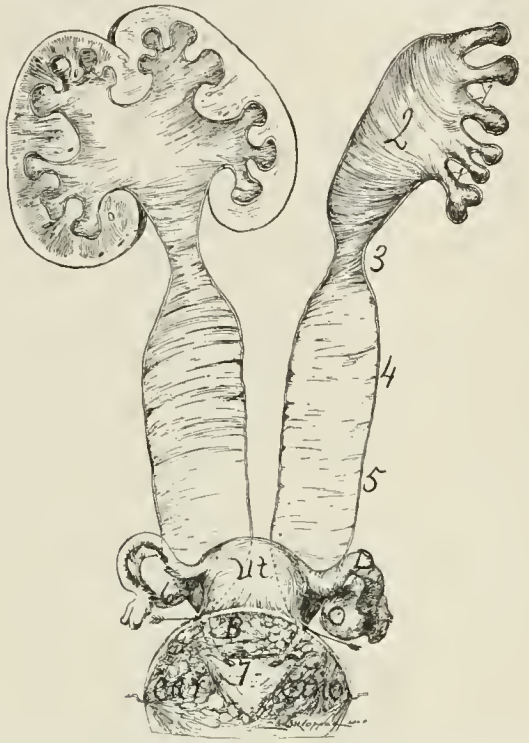

Fig. 2.—Represents an advanced case of erosion by carcinoma of the cervix and bladder. Only the proximal ureteral isthmus remains visible—distention has obliterated all other ureteral isthmuses and dilatations. (Drawn from specimen in Rush Medical College through courtesy of Dr. Le Count).

noma resulting in indurating pariureteritis and cicatricial contraction causes inevitable ureteral obstruction. The carcinoma that radiates from the uterine

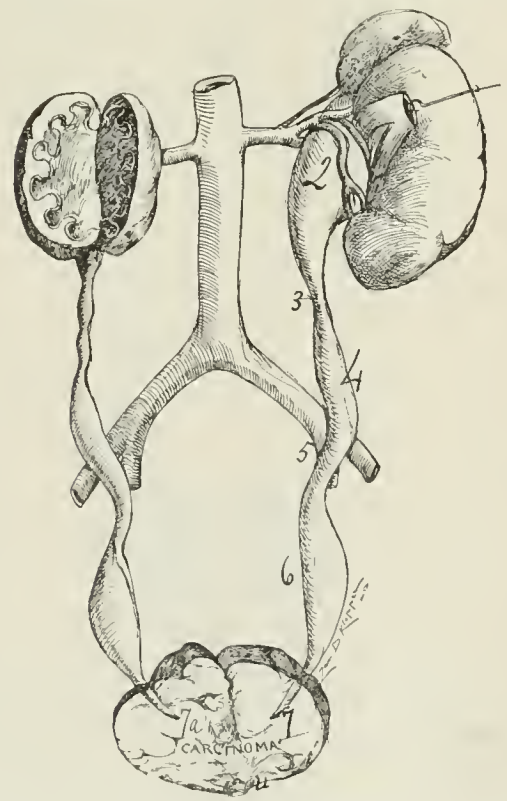

Fig. 3.—This cut illustrates primary carcinoma of the urinary bladder with consequent bilateral uro-ureter. The 3 ureteral isthmuscles (3, 5, 7) and 3 ureteral dilatations (1, 2, 4, 6), are pronounced. The right renal parenchyma atrophic. (Drawn from specimen in Rush Medical Collge Museum through courtesy of Dr. E. R. Le Count).

cervix is the chief cause of uro-ureter; next comes carcinoma of the uterus and ovary, affecting the ureteral lumen by pressure. In carcinoma emanat-

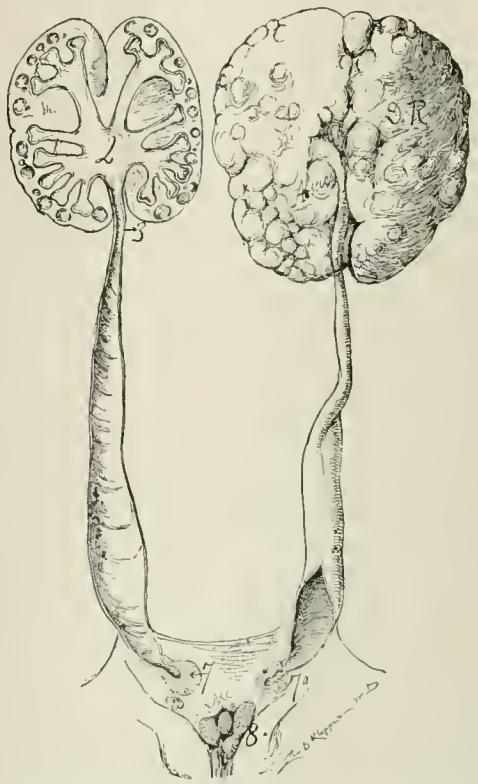

Fig. 4.—This illustration shows a bilateral uro-ureter from prostatic enlargements and orifices of the ureter were solidly and extensively encrusted by phosphatic salts to such a degree that ureteral obstruction was enhanced. The renal cortex in both kidneys were studied with numerous larger and smaller abscesses. The patient was maltreated in the operations. The first operation pretended to incise the perineal portion of the ureter for relief of urinal obstruction—the operator failed to incise the ureter. A week later the operator pretended to perform suprapubic cystotomy but the bladder was not incised; however, the operator entered the peritoneum and the man died from peritonitis. The 3 ureteral isthmuses and 3 ureteral dilatations are not marked. (I secured this specimen at an autopsy with Dr. Charles O'Byrne).

ing from the cervix it is the contraction of the adjacent inflammatory mass on the ureters that originates the uro-ureter, as may be observed in medical

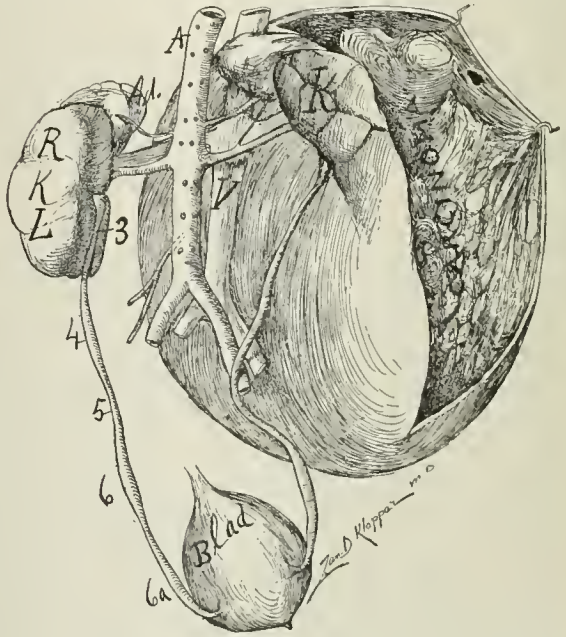

Fig. 5.—This illustration demonstrates the method of ureteral flexion and obstruction by pressure of neoplasm—carcinoma of the kidney. This specimen is from the viscera of a child. (Drawn from specimen in Rush Medical College Museum by courtesy of Dr. Le Count).

museums. Carcinoma of the bladder rapidly causes uro-ureter. Ovarian tumors frequently induce uro-ureter from abnormal pressure. The cellulitis around the ureter accompanying the neoplasm contracts, ending in uro-ureter. Carcinoma of the right colon, left colon, sigmoid, or rectum may be accompanied by uro-ureter. In the male the prostate tells its own story. Extreme angulation of the vertebral column or scoliosis may produce uro-ureter. Israel reports such a case. Uterine myoma might at first sight be thought to be a prominent factor in uro-ureter. However, uterine myoma ordinarily produces slight uro-ureter accompanying gestation. If no peritoneal adhesions accompany the myoma, due to oviductal leakage and peritoneal infection, there is generally but slight uro-ureter as the myoma passes up in the abdominal cavity, where ample space allows the ureter to escape pressure. It must be remembered that gestation and myoma affect the tractus genitalis and tractus urinarius, since both gestation and myoma congest the genitals (through the genital inosculation circle) and the urinary tract (through the solid, compact anastomosis of kidney, ureter, and bladder). Observe that the genital inosculation circle (utero-ovarian artery) is directly connected with the compactly anastomosed urinary organs through the proximal T-shaped ureteral artery emerging from the ovarian artery—hence what congests the genitals (genital inosculating circle or utero-ovarian artery) will congest the ureter at the points where it is connected to the genital inosculating circle by distinct arteries. The genitals and urinary organs are therefore congested during menstruation, gestation, and the existence of a uterine myoma. In conclusion, I repeat that uro-ureter may arise from the compression of a neoplasm located primarily internal or external to the ureter, as *e. g.* carcinoma of the tractus urinarius, genitalis, intestinalis, lymphaticus. It may arise from an osseous neoplasm or from uterine myoma, ovarian tumor, lipoma, or hepatic hypertrophy.

CATARACT OPERATION ON THE INSANE.

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HAVANA, CUBA.

CHIEF OF THE OPHTHALMOLOGICAL CLINIC OF DR. J. SANTOS FERNANDEZ; OPHTHALMIC AND AURAL SURGEON TO THE MAZERRA HOSPITAL AND TO THE SANTA TERESA DE JESÚS SANATORIUM.

In spite of all that has been written about cataract operation, it always offers some especial points of interest. We at the same time have always been interested in the ophthalmic aspect of the insane, and in the short time I have been rendering my services to the Mazerra Hospital for the insane I have had occasion to examine about 200 eye patients. The average number of inmates is 2,200. We have operated upon four cases of cataract; three of the cases were operated upon by the simple extraction method, one was a combined extraction. A general anesthetic was unnecessary in all the cases. We only employed cocaine solution, 3 per cent., one drop every ten minutes up to four drops. All our patients were over 70 years of age. In spite of this, healing took place with rapidity and without any trouble.

The first case was in a negro 90 years of age. During the operation he was quiet, but did not obey well our indications. The extraction was carried out easily, however, and by successive pressures through the lids we were able to expel the cortical remains. The wound healed rapidly, and several weeks after the resulting vision was O. D. (operated) with + 5 sph. v = 1/3

The second case was a failure, for although during the operation the patient remained very quiet, and the operation was carried on perfectly, the patient developed a post-operative delirium and during it she took her bandages off and rubbed her eyes with her dirty hands. The result was a secondary infection and the pupil got clouded. I shall perform an iridectomy on her very soon.

The third case was that of a negro woman. Before operating on her cataract it was necessary to incise an immense pterygium which covered the pupil. This was excised two months before the cataract was extracted. The cataract operation was a success. It consisted in a combined extraction because the pupil was almost covered by the leucoma and an iridectomy was thought necessary. During the operation this patient behaved very nicely, and the resulting vision is very good.

The fourth case was really marvelous, and we have already reported it.* It occurred in an old negro woman who was suffering from senile dementia. She had complete cataracts on both eyes and had the necessity of being led by hand. She was an intractable, mischievous, impertinent old woman, given to fighting with all the other inmates. I operated on her right eye only. During the operation she behaved somewhat quietly, and it was carried out with success. The resulting vision, two months after the operation, was 5/5. The most interesting part of this case was the notable change in the mental symptoms of this patient. She was completely transformed.

Cataract operation can be carried on in the insane. It may be a little more dangerous than in sane people, but not much more. It is evident that extreme vigilance has to be exercised, and one should try to avoid any possible cause of excitation during the operation, and especially during the post-operative treatment.

**Cronica Médico-Quirúrgia de la Habana*, Vol. XXXV, p. 363, 1909.

Stains of aniline dyes may be removed from the fingers with strong aqua ammoniæ.

Acute Intussusception.—In discussing this subject Peterson says: While the diagnosis is easy and the indications for treatment are quite definite, it is a regrettable fact that no class of cases are more habitually mismanaged and more often maltreated than the ones under consideration.—*The Post Graduate.*

Actinomycosis of the Cervicospinal Region.—A. Chauffard and Jean Troisier describe a case of actinomycosis of the side of the neck, which is instructive in its light upon the diagnosis of an unusual disease. The man came to the hospital for torticollis and a tumor on the left sternomastoid region, which was so painful that the slightest movement of the head caused him torture. The diseases that were thought of were Pott's disease of the cervical region and branchioma. In favor of actinomycosis were the following symptoms: extreme hardness of the tumor, trismus, intense pain, rigidity of the neck, condition of good general health, and the fact that the patient was a coachman and in contact with horses, and with straw which he might have chewed, thus inoculating his pharynx. Serum diagnosis was made by sporo-agglutination of Widal, and this was positive in 1-100 dilution. The reaction of fixation was also positive. All cultures remained sterile. The opsonic index was below normal. These tests would indicate the presence of one of the mycoses, sporotrichosis, hemisporosis, or actinomycosis. The clinical characters showed it to be actinomycosis. The treatment was potassium iodide, 4-6 grams per day. Improvement began at once, and the tumor gradually decreased in size, until in about one year the man was entirely recovered and only a slight induration remained.—*Revue de Médecine.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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ANTITYPHOID VACCINATION.

THE most recent announcement with regard to this procedure is that Prof. Elie Metchnikoff of the Pasteur Institute, Paris, has succeeded in inoculating monkeys with the typhoid bacillus, thereby enabling him to obtain exact symptoms, and permitting accurate experiments on the action of his vaccines. Antityphoid vaccination may in the near future take its place as a routine preventive measure, its efficacy in this direction having been demonstrated in a sufficiently clear manner. To Sir A. E. Wright is chiefly due the honor of placing prophylactic vaccination against typhoid on a practical working basis, although Pfeiffer was the first to suggest the possibility of using a prophylactic serum, and Haffkine gained some success in the prevention of cholera by this means. However, Wright was the first to put to practical test the suggestions of others.

Major F. F. Russell, Medical Corps U. S. Army, in Johns Hopkins Hospital Bulletin for March, gives an able résumé of the mode in which the vaccine is prepared and employed, and supplies an account of the immediate results of the administration of 3,600 doses. During the Boer War, Wright furnished 400,000 doses to the British troops and it is reported that 100,000 inoculations were made, but statistics as to the outcome are meager and not to be relied on. Colonel Leishman, after the retirement of Sir A. E. Wright from the British Army, carried on the work and has given the results of the immunization in 5,473 cases. All these cases were carefully watched and the results recorded. Among 12,083 men there were 5,478 inoculated, and 6,610 uninoculated. Among the former there were 21 cases of typhoid with two deaths, and among the latter 187 cases and 26 deaths. Among the exposed troops who had been inoculated with the vaccine in use at present there were 3.7 cases per 1,000 against 32.8 per 1,000 among the untreated. British statistics further go to show that the duration of the protective period is three years, long enough for all reasonable purposes. Antityphoid vaccination in the German Colonial Army in the Herero campaign in 1904 in Southwest Africa was also followed by very encouraging results. Eight thousand men were vaccinated according to the method of Pfeiffer and Kolle, and roughly speaking there were about half as many cases and only about one-quarter as many deaths among the vaccinated.

It is obvious that if vaccination against typhoid fever is effective, or only partially effective, it must be regarded as a necessary procedure in modern armies, especially during war. It would be superfluous to point to the sickness and deaths due to typhoid fever in all modern campaigns. The disease is by far the most fruitful cause of death in modern warfare and any measures that will stay its spread will be gladly welcomed by people and governments. The experiments and tests which have been undertaken and described by Major Russell and his colleagues are therefore opportune and strongly indicated. The vaccination of officers and enlisted men in the United States Army was begun in February, 1909, and up to the present time completed records of the vaccinations of 1,400 individuals have been collected and the attempt has been made to collect statistics as to the immediate results in the way of local and general reactions. We cannot here describe in detail the local and general reactions, but it may be stated that occasionally the local reactions are somewhat severe, though they last but a short time and subside quickly, leaving no scar nor mark of any kind to show where the vaccination has been performed. The general reaction varies considerably. In children and in some adults it is virtually absent. In others there occur chilly sensations with no rise of temperature. Some have diarrhea. The majority express their sensations as resembling grip or a cold, but these pass away quickly. The moderate reactions are characterized by a rise of temperature from 101° to 103° F. and the severe reactions are those with a temperature of 103° F. and above. It was recognized by the army medical officers that if many of such cases occurred, the carrying out of immunization of the army would be greatly hampered, and thus it is satisfactory to learn that severe reactions from vaccination are extremely rare. An interesting point discovered is that the fact that a man may already have had typhoid fever seems to increase the chances of a moderate or severe reaction. That is to say the typhoid fever leaves the patient generally in a hypersusceptible condition. The total reactions recorded by Major Russell and coadjutors is 3,640, of which 0.9 per cent. were severe, 5.7 per cent. moderate, 25.3 per cent. mild, and 68 per cent. absent.

The greatest theoretical obstacle which the adherents of antityphoid vaccination have had to encounter is what is termed the negative phase; that is, that an individual is more apt to contract typhoid fever for a short time after vaccination than he would have been had he not been immunized. Sir A. E. Wright is responsible for the publicity of this belief, which is misleading in that he was not dealing with the effect of the first dose, but with the effect of a dose of toxin on an animal already immunized. It can be demonstrated from the writings of Wright that while the negative phase should not be ignored, neither should it be magnified. Pfeiffer and Friedberger conclude that the fear of a negative phase is exaggerated, and ten years' experience with antiplague vaccination has shown that there is no basis for the hypothesis suggested by Wright, and that experience has shown that individuals can

be vaccinated on the appearance of an epidemic or at any time during its course, and that the vaccination not only does not predispose to infection, but if given during the incubation period actually mitigates the severity of the disease. Indeed the authorities are in conflict with Wright as to a negative phase after vaccination, so that it may be taken as fairly well proven that no such phase exists. Since the introduction of vaccination in our army there have been 135 cases of typhoid fever among approximately 75,000 men, and only one of these was in a man who had been vaccinated.

The following are Major Russell's conclusions: 1. Vaccination against typhoid undoubtedly protects to a very great extent against the disease. 2. It is an indispensable adjunct to other methods of prophylaxis among troops exposed to infection. 3. It is doubtful if there is an increase of susceptibility following inoculation. 4. Vaccination during the disease, for therapeutic purposes, fails to reveal any evidence of a negative phase. 5. The statement that vaccination should not be carried out in the presence of an epidemic is not justified by the facts at hand. 6. The procedure is easily carried out and only exceptionally does it provoke severe general reactions. No untoward results have occurred in the above series of 3,640 vaccinations.

THE ROLE OF CATTLE IN THE SPREAD OF THE PLAGUE.

Plague prevention work continues to be carried on earnestly by officers of the Public Health and Marine Hospital Service in California, and many facts of interest are constantly being discovered. In a recent report to the Surgeon General, Passed Asst. Surg. G. W. McCoy states that an infected ground squirrel has been discovered in San Luis Obispo County, Cal., and goes on to say that about 2,000 squirrels from this county had been examined before an infected one was found, a sufficiently striking illustration as to why the determination of the extent of the epizootic is a matter requiring much time and work.

The most important and instructive part of the report is that which discusses the possibility of cattle as intermediary hosts for squirrel fleas, Asst. Surg. Simpson, after referring to the comparatively easy explanation of the mode of plague transmission from rat to man by the agency of infected fleas, points out the difficulty of tracing an intermediary host in the possible transmission of plague from squirrel to man. Of course, there is no difficulty in understanding how fleas pass from squirrel to squirrel, owing to their close association in their villages, and it has been clearly demonstrated that infected fleas can transmit plague from squirrel to squirrel; but the stumbling block is to be able to account for the method of conveyance and the opportunity for the passage of infected fleas from squirrel to man. The squirrel may obtain, in fact does obtain, a part of his food supply from man, and often lives in a territory traversed by man. In a few words, although, as a rule, the squirrel does not come into such close contact with man as the rat, plague in man has occurred with sufficient frequency where this close association could be shown to warrant the statement that the infection came from the squirrel. But two cases of plague infection of man have occurred, where there was no exposure to rat infection, and where the route of infection could not be traced to the squirrel. Simpson offers as a possible solution that cattle on the range may be a means of the conveyance of fleas, and in support of this theory draws attention to the following facts: Fleas abound in and about squirrel villages, the number present depending on the season of the year, and cattle as they range over this territory stray through and lie down to rest in and around these villages. They might thus very readily acquire fleas, and since it has been established that fleas quickly desert an animal after death and seek another host, they would the more readily acquire fleas in those villages containing infected squirrels. Where fed daily, at some common point, as is the case with dairy cattle, they might readily convey these fleas from the homes of the squirrel to the homes of man, and plague occurring in such circumstances, where this intermediate host was not recognized, would not be satisfactorily traced to its source.

This is an ingenious and a plausible theory, although at first sight it may appear far fetched. It is known that squirrels are prone to plague infection, and two cases of plague in man have occurred in which the link in the chain of infection was not traced, that is to say no squirrels were known to have been near enough to the sufferers to have communicated the disease directly by means of infected fleas. It is, therefore, possible that cattle were the intermediary carriers, although much more will have to be learned on the subject before this explanation can be unreservedly accepted.

Torsion of the Movable Cecum.

Though chronic pain and tenderness in the right iliac fossa, especially if interrupted by intercurrent acute gastrointestinal symptoms, are in the vast majority of cases the result of disease of the vermiform appendix, it occasionally happens that at operation in such cases this organ is found to be quite normal, and that after appendectomy the symptoms continue. In the *Münchener medizinische Wochenschrift* for February 15, 1910, Klose describes a condition which he calls chronic torsion of the movable cecum, which he believes to be responsible for a certain number of such cases. He states that in from 10 to 23 per cent. of all cadavers it is found that, as a result either of previous inflammation or of a congenital anomaly, the mesocecum is greatly elongated and the cecum abnormally movable. Under ordinary circumstances this causes no symptoms, but if, as a result of numerous pregnancies, infectious diseases, or tight lacing, the cecum becomes atonic, trouble may occur, and if the organ develops a tendency to twist on its mesocecum serious and even fatal results may follow. Such attacks are characterized by colic, intermittent or associated with more or less continuous pain. The temperature is normal or subnormal. The attacks occur with increasing frequency, are preceded by marked constipation, and closed by a foul diarrhea. Changing of position often brings rapid relief. On gentle palpation in the right iliac fossa an elastic mass the size of a small apple is felt, which may be moved

about, even beyond the middle line of the abdomen, and under firm pressure may disappear entirely. On palpation loud borborygmi are heard. Such a tumor mass, associated with absence of fever, is the most characteristic sign of the condition. In severe cases acute obstruction may occur, and unless this is relieved death may result. The treatment consists in immediate laparotomy and anchoring of the cecum in its proper place.

Syphilitic Nephritis and the Effect of Antisyphilitics on the Kidneys.

Syphilis is a general infection that affects every organ of the body to which the treponema can find its way. The kidneys are spared no more than the other internal organs, its effect on them being rapidly disastrous in some cases, while in others it is not seen for many months or years. In the secondary period of the disease we find a form of nephritis occurring in which there is marked and sometimes suddenly appearing edema, a very large amount of albumin in the urine, and a normal amount of urine passed. In this form death with uremia or edema of the lungs speedily occurs. In the tertiary stage various forms of kidney involvement are found which may continue for a long time without serious symptoms intervening. Whether the treponema is to be found in these kidneys has not as yet been ascertained. It has been detected in the urine in such cases, but the microorganism may have passed into the urine from lesions of the genital or lower urinary organs. A. Gouget in the *Gazette des Hôpitaux*, for November 18, 1909, advocates the use of the ordinary mercurial and iodide remedies for the kidney conditions, pushed rapidly to their physiological effects. On the other hand we have records of fatal cases of mercurial intoxication due to the effect of the drug, which is eliminated through the kidneys. The overworked organs underwent an acute nephritis with fatal result. Charles Vandenebeele, in *Le Nord Médical*, for February 15, 1910, gives it as his opinion that when we get a nephritis in a manifestly syphilitic subject and mercurial treatment has caused improvement in the kidney-symptoms, we may conclude that the nephritis was due to the syphilis and not to the mercury. Gottheil in a paper read at the annual meeting of the American Medical Association, for 1909, gives histories of two cases in which the use of too large doses of iodide of potassium caused death from iodide intoxication due to its effect on the kidneys. This drug is also eliminated by the kidneys. There seems to be a necessity for caution in the administration of these drugs in case of syphilitic involvement of the kidneys.

News of the Week.

A Bust of Horace Wells in Paris.—A marble bust of Horace Wells, the American dentist who in 1844 made the pioneer experiments in the use of nitrous oxide as an anesthetic in dental surgery, was unveiled in Paris on March 27 in the Square des Etats Unis by the sculptor, M. Bertrand Boutée. It bears the inscription: "A Horace Wells, novateur de l'anesthésie chirurgicale." All the members of the Dental Institute attended. Addresses were made by Deputy Georges Berry, Prof. Dastre of the Academy of Sciences, and Dr. Jenkins, President of the American Dental Club in Paris. The latter speaker expressed the gratitude of the American people "to generous France, which was the first to acknowledge the importance of his discovery and now raises an enduring tribute to his memory."

The Cartwright Lectures.—Professor Magnus-Levy of the University of Berlin will deliver the three Cartwright Lectures of the Alumni Association of the College of Physicians and Surgeons of Columbia University at the New York Academy of Medicine, 17 West Forty-third street, on April 11, 12, and 13, at five o'clock in the afternoon. The subject of the lectures will be "Some Phases of the Chemistry of Diabetes." All those interested are cordially invited to attend.

Chronic Leprophobia.—For the past sixteen months Miss Mary V. Kirk, of Aiken, S. C., has been quarantined at her home in that city for leprosy acquired three years ago while serving as a missionary in Brazil. It has now been voted by the city council of Aiken to build a special cottage for her permanent isolation, to pay her for her own house, which will be confiscated and destroyed, with all its contents, and to allow her, in addition, a specified sum annually for the remainder of her life, or until such time as she may be considered by competent authority as cured.—*Boston Medical and Surgical Journal.*

A Fellowship in Pathology at Mount Sinai.—This hospital announces the establishment of a second fellowship in pathology which will be known as the Eugene Meyer, Jr., Fellowship. The income of the new fellowship, like that of the George Blumenthal, Jr., Fellowship, which was established in 1908, is $500 per annum. All graduates in medicine are eligible. The term of appointment is one year, renewable at the option of the committee, consisting of Drs. A. Jacobi, A. G. Gerster, F. S. Mandlebaum, and E. Libman. The work done under these fellowships may be carried on either in Mount Sinai Hospital or elsewhere, under the direction of the pathologists of the hospital.

State Investigation of Hysteria.—The State Lunacy Commission of New York has announced that a systematic study of hysteria will be begun in the State Hospital under the jurisdiction of the commission. A review of all the cases now in the institution will be made. The work is due to the methods and studies introduced by Dr. Adolph Meyer, retiring director of the Pathological Institute.

Department of Public Health.—The bill prepared by Senator Owen providing for a Department of Public Health, the chief of which is to be a secretary with a seat in the President's cabinet, has been introduced in the United States Senate.

Typhoid Fever in Chicago.—This year the typhoid fever mortality in Chicago has been very much lower than during the corresponding period last year. From January 1 to March 19, 1910, the deaths from typhoid numbered 51, as against 83 for the corresponding weeks in 1910.

The American Society for the Study of Alcohol and Other Narcotics will hold a meeting April 6 and 7, 1910, at the Hotel Rittenhouse, Philadelphia, Pa. Sessions will be held each day in the afternoon at 2 and in the evening at 8.

University Clinic at Yale.—At the meeting of the Yale Corporation, recently, announcement was made of an anonymous gift of $25,000 for the endowment of the University Clinic. The fund will be used for the Yale Medical School and the New Haven Dispensary.

New Stamford Hospital.—The sum of $35,000 has been donated by Mr. Albert Crane for the purchase of a site for the new Stamford Hospital to be erected in Stamford, Conn.

The Pasadena Hospital has received a gift of $5,000 to endow a free bed in the children's ward from Miss Margaret Carnegie, the daughter of Mr. Andrew Carnegie.

The German Baptist Hospital Association of the Two Dakotas was formed at a meeting held at Emery, S. D., recently. The purpose of the association will be the establishment by the Baptist Church of a large hospital to draw from both North and South Dakota. The present hospital at Emery will be purchased by the association.

Professor Magnus-Levy of the University of Berlin will arrive in New York on April 4. He comes to deliver a lecture before the Harvey Society on April 9 at the Academy of Medicine and will also give the course of Cartwright Lectures of the Alumni Association of the College of Physicians and Surgeons. He will be at the Hotel Manhattan for a few days after his arrival in this country.

Charitable Bequests.—By the will of the late Anna D. Evans of Philadelphia the sum of $5,000 is bequeathed to the Germantown Hospital for the endowment of a free bed to be known as the Thomas Walls Evans and Anna D. Evans Memorial. By the will of the late Emma Shive of Philadelphia the sum of $500 is bequeathed to the Methodist Hospital, and a like sum to the Philadelphia Home for Incurables. By the will of the late Martha A. Hance of Philadelphia the sum of $1,000 is bequeathed to the Children's Homeopathic Hospital.

The Seventh District Medical Society of Georgia held its semiannual meeting at Dalton, Ga., March 10, 1910. The following officers were elected: *President*, Dr. J. P. Bowdoin of Adairsville; *Vice-President*, Dr. T. S. McLain of Calhoun; *Secretary and Treasurer*, Dr. H. L. Erwin of Dalton.

The Louisville Society of Medicine was incorporated recently in Louisville, Ky. The membership is to be limited to thirty physicians who must be residents of the city.

The Pawtucket (R. I.) Medical Society, at a meeting held March 17, 1910, elected the following officers: *President*, Dr. Byron U. Richards; *Vice-President*, Dr. A. R. V. Fenwick; *Secretary*, Dr. Charles H. Holt; *Treasurer*, Dr. M. A. Ford.

Dr. Oliver Morse Dawing.—At a stated meeting of the medical staff of the Long Island State Hospital, held March 22, 1910, the following resolutions were adopted: "*Whereas*, It has pleased an allwise Providence to take from our midst our beloved superintendent, Dr. Oliver Morse Dawing, who passed away after a week's illness of lobar pneumonia on March 15, 1910. *Resolved*, That the medical profession has lost a valued member, the State hospitals an able and efficient superintendent, the members of the staff a valued friend and colleague, and the patients under his supervision a sympathetic friend, whose genial good nature added much to their happiness and the betterment of their condition. *Resolved*, That we desire to express to the family our sincere sympathy in this hour of sad bereavement, and *Resolved*, That a copy of this resolution be sent to the family, also for publication in the medical journals, and that it be filed with the records of this hospital."

Obituary Notes.—Dr. Willis A. Barclift of Hartsells, Ala., died at his home March 14, 1910, aged 57 years, as a result of an operation. He was a graduate of the University of Tennessee in 1878. He was a member of the Morgan County Medical Society and the Medical Association of the State of Alabama.

Dr. Charles B. Richards of Binghamton, N. Y., died in St. Petersburg, Fla., March 6, 1910. He was a graduate of the Cleveland Medical School in 1852.

Dr. Henry D. Rosenberger died at Manheim, Pa., on March 17, at the age of 58 years. He was graduated from Hahnemann Medical College of Philadelphia in the class of 1875.

Dr. Elmer K. Schaub died at Lancaster, Pa., on March 15, at the age of 40 years. He was graduated from the Medico-Chirurgical College in the class of 1902.

Dr. George H. Rodgers of Hammond, N. Y., died February 5, 1910, aged 49 years. He was a graduate of Hamilton College in the class of 1883, and of the University of the City of New York, class of 1888.

Dr. Homer O. Bates of Long Beach, Cal., formerly a practitioner in Chicago, died at Sierra Madre, March 10, 1910, aged 64 years. Dr. Bates was a graduate of the College of Physicians and Surgeons of Keokuk in 1878, and was a member of the Los Angeles County Medical Society, the Medical Society of the State of California, and the American Medical Association. He was the first president of the Long Beach Medical Society.

Dr. George T. Blynd of Berlin, Wis., died March 18, 1910. He was a graduate of the Northwestern University Medical College in 1904.

Dr. Louis Drucklieb of New York died at his home, March 22, 1910, aged 54 years. He was a graduate of the College of Physicians and Surgeons of New York in 1886.

Dr. Raymond B. Harris of Savannah, Ga., died at his home, aged 71 years. He was a graduate of the Savanah Medical College in 1859, a veteran of the Confederate army, and a former State Senator.

Dr. John B. Laidley of Conway, Mass., died at the Franklin County Hospital, on March 18, 1910. He was a graduate of the Long Island College Hospital in 1883.

Dr. Welton O'Bannon of New Madrid, Mo., died at his home March 16, 1910, aged 56 years. Dr. O'Bannon was a graduate of the Medical department of Washington University in 1875. He was a former president of the New Madrid County Medical Society and a member of the Missouri State Medical Association. Dr. O'Bannon was for sixteen years the Mayor of New Madrid.

Dr. John J. Saville of Chicago died in Omaha, March 11, 1910. He was a graduate of the University of Pennsylvania in 1862 and a veteran of the Civil War. For many years Dr. Saville practised in Omaha and at one time was Health Officer of that city.

Dr. James S. Spiller of King William, Va., died at his home March 12, 1910. He was a graduate of the University of Maryland in 1870.

Dr. Ralph M. Cole of South Boston, Mass., died at his home March 12, 1910. He was a graduate of the Harvard Medical School in 1883, and was a member of the South Boston Medical Society, the Suffolk County Medical Society, and the Massachusetts Medical Society.

Dr. Herman M. Sorin of Camden, N. J., died

of penumonia on March 22. He was graduated from Jefferson Medical College in the class of 1904.

Dr. Albert Ellershaw, formerly of Bridgeport, Pa., died at his father's home in Blackpool, England, on March 25, 1910. He was graduated from Jefferson Medical College in the class of 1891, and was a member of the Montgomery County Medical Society and the Medical Society of the State of Pennsylvania.

Dr. Sidney Bishop of Bridgeport died at his home, March 24, 1910, aged 58 years. He was a graduate of the Bellevue Hospital Medical College in 1873, but had never practised his profession.

Correspondence.

DR. MEYER'S CRITICISM OF THE METHOD OF CONTINUOUS INTRATRACHEAL INSUFFLATION.

To the Editor of the Medical Record:

Sir:—When I invited Dr. Meyer to discuss my paper before the Academy of Medicine on our method of intratracheal insufflation, I did it with the full expectation that he would criticise our method adversely. Nevertheless, I was greatly surprised on hearing his discourse and still more so in reading the authentic version of it in the issue of the Medical Record of March 13. The character of Dr. Meyer's criticism and the manner and spirit in which it was presented are a genuine disappointment to me. I would have preferred not to enter into a discussion of this kind of criticism, leaving the fate of our method to the impartial test of men endowed with a judicial spirit. However, Dr. Meyer's standing among surgeons and his creditable work in behalf of intrathoracic surgery in this country make it impossible for me to let his criticism pass unnoticed. In the following lines I intend, therefore, to shed some light on the scientific merits of Dr. Meyer's argumentation.

At the onset I wish to point out the contrast between the two papers. In my paper I reported briefly facts established in a great number of experiments in which the efficiency of a certain principle in artificial respiration was tested in a variety of ways. I did not discuss the practical efficiency of any other method nor did I draw the conclusion that on the strength of our experiments surgeons should apply our method in their operative work on human beings. I only made the suggestion that surgeons who have the opportunity should test this method on animals and then judge for themselves whether and when it may be applied to human surgery. I was entitled, however, to speak with favor of the method since it was already tested by such surgeons as Drs. Carrel and Elsberg, who, on the basis of their own extensive experience, are in full accord with my view of the efficiency of the principle involved. Dr. Meyer did not discuss the paper which I presented, but read a paper which was prepared previous to his hearing of mine and in which he assails our method and "apparatus" in all sorts of ways.

Did Dr. Meyer test our statements and find them to be untrue or find the method to be inefficient? Nothing of the kind! Dr. Meyer's paper, which is even longer than mine, contains practically not a single fact; it consists merely of theoretical arguments which could have been written up by any person who had some fragmentary knowledge of our method from hearsay. Dr. Meyer cannot speak of the demerits of our method from personal experience. He has never tested it personally. He has seen the experiment four times while I carried it out, twice while the experiment was still in a transitional theoretical stage, and twice in its present shape. The experiments came off every time without a hitch. Thus while we offered well-established facts tested and confirmed by unbiased third parties, Dr. Meyer offers an intemperate criticism solely on the basis of general considerations.

Before analyzing the merits of Dr. Meyer's theoretical objections, I may be permitted, for the sake of a better understanding of what is to follow, to restate in a few words the essentials of our method. A rubber tube is introduced into the trachea to the bifurcation and a continuous stream of air is sent through the tube, which continuously returns through the space between the tube and the tracheal wall and escapes through mouth and nose. When the size of the tube is in a certain favorable proportion to the size of the trachea, the life of the animal remains normal, even if the respiratory movements are completely abolished by one method or another. But even when the proportions between the sizes of the tube and trachea are less favorable, the respiratory movements can be completely dispensed with, if the continuous stream is occasionally interrupted. We found, among other points, that while using this method no mucus accumulates in the trachea, that nothing can enter into the trachea from the pharynx, and that no death from ether occurs—all on account of the presence of the continuously returning air stream within the trachea. We shall now take up the adverse criticisms advanced by Dr. Meyer, which extend to a variety of issues—our rights to the method, its name, characteristics, shortcomings, dangers, etc. We shall discuss them one by one—at least most of them.

As to the name, we designated our method as continuous intratracheal insufflation. Dr. Meyer introduces his criticism with the statement that for the "purposes of this (his) paper" he will call it the "blow-pipe method." Why "blow-pipe"? The Century Dictionary has the following: "Blow-pipe—an instrument by which a current of air or gas is driven through the flame of a lamp, candle, or gas jet to direct the flame upon a substance, in order to fuse it, an intense heat being created by the rapid supply of oxygen and the concentration of the flame upon it." Can anyone outside of Dr. Meyer and his advisors see the reasonable connection between a blow-pipe and our method? Besides, Dr. Meyer might have had the courtesy of permitting the parents to name their offspring—even if it be desirable to choke off the life of the latter while it is still in its infancy.

Dr. Meyer begins his attack upon the insufflation method by stating that "Robinson and Kuhn, each separately, but considered in conjunction, certainly have already done what it is proposed to do in the blow-pipe method." Assuming that this statement contains the truth—how does this claim make the insufflation method inefficient? Is Dr Meyer's paper intended to criticise the method or to attack the men who advocate it? As to the truth of Dr. Meyer's assertion, I have to say the following: With reference to Robinson, I have given him in my paper as much credit as is due him. I can only regret that he gave up his investigation in the right direction, to which he was stimulated by a communication of Sollmann on the Hirsch (Volhard) method. I am still more sorry for Dr. Robinson's present inimical attitude towards the insufflation method, as was manifested in his discussion of my paper. As to the possible claims of Kuhn, the differences between the two methods ought to be perfectly clear to anyone who takes the trouble to understand the points at issue. In our method the cutting out of the "dead space" is an essential point; we insist that the tube should reach the bifurcation, that the air stream should be practically continuous, and that there should be a recurrent air stream within the entire length of the trachea. Kuhn's tube avoids the trachea, and the recurrence of the air stream in Kuhn's method occurs already about the level of the soft palate or thereabout. Dr. Meyer's attitude in this matter is rather amusing. On the one hand (p. 484), he claims for Kuhn the priority to the insufflation method, and on the other hand (p. 485) he claims for Kuhn's method the advantage over the "blow-pipe method" because Kuhn's tube stops at the upper end of the trachea!

Here I may conveniently mention Dr. Meyer's criticism of our claim in favor of the administration of ether by the insufflation method. He compares it with the method of "pulmonal anesthesia" of Kuhn and mentions among the drawbacks of that method that it requires a large quantity of ether, and adds: "The same holds good for the blow-pipe method." In the operation mentioned by Dr. Meyer in his paper, which he performed under the "blow-pipe" method, under my supervision, the quantity of ether which was used up amounted to about one-half of that which is usually consumed in operations of similar length—as I was informed by one of Dr. Meyer's assistants. I have already stated in my paper that a great deal less ether is consumed while using the insufflation method than by any other method. The difference between Kuhn's pulmonal anesthesia and the anesthesia by the

insufflation method is also self-evident, because in this method, as we have stated it, the "continuous returning current of air prevents its too great accumulation in the bronchi and alveoli."

In another place Dr. Meyer asks what provisions are there in the "blow-pipe" method for cases in which an overdose of ether was given? We dealt with this point in our paper; but I shall say here again that the insufflation method is better able to cope with such an accident than any other method, inasmuch as immediately on the removal of the ether it sends deeply into the lungs a continuous stream of pure air, thus accelerating the removal of the lingering ether and at the same time administering very efficiently artificial respiration.

One of Dr. Meyer's theoretical objections to the "blow-pipe method" is that the tube will irritate the trachea and "cause secretion of mucus if not capillary hemorrhage." In support of this he cites Kuhn, who found very considerable accumulation of mucus even when the tube was pushed only one inch below the larynx. We have stated in our paper that we have examined the trachea of many dogs in which the insufflation method was employed continuously for hours and always found the mucous membrane to look dry and normal. I may add that in recent studies of poisoning with large doses of morphine, in which cases there is usually a great deal of mucus in the pharynx, larynx, and also in the trachea, the latter was found to be perfectly free from mucus in all cases in which the insufflation method was employed for some time. Dr. Meyer, who has no observations of his own, has no right to doubt our statements, and as to Kuhn's experience, I have again to call to mind the fact that in Kuhn's intubations there was no continuous recurrent stream of air within the trachea to keep it clean. In connection with the point under discussion, I may state here that Dr. Meyer is rather inaccurate in his quotations. He states (p. 487, footnote) that in my paper I reported an experiment in which I "blew finely powdered charcoal into the afferent air and found very little of it in the alveoli, but most of it deposited on the walls of the flue." In Dr. Meyer's language, the flue means here the trachea. The reader, however, will find in my paper in the MEDICAL RECORD (p. 481) that in this experiment most of the powdered charcoal did not settle on the surface of the trachea, but "was returning immediately in a stream through the mouth and nose as through a chimney." The difference between the two versions is here quite essential.*

In his anxiety to prove that there is nothing new in our method, Dr. Meyer devotes quite a good deal of space to a discussion of some factors in the physiology of respiration for the purpose of showing that in the "blow-pipe method" "the breathing is intermittent, it is the spontaneous action of the lung, and the bellows only serves the purpose of delivering enough air to make the lung stay distended with an open thorax," and "consequently the blow-pipe method appears to be a positive differential pressure system." Dr. Meyer's physiological discourse here is not all very clear to me; however, I need not discuss it. Since with the "blow-pipe method," with or without occasional interruptions, curarized animals continue to live in a normal fashion, it is evident that in this method the breathing is not accomplished by "the spontaneous action of the lung," and it is also evident that the blow-pipe method cannot be identical with "the positive differential system" because in the latter "system" curarized animals die within a few minutes.

Dr. Meyer tries next an excursion into the theories of apnea and states that it may well be that the slowing up of the respiration in the blow-pipe method is due "rather to its harmful influence upon the nervous vagus, harmful because the vagus reflexes affect not only the lungs but also the heart. I have no means of knowing what experiments may have been made by Meltzer to elucidate these conditions. Certainly full light upon them is needed for the use of continuous intratracheal insufflation on human beings." Really, Dr. Meyer ought not to be so exacting in his demands upon our method. If he consults the scientific part of the literature on the "classical" method, he will find (see, for instance, H. Brat. Zeitschrift fur experiment Pathol., IV., p. 244), that the "positive differential system" is in regard to apnea in the same "predicament" as the "blow-pipe method." Nevertheless, surgeons applied the method of overpressure to human surgery not only before "full light" was shed upon the problem of apnea, but even before they guessed that its relations to apnea constitute a profound practical problem. Perhaps Dr. Meyer will permit me to have an opinion of my own in this matter. I have dealt with the problems of the relations of the distension of the lungs to inhibition of respiration and to apnea in original investigations (see Du Bois Reymond's *Archiv für Physiologie*, 1892, and *Amer. Jour. of Physiology*, IX., 1903) long before Luciani published his instructive text book. I take, therefore, the liberty of saying that in my opinion the question of the possible relations of apnea to the insufflation method has no bearing upon the question of the applicability of the method to human beings—notwithstanding Dr. Meyer's emphatic opinion to the contrary. Furthermore, regarding the harmfulness "because vagus reflexes affect not only the lungs but also the heart," perhaps Dr. Meyer will recall that it was at an operation with the "classical" method of positive pressure that I noticed the heart rate becoming very slow, on which occasion I suggested the use of atropine—an innocent measure which completely eliminates the reflexes of the cardiac vagus.

The other objections of Dr. Meyer to our method require less extensive discussion. He says by this method cold air is introduced into the lungs. This is very easily remedied, although, as I have stated in my paper, the importance of the factor of temperature is overrated. He says further intubation is a difficult procedure. To hear it coming from a surgeon like Dr. Meyer is a surprise; at any rate, it is easily learned. Dr. Meyer says the method will not remain so simple as it is now. I agree with him. There are men who will add a trifle to any method, and will make a great deal of it and call it their method. As far as the insufflation method is concerned, I have no objection to any "improvements"; we offer only a principle, not an apparatus. It is for the practical men to see that the method should be applied in a most efficient and at the same time in the simplest way possible. However, some men have no confidence in simple methods. Dr. Meyer seems to belong to this class. He tells with all signs of horror that "at Dortmund, Germany, they have tied a cheap galvanized iron funnel over the dog's snout, connected the tube to a source of compressed air, for inspiration, and for expiration they have dropped a piece of rubber tube into a bucket of water. They opened the pleural cavity and the dog lived. Would you take such risks with a patient?" If this method works invariably well, why not? Would the patient be safer if the funnel were made of gold instead of "cheap" galvanized iron?

Dr. Meyer further contends that the classical type of apparatus is all-sufficient, and under certain conditions it is "a great nerve tonic for the surgeon to operate with the apparatus," while the blow-pipe method and apparatus are of course not all-sufficient. I shall not dispute the first claim and I am willing to admit the last-mentioned contention. Surely there will be conditions in which the insufflation method will prove inapplicable. The method will have its indications and contraindications, but the rules for them will be developed on the basis of sound experimental and practical experience, and not merely on the basis of theoretical considerations, especially not on the basis of such theoretical considerations as were offered in Dr. Meyer's paper.

S. J. MELTZER, M.D.
ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.

*Dr. Meyer was inaccurate also in another quotation: On p. 485 I am quoted as having said, twenty years ago, in a discussion, "that with the glottis open, as in intubation, aspiration of foreign matter into the lung was impossible." What I said was that pneumonia, etc., cannot develop while the glottis is open, and not that no aspiration can take place.

THE CURE OF COMMON COLDS AND THE NASAL DOUCHE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In the New York daily papers, March 25, 1910, apropos of a meeting at the New York Academy of Medicine the day before, where the advantages of the nasal douche were much vaunted in the treatment of ordinary colds, there was a full report of the proceedings, but no dissenting voice as to the value of the method. To me, this is very unfortunate, since the use of the nasal douche is not infrequently followed by secondary acute pains in the forehead and ears. These pains may be the forerunner

of an acute median otitis, occasioned by the douche. Again, even if this does not develop, subsequently, and after repeated daily use of the douche with salt and water, hypertrophy of the nasal mucous membrane may develop and lead to unpleasant sequels. Formerly, I insisted upon these facts and do not believe there are sufficient and reliable data to change my views.

Beverley Robinson, M.D.

New York.

SPONDYLOTHERAPY IN PERTUSSIS.

To the Editor of the Medical Record:

Sir:—The following simple method has arrested the paroxysms of whooping-cough in a number of patients in from three to seven days: Place a plexímeter upon the spinous process of the seventh cervical vertebra, and strike the plexímeter a series of moderate blows with a percussion-hammer. The number of blows is of little moment, but the blows must be as strong as the child can tolerate without flinching. Some of the mothers accompany the blows with a nursery rhyme or song to interest the child. In the absence of a plexímeter and percussion-hammer, a strip of linoleum and a tack-hammer will suffice. To avoid cutaneous irritation, cotton may be interposed between the plexímeter or the linoleum and the spine. Each seance during the interparoxysmal period should last five minutes thrice daily, and the harmless method may be executed by the mother or nurse. I am desirous of collecting reports on this method of treatment from my colleagues, and to test the efficiency of the treatment it would be well to note the number and severity of the paroxysms before and after treatment in each patient. I shall explain the rationale of the method in a contemplated contribution, and will appreciate any reports sent to me. This method has also succeeded in some cases of laryngismus stridulus.

Albert Abrams, M.D.

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OUR LONDON LETTER.

(From Our Regular Correspondent.)

SLEEPING SICKNESS, SIR D. BRUCE'S RETURN—COUNCIL FOR SOCIAL WELFARE—MILROY LECTURES—INEBRIATES, REPORT FOR 1908—SOCIETIES, VARIOUS—LIVERPOOL INSTITUTION'S GOOD FORTUNE—RED CROSS—OBITUARY.

London, March 11, 1910.

Colonel Sir David Bruce has returned to England on the conclusion of the scientific investigation on sleeping sickness entrusted to his leadership by the Government and the Royal Society. He left for Africa in September, 1908, accompanied by Lady Bruce, who, as on his previous missions, has actively assisted her husband throughout and taken her regular turn in the laboratory work. Mpunu, a desolate spot six miles north of Victoria Nyanza, was the headquarters of the mission, and about the same distance was a concentration and isolation camp where hundreds of victims of the disease were taken to end their days under the care of a Colonial medical officer. In the neighborhood of the headquarters there were at one time fifty churches, but all have been closed, except one, on account of the ravages of the disease.

When Bruce's mission started it was generally believed that the *Glossina palpalis* was infective for only about forty-eight hours. This view has had to be abandoned since Dr. Klein's work in German East Africa. The bearing of this on the plan of removing the inhabitants of fly areas is obvious, as it was supposed that the people could, after a short time, safely return. But that period must be extended for several months at least—at present it is impossible to say how long. The experiments of the commission to determine the period of infectiveness have not decided the point. They collected flies from the lake shore daily, and, so far, all were found infective. Other collections must be made in the zones which have been cleared of population, among which may be named islands in the northern part of Lake Victoria—once densely populated, *e.g.* one island had only 4,000 natives left out of 22,000 formerly living there. This remnant has been removed; other places show equal ravages, and the same measures have been taken. Important work has also been done in tracing the development of the parasite in the glossina.

In the Belgian Congo I hear that there has been a recrudescence of sleeping sickness, which, it was hoped, was becoming less prevalent. The fall in the number of deaths was evidently due to the reduction of the population. During the last decade the native adult population of Kisanto has decreased by 85 per cent. In some villages the children are being attacked to the extent of 25 per cent. The natives are said to be afraid of the treatment by atoxyl, which has been given in some cases until toxic symptoms appeared.

A Council of Social Welfare has been established for London. Such an organization was proposed by the Lord Mayor and the chairman of the County Council some time ago and was formally set up at a crowded and representative meeting on Friday last at the Mansion House. Representatives of nearly all the charitable and philanthropic institutions were present and a large Provisional Council was unanimously appointed. The objects are to strengthen and secure cooperation between social and charitable undertakings throughout the metropolis and to promote the adoption of general principles for this object; to bring into close relations public departments, local authorities, and societies engaged in social service, and to establish councils for these purposes in all the London boroughs. The Charity Organization Society is for the present outside the movement, but hopes were expressed that eventually it would join the new and broader association. Cooperation, coordination, prevention of overlapping are the advantages predicted for this attempt to combine charitable institutions, State aid as recommended by the Poor Law Commission, and every possible mode of alleviating want and distress. It certainly ought to be possible to obtain better results from the seven millions a year spent between the charities and the Poor Law.

Dr. Foulerton, the Milroy lecturer, this year has devoted his course to the streptotrichoses and tuberculosis, a subject on which he has been engaged in the laboratories of the Middlesex Hospital. The investigations there made leave little doubt that cases of streptotrichosis infection are of more frequent occurrence than clinical records suggest, and this apart from cases recognized as tuberculous. Cases are easily overlooked, for although some exhibit clinical peculiarities these are seldom sufficient to determine a definite diagnosis without bacteriological examination. The lecturer's work and that of others in the same direction lead to the recognition of a generic affinity between this class of infections and those passing under the name of tuberculosis. Further comparison of streptothrix organisms and different strains of the parasite of tuberculosis confirm the opinion of those early pathologists who soon after Koch's discovery maintained that his tubercle bacillus was not a fission fungus, but belonged to a higher group of mould fungi. Dr. Foulerton submitted two propositions: (1) That under the name of tuberculosis are commonly included infections caused by more than one species of parasite; (2) that the parasites, generally reported to be bacilli, which are the cause of tuberculosis, belong in reality to a higher group of organisms, and should, as streptothricheæ, be included with the hyphomycetes, or mould fungi. The lecturer pointed out the confusion arising from the various names given to these parasites. In the United States and this country the term streptotrichosis has generally been adopted, though continental pathologists adhere mostly to the older term, actinomycosis. Some writers have referred to these absolutely synonymous terms as if they were of different meaning. In fact, no less than five names have at different times been applied to these parasites.

The position of these organisms in botanical classification, their morphology, and method of reproduction was duly considered in view of the lecturer's purpose to show that the tubercle bacillus has been erroneously placed among bacteria or fission fungi, but its correct position as a streptothrix is among mould fungi.

After referring to saprophytic species, those streptotricheæ which are parasitic and pathogenic for higher plants and animals lower than man were considered. The range of distribution is very great and in passing to the higher animals the fact that most of those known to suffer from the infection are domesticated and herbivorous suggests grain or herbage as the probable habitat of the pathogenic organism.

The report for 1908 of the inspector (Mr. Branthwaite) under the Inebriates Act has appeared as a Parliamentary paper. In a retrospect of the efforts made to suppress habitual drunkenness he has to admit that little if any advance has been made, notwithstanding improvement in the drinking habits of the nation

in general. It is the occasional excess of the man who is usually sober that has become less common, as it is the reverse of fashionable. Capable, thinking men have become more moderate, but there is reason to believe that the "thoughtless incapable who is an habitual drunkard has remained practically unaffected." The mortality of the children of drunkards continues to offer its terrible warning—46.5 per cent. among those of the married and over 59 per cent. of those of unmarried women.

Nothing can be done in these days without an association to promote the object—whether good or bad. Hence some very curious societies are fighting for fads. There is one to prevent premature burial, which inculcates absurd stories of the creepy kind, to the terror of a few ignorant persons. The annual meeting was held on the 24th ult. and to the surprise of most medical men Sir Walter Foster was in the chair.

Another society is devoted to eugenics, which is said to include everything calculated to improve the race. Its members profess to be seriously scientific and its chief object is to instruct the coming generation—the elders being apparently hopeless—by lectures, etc. Mr. Bernard Shaw lately delivered himself on the subject in his usual way. It was amusing enough to hear him poke fun at himself and others. It is otherwise when a serious lecturer addresses young women in a college on the duty of marrying early and choosing partners after the manner of stock breeders.

There are also noisy societies supported by anti-vaccination and antivivisection fanatics. To the latter we are indebted for disturbances caused on several occasions by the fatal gift of the memorial to the brown dog, accepted by the Battersea Borough Council, which has had to be protected by special police. The council on Wednesday determined to remove it and yesterday morning it had disappeared. But the antis seem to have heard of what was to be done and obtained an injunction in chancery extending until to-day. How soon it was served I cannot find out to-day, but it will certainly be a curious position between the council and chancery.

To oppose fanatics the Research Defense Society was formed. The Earl of Cromer is president, and at a meeting a week ago he made an eloquent speech on the right of experimentation. He declared that experimentors were in reality the true humanitarians—not their opponents. He was convinced that every important addition to medical knowledge of late years was due to that method of investigation. Research was precluded from making experiments on living men and therefore claimed the right and duty to do so on living animals. That right seemed to him to be in absolute accordance with the constitution of the world, and, he dared to say, with what one could read, of the divine will.

Mr. W. H. Lever, who was elected in January to succeed the late Sir A. Jones as chairman of the Liverpool Tropical School, has announced the damages awarded to his firm for libel by the Daily Mail and allied papers, amounting to £91,000, will be devoted to the university, the tropical school, and other important public services in Liverpool, and thus show that the motive of the actions was not revenge, but only to defend the firm's rights. The university will be the chief beneficiary.

Yesterday, at a meeting convened by the Lady Mayoress at the Mansion House, a city branch of the Red Cross Society was formed. Sir F. Treves said this country ought to stand at the head of the world in the Red Cross movement, and the Lord Mayor said he hoped the city would have the finest branch of the society. Another branch is to be established in Kensington and a third in Marylebone.

Lieutenant-Colonel J. P. H. Boileau, late of the Army Medical Staff, died on March 4, aged 68. From 1876 to 1883 he was assistant professor of pathology in the Army Medical School, Netley. From 1890 to 1895 he was in charge of the hospital station at Meerut. He retired in 1896. He was M.A. and M.D., T.C.D., as well as F.R.C.S.I., and took the first place in the examination for the diploma in State medicine. He wrote on a number of subjects in the Army Medical Reports.

The death has occurred of Dr. James Rutherford of Dumfries, the eminent psychologist, who was for a quarter of a century medical superintendent of the Crichton Royal Institution. He graduated at Edinburgh in 1863. He was editor and joint translator of Griesinger's Manual of Mental Diseases.

The death took place on Sunday of Dr. G. A. Kenyon, one of the best-known sanitarians. He was medical officer of health to nine local authorities and controlled a considerable area of his county (Cheshire). He took M.B. Lond. with first class honors in 1868.

Dr. John Horne, J.P., died on March 4 at Scarborough, where he had spent fifty years out of the seventy-six to which he attained and where he had held office in the medical charities for much of the time. Last year he founded the "John Horne Homes" for the aged of the town.

Progress of Medical Science.

Boston Medical and Surgical Journal, March 17, 1910.

The Responsibility of the General Practitioner and the Specialist in the Prevention of Deafness.—Francis Patten Emerson goes over some points in the anatomy of the nasopharynx and says that the preservation of hearing as an economic factor can be estimated when we consider that approximately one in every ten persons has normal hearing. He believes that the time is near when all children at stated periods of life will be examined for the prevention of deafness. A large proportion of deafness dates back to the first years of life, at a time when the general practitioner is usually in close touch with the family and could do much to teach them the early symptoms of middle ear involvement and its consequences if neglected. The public should be educated to understand that an earache is not due to neuralgia, teething, worms, or any other indefinite cause, but is a congestion of the middle ear, which needs careful attention. If suppuration has occurred, it is not enough to stop the discharge, but the original cause must be removed, the swelling about the Eustachian tube reduced, and the rhinitis cured. One of the first steps in the prevention of otitis media is a consideration of the problems connected with lymphoid development. Drs. McCollom and Borden of Boston have shown that the middle ear is involved in 10 to 15 per cent. of the cases of scarlet fever; in measles, 18 to 30 per cent., and in diphtheria, 1 to 5 per cent. This is probably high for private practice. In measles and scarlet fever the infection is most active and attended by serious consequences to the hearing function. A discharge from the ear is always a serious matter; some of these ears really never stop discharging. In adults the hearing function is often seriously impaired by the action of certain drugs, notably quinine and salicylic acid. Cryptic disease of the tonsils often has a harmful influence upon the middle ear. This should lead to a careful examination for cryptic disease of the tonsils in all cases in which the serous membranes of the heart, pleura, and joints are affected as well as in such indefinite troubles as rheumatism. No review of the field that does not take into consideration the influence of the kidney, heart, arteriosclerosis, general metabolism, and in fact every organ of the body would be worthy of the science of otology as it is now understood. The aurist must be a practical rhinologist. Otology advances by the help of every worker in general medicine and the allied sciences. The otologist will be fully occupied with the perfection of new operations and many of the procedures now within his domain will become the ordinary routine of the progressive general practitioner.

The Transplantation of Cartilage in the Correction of Deformities of the Nose.—D. Crosby Greene, after reviewing the work done in cartilage transplantation, relates his experience with two cases in which the deformity was the result of undrained abscess of the septum with almost complete destruction of the quadrangular cartilage. An examination of the anatomy of the septum will show approximately the size and shape of the piece to be inserted. A vertical incision was made in one nostril on the septum just posterior to the mucocutaneous junction, as in the usual submucous operation. Through this incision the two layers of mucous membrane which form the anterior part of the septum are separated by dissection. A sharp tenotome used with great care is necessary to avoid perforation. The membranous septum having been separated in the region in front as well as behind, the chamber for the reception of the cartilage is ready. A piece of cartilage which has been freshly removed from another case, washed and placed in sterile normal salt solution, is trimmed to the required shape and placed in the chamber. The wound is closed at its upper part by one or two catgut sutures and both nostrils are lightly packed. In both cases in which Dr. Greene performed this operation there was slight reaction, and the wound healed readily. The profile of the first patient who was operated upon two years ago was greatly improved, but the cartilage had in the

interval been apparently absorbed since it could not be felt. In the second case which had been operated upon two months ago the cartilage had not yet been absorbed. These cases demonstrate that cartilage can be transplanted in cases of destruction of the cartilaginous septum. Although the cartilage may become absorbed it has at least in children the advantage of preventing an increase of the deformity, which, if untreated, becomes more marked with age.

New York Medical Journal, March 19, 1910.

Tuberculosis and Its Treatment by the Administration of Mercury.—Barton Lisle Wright presents certain facts to show that tuberculosis is primarily a systemic infection, a bacteriemia, but never a local condition under any circumstances. Therefore, the terms pulmonary tuberculosis, or tuberculosis of any organ or tissue, are misnomers and are fundamentally wrong, because they are applied to diseases which do not exist themselves, but are only local pathological exhibitions of a constitutional or general systemic infection. Since February, 1908, he has advocated the treatment of this disease by deep muscular injections of mercury. He begins with 1-15 grain of mercury succinimide; gives injections every other day; slowly increases this dose until a slight tenderness of the gums or a slight diarrhea is produced, then reduces the dose until these symptoms are overcome, and continues the injections until thirty are given. Then a rest for two weeks is given, and the treatment repeated. Each series of injections consists of thirty, with two weeks of rest intervening. At the end of one year's treatment a rest of from two or three months should be given when, if the patient is not cured, treatment should be resumed. Patients do better when arsenic is added to the mercury. Good results from this method of treatment have been obtained irrespective of what organ or tissue has shown local involvement. Of the 83 cases treated by this method during the year 1908, 89 per cent. were improved, seven of whom were cured.

The Value and Proper Method of Performance of Auscultatory Percussion of the Heart.—William F. Milroy is firmly convinced that in auscultatory percussion, as he described it, we have a method of ascertaining the outlines of the heart that is superior to all the other expedients recommended for accomplishing that end. The method is summarized as follows: First, place the stethoscope in such a position that it does not rest upon a rib percussed. Second, let the pleximeter finger follow an intercostal space. Third, let the pleximeter finger make uniform pressure at each point where percussion is made, and fourth, to that end and also to abolish the effect of the cushion of adipose tissue in fat subjects, let this pressure be firm so that both ribs bounding the space percussed shall be distinctly felt by the pleximeter finger. Fifth, let the percussion stroke be of very moderate intensity. Sixth, regard the point at which the first appreciable change in the character of the percussion sound is observed as representing the location of the heart. The following conditions may stand in the way of success: Advanced emphysema; extreme ossification of the costal cartilages; a voluminous female breast; a severe acute emphysema; extensive fibrosis of the lungs, pleura, and pericardium; pneumothorax; extensive serous or purulent effusion into the chest cavity; extreme gaseous distension of the stomach.

Plastic Induration of the Corpus Cavernosum.—H. J. Whitacre says that plastic induration is a progressive, painless, connective tissue thickening in the fibrous tissue sheath of the corpus cavernosum which appears in men over fifty years of age and is not the result of local disease in the penis. Two cases of this sort presented themselves to him within the past year, and his failure to contribute greatly to their relief has led him to seek for further information; the literature on the subject furnishes little hope for such cases. The most important symptoms are presented in erection, when a great variety of shapes are possible, often making coitus impossible. The nervous symptoms are quite marked, and suicide may result. No cause is known for the development of this lesion. Therapeutic medication has given no results.

A Case Illustrating the Arrest of Early Paresis.—This case is reported by Tom A. Williams. The fatality of dementia paralytica progressiva is regarded as one of the essentials of the disease and, in the case he reports, certain lessons are drawn; the main one is the necessity of early diagnosis. In this case this was possible through the psychometric examination of the mental functions. Another lesson conveyed by the case is the need of regulation of metabolism during a mercurial course. A third lesson formulated by the case is the need for careful choice of the manner in which mercury should be administered. The drug should be given in injection or inunction. Antispecifics uniformly failed to arrest this disease, he believes, because not sufficient attention has been paid to three causes of failure, viz., too late diagnosis, improper remedies and mode of administration, and lack of attention to the details of bodily and mental hygiene.

Journal of the American Medical Association, March 19, 1910.

Tabes and Iritis.—E. F. Snydacker says that it has been a constant surprise to him that in his experience he has never found traces of former eye symptoms in tabetics. It was only after searching the literature and finding that the same coincidence had been noted by Wernicke in regard to tabes and by Wintersteiner in regard to paresis, that he began to attribute special significance to the fact. He quotes Wintersteiner at some length and mentions his hypothesis that when the ectodermic structures are attacked with predilection by the syphilitic virus the cerebrospinal system is most likely to suffer, but when the mesodermic structures bear the brunt of the attack the iris and choroid are involved and the nervous system escapes. This seems to him hardly a rational theory, and he offers, as better fitting to the case, one based on Ehrlich's theory of the antibodies. If we think of tabes and paresis as due, not to direct syphilitic insult, but rather to the destructive action of antibodies on cord and brain, and if we consider that where antibodies are present in large numbers the likelihood of tabes and paresis is much increased, then, he thinks, the antagonism between tabes and iritis becomes less mysterious. When secondary symptoms are severe, antibodies are largely absent, and iritis is essentially a secondary of syphilis. When, however, the secondary symptoms are kept in check by the antibodies there is imminent danger of later brain disease. It is a recognized fact that tabes, and especially paresis, occur most commonly when there has been little effective treatment used and when there is a lack of secondary symptoms. Many tabetics and paretics deny syphilis, perhaps not even knowing they have had it. As a practical conclusion from the facts, he thinks that we can encourage a syphilitic who has had iritis by telling him that there is a fair probability that he will never have tabes or paresis. The number of cases thus far observed is too small to say positively that a syphilitic who has suffered from iritis or choroiditis will escape tabes, but if future observations corroborate those already made, it will have an important influence on prognosis.

Suppurative Peritonitis.—J. E. Allaben advises for the treatment of suppurative peritonitis the putting and keeping of the patient in the Fowler position, colonic irrigation by way of the cecum, and drainage of the peritoneal cavity. Pus does not itself absorb except under pressure, and in the peritoneal cavity absorption occurs mainly or almost wholly by the peritoneum of the diaphragm which is largely avoided by the above measures. He has employed this method in two cases, one of acute perforating gastric ulcer in which the patient made a good recovery, and the other a case of acute perforating gangrenous appendicitis in which the patient died five weeks after the operation from multiple abscess of the liver due to pylephlebitis involving the ileocecal and portal veins. In neither case was there any attempt on the part of the peritoneum to limit the spread of the infection. The peritonitis in both cases disappeared rapidly after appendicostomy or cecostomy and the above-mentioned measures, though in the one case the pelvis and lower abdomen were full of pus and gastric contents and in the other there was free pus in the abdomen and the cecum had apparently a lowered vitality. The disadvantages of the treatment are given by him as possible leakage of physiological salt solution and feces into the peritoneal cavity, complications from a fixed position of the cecum, and the danger of persistent fecal fistula. As a precaution against leakage he uses a fine catgut suture passed through the serous and muscular coat of the cecum and appendix stump and through the wall of the catheter. The second objection he thinks can be rarely realized, but the fear of a persistent fecal fistula has a more rational foundation. Where the stump of the appendix can be utilized the danger he thinks is less than in cecostomy. With greater experience, he thinks, and with the resulting improved technique, this danger will become less probable. The advantages of the operation are summed up as follows: "1. Large quantities of hot normal salt solution may be rapidly introduced into the circulation, immediately after operation, overcoming shock, quenching thirst, and eliminating toxins. 2. The solution is brought immediately into contact with the portion of the alimentary canal most favorably for absorption. 3. Intestinal paresis due to retention of gases

is avoided and early normal evacuation of the bowels is favored. 4. Early relief of toxemia is secured by drainage through the catheter of bacteria-laden feces. 5 The unpleasant and uncertain features of proctoclysis are eliminated, and predigested foods may be administered in definite quantities."

Cranial Flaps.—A. Werelius and J. J. Moorhead have experimented to ascertain whether or not extensive central flaps for wide exposure of brain can be made with safety, using African rhesus monkeys for the purpose. Very large flaps were cut, including almost the entire cranial vault. In each case the wounds healed primarily and the animals appeared as well as ever. Three experiments of this kind were performed, a small number, but sufficient to demonstrate that large cranial flaps can be made on healthy monkeys without serious danger, and the same would probably be found to be the case in man.

Ether in Cocaine Poisoning.—J. E. Engstadt says that he has had considerable experience with cases of cocaine poisoning, occurring largely in the hands of dentists. In the first few cases he was called on to treat, strychnine and morphine were used in combination, with marked benefit. As cases kept multiplying, however, he found the action of these drugs too slow and it was necessary to find something that would counteract the poison more rapidly when life was in danger. He found this drug in ether administered as ordinarily to produce surgical narcosis. While cocaine inhibits the action of the heart, especially on the right side, and affects also the superior respiratory centers, ether properly given has the opposite effect and has saved what seemed to him hopeless cases. To get the best results it is administered only to the degree of mild surgical narcosis, or even less. Given by the old way it would do harm. A mask should be employed and the ether given by the drop method. This he thinks is all important. It occurs to him that this fact will be of use to others and, just at present since there is so much interest in the work of Jonnesco with stovaine which has a similar effect to that of cocaine, he offers the suggestion of ether as an antidote to this drug also.

The Dyspeptic Type of Chronic Appendicitis.—C. Graham and D. Guthrie have studied that form of chronic appendicitis in which dyspeptic symptoms predominate. They have reviewed carefully the histories of about 200 patients and compared them with histories of ulcer of the stomach and duodenum and gall-bladder disease. Chronic gastric ulcer has a clear cut symptomatology with history usually covering years of complaint in which periods of attack and periods of freedom from symptoms alternate. In the early stages the appetite remains good, nutrition does not fail, and taking food brings immediate relief from all symptoms which again recur about four hours after the meal. Later, the periods become shorter and the nutrition suffers and after complications arise the symptoms change, food may not ease but may increase the distress which is more or less continuous, vomiting is perhaps less frequent but more copious and gives only partial relief and appetite and nutrition fail. Throughout the longer period of the disease, however, the characteristic regularity of the attack is hardly equaled by any other disorder. Gall-bladder diseases have their special symptoms. Four stages are distinguished, based on the degree of their severity. In the very mildest cases there are only slight attacks of distress soon after eating or at irregular times with relief by slight vomitings, eructations, etc., which are often made light of by the patient and sometimes by the physician, though they are just as characteristic as the severer attacks which, as a rule, supplant them. In the second stage, the symptoms are more severe, and the pain may be increased by food, exertion, motion, or deep respiration. When the pain is felt posteriorly it may be called pleurisy. Between the attacks, the health may be apparently excellent. The irregularity of these attacks contrast with those of ulcer. In the third class we find those in which a corrective diagnosis is oftenest made, and surgery is most effective. These are the typical gallstone attacks. The fourth condition is that of chronic gall-bladder trouble, and often chronic gastric disturbances predominate, giving a very similar picture to that of chronic ulcer with complications. The principal thing, however, is to recognize when surgery is necessary. The diagnosis of an abdominal lesion needing surgery is sufficient. In chronic appendicitis in which gastric symptoms predominate, we find a neurotic element in many cases. The patients are usually younger than those with chronic ulcer or gall-bladder disease. The symptoms are irregular as compared with chronic ulcer and prolonged when compared with gall-bladder trouble. The pain is the great symptom; during an attack it often appears after eating. Nausea, distress, flatulence, and a feeling of distension cover the sensations of far more patients with appendicitis than those with ulcer or gall-bladder disease. Location has some bearing, though in all three conditions it may be only epigastric. Here, however, it is often indefinitely epigastric and abdominal. A tender area is often found at McBurney's point, though not complained of subjectively. Food gives no relief, and anything taken into the stomach usually causes more or less distress. The authors consider the common "belly ache" of children as typical appendicitis and a forerunner of later dyspeptic types. Constipation is one of the early symptoms and may be the only one for a considerable period, and discomfort from gas makes more of the general trouble than it does in ulcer, and is referred to by the patient as abdominal largely and is relieved by expulsion. The treatment will hardly bear discussion. In ulcer we have medical cases in the majority, and in gall-bladder disease we may be justified in advising medical treatment, but any advice other than that of recourse to surgery is out of place in chronic appendicitis. In many cases, one can only say that there is a serious trouble in the abdomen, and, if the upper abdomen is found normal on operation, look for the appendicitis.

Berliner klinische Wochenschrift, February 28, 1910.

Senile Phthisis.—R. Staehelin under this name refers to the cases of old people with progressive emaciation and asthenia and without fever, who after having been considered to have died of an internal carcinoma, are found at post-mortem examination to have been the victims of tuberculosis. The diagnosis of such cases is difficult and depends upon the following points: (1) In all cases of chronic disease in old people with subfebrile or even subnormal temperature which do not follow any definite type, one should consider the possibility of tuberculosis. (2) Delay of expansion of one-half of the thorax, even to a very slight extent, indicates the necessity of a very careful examination of the lungs for tuberculosis. (3) Percussion must be by a gentle blow with the finger lying lightly on the thorax, as by this means slight differences of tone are better brought out. (4) On auscultation the patient must be made to breathe deeply and cough loudly, as only by these means may the râles be heard. (5) On suspicion of phthisis an *x*-ray examination of the chest should be made, preferably by means of a plate. In old people especially distinct pictures may often be obtained. (6) Examination of the sputum must be made with much greater care than in younger patients, as in the aged the tubercle bacilli are at times found only with great difficulty. In these cases of senile phthisis it is not necessary to tell the patient the nature of the disease. His relatives should, however, in all cases be informed fully as to the nature of the disease, so that all the necessary precautions which it is customary to take against possible infection of others in the family may be observed.

False Dullness at the Right Apex.—H. J. Bing discusses the cause of this symptom at some length. He summarizes his results as follows: "With marked enlargement of the bronchial glands a false dullness appears at the right apex, weakest internally and more marked outwards. This may be differentiated easily from true dullness (infiltration or retraction) by its position and by means of sagittal percussion, as well as by the accompanying dullness over the chest and back. The dullness at the right apex which one may meet associated with diseases of the nasopharynx, which was first described by Krönig, and which he thought was due to collapse of the lung, is in reality due chiefly, if not wholly, to enlargement of the bronchial glands.

The Treatment of Prostatic Hypertrophy.—Willi Hirt says that he treats the irritative stage of prostatic hypertrophy by the passage of sounds, baths, hot enemata, and diet. Chronic incomplete and complete retention, total acute retention and hematuria, he treats first with aseptic catheterization and bladder lavage. In long standing and severe cases he inserts a permanent catheter. If operation is desired or necessary, the choice according to the severity is resection of the vasa deferentia. Bottini's operation, perineal and suprapubic prostatectomy. Considering the final results, the perineal operation gives better hope of recovery than the suprapubic. The resection of the vasa deferentia is especially indicated in the generally enlarged, soft glands. The Bottini and suprapubic operations are indicated in the cases in which the enlarged middle lobe extends back into the bladder; perineal prostatectomy is of value where the enlarged lateral lobes extend back toward the rectum.

Book Reviews.

Studies in Rabies. Collected writings of Nathaniel Garland Keirle, A.M., M.D., D.Sc. With an Introduction by William H. Welch and a Biographical Sketch by Harry Friedenwald. Testimonial Edition. Baltimore: 1909.

Aside from its personal and scientific aspects this book is chiefly valuable because it contains incontrovertible proof that rabies is a distinct disease and not a mere figment of the imagination, as so many lay persons and a few medical men have the foolhardiness to assert. The existence of rabies is determined mostly by inoculation; for neither the macroscopic nor microscopic appearances are distinctive. The suspected animal should not be killed but confined for something more than 14 days, and allowed to die naturally in order to secure the best evidence possible from brain and spinal cord. In human beings the incubation period is from fourteen days to five years. Any wound supposedly rabic in nature should be treated as follows: Soak in water as hot as can be borne till the doctor comes, who will continue with hot bichloride of mercury 1-1000. Then dry thoroughly. Pack the wound with cotton wool, saturated with carbolic acid. Pack again with cotton wool in nitric acid—a puff of an explosion occurs. Wash with a saturated solution of sodium bicarbonate. Wash with alcohol. Dress dry. This method prevents 50 per cent. of all cases from developing. It should be followed in all strongly suspected cases by antic-rabic injections made from the dried medulla of rabbits. Thus "a greater percentage of those exposed to hydrophobia are prevented by the Pasteur method than by those exposed to smallpox by the Jenner method." The present volume is a valuable addition to the literature of rabies, and brings this subject thoroughly up to date.

Pratique de la Chirurgie Antiseptique. Leçons professées à l'Hôtel-Dieu, par le Docteur J. Lucas-Championnière. Paris: G. Steinheil, Éditeur, 1909.

The author of this book relies rather on antisepsis than asepsis in his surgical work. He claims a wide experience with both methods and cites some extraordinary statistics. He has practised articular surgery, including resection of the knee for many years, and has never seen a case of sepsis. He has sutured the patella "oftener than any other surgeon in the world" and does not take any of the precautions recommended by aseptic surgeons. In 1,135 hernias, inguinal and femoral, he has had only four deaths—two from "pulmonary congestion," one from strangulation, and one from chloroform. To accomplish these ends he uses carbolic acid, hydrogen peroxide, chloride of zinc, boric acid, iodoform, salicylic acid, etc., in fairly strong solutions. In the treatment of miscarriage he permits no lavage before, during, or after the operation. A speculum is introduced, the vagina is sponged carefully with a strong carbolic solution, followed by peroxide of 12-volume strength, the index finger is introduced into the cervix, pressure being exerted with the other hand upon the fundus and the secundines are scraped away with the nail. The fundus is then sponged with a solution of creosote in glycerin, 1 to 10 or 1 to 15. Ordinarily no gauze or other dressing is left in the vagina. Much of the technique the author describes will not appeal to American surgeons.

Ueber die Lage des Wurmfortsatzes. Von Rhaban Liertz, Unterartzt beim 6ten Rheinischen Infantrie-Regiment no. 68, Kommandiert zur Kgl. Charite. Berlin: Verlag von August Hirschwald, 1909.

A very interesting, if not entirely original, exposition of this important subject is presented by the writer in a rather brief but well written monograph. The numerous statistical inquiries on the position of the vermiform appendix in the abdominal cavity have been criticised as being comparatively worthless because they were based on studies on the cadaver, whereas the organ in life is very freely movable. For this reason the present writer based his statistical conclusions on operative findings as well as on autopsy examinations. These include observations on over two thousand cases in a number of hospitals and pathological laboratories. His first series of 97 cases includes examinations on fetuses and young children and presents what is probably one of the most interesting points in the entire monograph, namely that the position of the appendix remains under normal physiological conditions, the same in later life as it was at the conclusion of the embryonal period. At this time the bases for subsequent anomalies of position are determined, such as abnormalities of growth and relation between the adjacent structures, among them the intestine and mesentery. Anomalies of position which occur at a later period are entirely the product of pathological processes depending on an inflammatory or traumatic basis. The writer also investigated the relative importance of McBurney's compared with Lanz's point as a clinical factor in determining the anatomical origin of the appendix and found from an examination of eighty-five fresh bodies that a long needle introduced at the former struck the base of the appendix in only six per cent. of the cases, whereas at Lanz's point eighty-one were reached.

Die Methodische Intestinalpalpation mittels der topographischen Gleit- und Tiefenpalpation und ihre Ergebnisse. Mit Einschluss der Ileocœcalgegend und mit Berücksichtigung der Lageanomalien des Darmes. Von Dr. Theodor Hausmann (Orel). Mit neun Abbildungen im Text und zwei Tafeln. Berlin: Verlag von S. Karger, 1910.

This book describes a method of palpation by which, according to the author, the examining physician is enabled to feel and recognize the parts of the gastrointestinal canal in normal health. The method is founded upon the technique originated by Obrastzoff, a noted Russian surgeon of the last century. Obrastzoff's technique consists in laying the hand upon the abdomen with the fingers at right angles to the part of the intestinal canal to be palpated, and then moving the hand and the skin with it over the underlying structures. The latter then are felt as transverse cords of various size and consistency. The merit of the method can, of course, be judged only by trial and the directions of the book are plain and explicit enough to enable anyone interested in the subject to try the method in practice.

Formulaire Moderne. Traitements, Ordonnances, Médicaments Nouveaux. Par le Docteur R. Vaugaire. Préface de M. le Docteur Talamon., Médecin des Hôpitaux de Paris. Cinquième Edition, revue, corrigée et très augmentée conforme au nouveau Codex. Paris: Vigot Frères, 1910.

The fifth edition of Dr. Vaugaire's formulary consists of an alphabetically arranged list of diseases with the prescriptions and mechanical and surgical procedures, used in the treatment of each affection. The remedies named are not limited to the official preparations, but include such proprietary or patent articles as have been found of use by the author or have been tried and approved by hospitals. The book should prove of interest to American therapeutists desiring to compare their methods of treatment with those in vogue in France. It is well printed and bound, and forms a handy volume for reference.

A Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Textbook specially adapted for Students of Medicine, Pharmacy, and Dentistry. By W. Simon, Ph.D., M.D., Professor of Chemistry in the College of Physicians and Surgeons, Baltimore, and in the Baltimore College of Dental Surgery; Emeritus Professor in the Maryland College of Pharmacy; and Daniel Base, Ph.D., Professor of Chemistry in the Maryland College of Pharmacy. New (ninth) edition, enlarged and thoroughly revised. Philadelphia and New York: Lea & Febiger, 1909.

The ninth edition of Dr. Simon's book follows in plan and general characteristics the former editions of this treatise which has been one of the most popular textbooks of chemistry for dental and medical students. The book is divided into seven parts, chemical physics and the general principles of chemistry being considered first; in these chapters additions have been made, electrolysis, ionic theory, and the physical principles of matter being considered from the most modern standpoint. The next two divisions are given up to a consideration of metals, non-metals, and their compounds. The fifth part is given up to analytical chemistry and furnishes a practical guide in laboratory work. Carbon compounds are considered in the sixth part of the book, bodies of importance to medical science being especially noted. The last part of the book is concerned with physiological chemistry and gives in brief the methods used in the clinical study of excretions and secretions of the human body. The book is well illustrated, colored plates showing color reactions, spectroscopic pictures, etc., being especially well executed. A full index accompanies the volume. We willingly recommend the volume as a suitable text-book for students of medicine and dentistry; graduate members of the two professions will also find it of use in brushing up their knowledge of the important subject with which it deals.

Surgical Diagnosis. By Daniel N. Eisendrath, M.D., Professor of Surgery in the medical department of the University of Illinois (College of Physicians and Surgeons). Second Revised Edition; with 574 original illustrations, 25 in colors. Philadelphia and London: W. B. Saunders Company, 1909.

In issuing the second edition of this valuable work the author has subjected the whole text to a thorough revision. Some of it is entirely rewritten, and there is much new matter included. The most important alterations and additions are to be found in the sections dealing with the diagnosis of renal lesions, cystoscopy, and ureteral catheterization; and in the chapter on the head, where the former views in regard to the localization of the motor centers in the cortex of the brain have been replaced by the more recent ideas on the subject. Figures 21 and 22, illustrating the location of these centers, have become inverted.

The Diagnostics of Internal Medicine. A clinical treatise upon the recognized principles of medical diagnosis, prepared for the use of students and practitioners of medicine. By Glentworth Reeve Butler, M.D., Sc.D., LL.D., Physician-in-Chief, Methodist Episcopal Hospital; Attending Physician to the Brooklyn Hospital; Consulting Physician to the Bushwick Central Hospital, and to the Coney Island Hospital; formerly Associate Physician, Department of Diseases of the Chest and Diseases of Children, St. Mary's Hospital, Brooklyn, N. Y.; Fellow of the New York Academy of Medicine; Member of the Medical Society of the County of Kings; Fellow of the Society of Science, Letters, and Art (Lond.), etc. With five colored plates and 272 illustrations and charts in the text. Third revised edition. New York and London: D. Appleton & Company, 1909.

We have two types of books dealing with the diagnostic methods of internal medicine, one serving as works of reference and containing a great deal of polemical and theoretical matter, the other written from the point of view of practical clinical work. Sahli's treatise on diagnosis is a model work of the first type, while the volume before us represents the best of the second type of book. Dr. Butler writes for the practising physician or for the student preparing for the practice of medicine; both meet and study symptoms of disease, and it is these that are considered at length in the first part of the book. These symptoms serve as evidence of special affections and their consideration forms the subject matter of the second part. Part I, accordingly, contains a consideration of the clinical anatomy and physiology of organs and systems under consideration in each case. A description of the approved methods of examination follows. The signs and symptoms obtainable by these methods are then fully considered. Finally, the diseases suggested by these symptoms are considered. All these are treated with such a wealth of illustrations as to make it a special feature of the book. Part II treats of the direct and differential diagnosis of disease. A brief description of the symptomatology is given, and especial attention is paid to all points of possible use in the differential diagnosis. The two parts of the book are complementary to each other and contain practically all that is necessary for the making of a diagnosis. Dr. Butler's book is one of the best works in English in the subject it considers. It forms a most helpful companion to every physician's "Practice of Medicine" and gives information on methods of diagnosis scattered through numerous special works. From the mechanical standpoint and in the matter of charts, illustrations, diagrams, and index, it is likewise excellent.

A Text-book on the Principles and Practice of Surgery. By George Emerson Brewer, M.D., Professor of Clinical Surgery in the College of Physicians and Surgeons, New York. Second Edition. Philadelphia and New York: Lea & Febiger, 1909.

Dr. Brewer's textbook has met with well merited favor and the improvements associated with the second edition will doubtless induce a continuance of this popularity. The second edition means practically a revision of the book, as many things have been added during the last few years to our knowledge of the subject. We are glad to note that the condensation which characterized the former volume has been less adhered to in the present, although even now many important subjects are treated all too briefly, *e.g.* the very short paragraph devoted to lumbar puncture. Color-photography has been employed in a series of interesting plates which show a variety of pathological conditions photographed directly from nature. The majority of the illustrations in the text are of an inferior order and many of them have evidently seen service on numerous previous occasions. Aside from this feature the book offers a concise exposition of the accepted facts of the principles and practice of surgery.

Die Cystoskopie im Dienste der Chirurgie. Ein Atlas cystoskopischer Bilder mit begleitenden Text für Ärzte und Studierende. Von Stabsarzt Dr. O. Rumpel, Privatdozenten für Chirurgie an der Universität Berlin. Mit 85 farbigen Figuren auf 36 Tafeln und 22 Textabbildungen. Berlin und Wien: Urban & Schwarzenberg, 1910.

With characteristic national thoroughness Rumpel has collected his cystoscopic observations of several years and with the aid of Max Queisser, an artist, presents them to the profession in this form. In his short text of 38 pages he assumes that the reader possesses a working knowledge of the cystoscope and loses no time in primary instruction in technique. He reports interesting anomalies of multiple ureters and congenital bladder diverticula diagnosed by the cystoscope and corroborated by radiographs. The text also contains much sound surgical advice. In regard to intravesical removal of tumors, he voices the belief of every surgeon when he says: "There is no doubt that the endovesical method of extirpation can be relied upon only when small pedunculated papillomata are present." In the further consideration of tumor diagnoses by the cystoscope he tritely remarks that "the smaller the tumor the more necessary its precise location," because of the collapse of the bladder walls and the tumor itself during suprapubic cystotomy. More of this sound surgical sense is revealed in his section on prostatic hypertrophy when he says "the smaller and denser the prostate the greater the difficulty of extirpation *in toto*." Under foreign bodies are enumerated the usual list of pins, pencils, etc., then he goes one better by citing a patient whose bladder contained a quid of tobacco. Particularly valuable are his observations in tuberculous cystitis secondary to renal tuberculosis. He presents several plates showing various stages of spontaneous cure of the bladder lesion after removal of the diseased kidney. The cystoscopic drawings are extremely good, and portray Nature faithfully. This book should have a place in every cystoscopist's library, since it is not only an excellent atlas, but will aid the operator in many instances correctly to interpret his findings.

Tumors of the Kidney; Renal, Ureteral, Perirenal, and Adrenal Tumors, and Actinomycosis and Echinococcus of the Kidney. By Edgar Garceau, M.D., Visiting Gynecologist to St. Elizabeth's Hospital, and to the Boston Dispensary, Boston, Mass.; Consulting Gynecologist to the Quincy City Hospital, Quincy, Mass.; Member of the Massachusetts Medical Society, the Boston Obstetrical Society, the Boston Society for Medical Improvement, the American Urological Association, the American Medical Association, l'Association Française d'Urologie, Paris, France; Fellow of the American Gynecological Society, etc. New York and London: D. Appleton and Company, 1909.

In four hundred pages Garceau has presented material which will deeply interest every student of renal tumors. In a clear, occasionally epigrammatic style he views from each standpoint solid tumors of the renal parenchyma, embryonic tumors, renal, pelvic, and ureteral tumors, polycystic and simple cysts of the kidney, peri-, and adrenal tumors, actinomycosis and echinococcus of the kidney. Extensive literary research and the records of the Massachusetts General and Boston Hospitals have supplied abundant statistics, which the author has well tabulated. The preface gives warning of new classifications of renal tumors. These classifications are in general acceptable, but the omission of sarcomata, fibromata, and rhabdomyomata from the growths found in the pelvis and ureter are opposed to the experience of some pathologists. The section on hypernephromata is excellent, containing much of value and interest on the metastases of this growth and trite common-sense directions for physical examination. The chapter on carcinoma, sarcoma, and adenoma, wherein the author presents detailed studies of the case records at his command, is a potent argument for greater care and precision in the classification and nomenclature of malignant renal tumors. The technique advised for nephrectomy is clear, sane, uncomplicated, and conveys the impression of the writer's familiarity with the operation. The closing chapter very appropriately deals with the determination of renal efficiency. The methods herein described are clear, succinct, and comprehensible to those inexperienced in the work. The author follows the pernicious custom of microphotographic illustrations without stating the degree of magnification, instead of the more instructive free-hand drawings.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Regular Meeting, Held March 3, 1910.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Genitourinary Surgery, and consisted in a symposium on stricture of the male urethra.

Causes, Frequency, Pathology, and Complications of Stricture.—Dr. HUGH H. YOUNG of Baltimore read this paper.

Symptoms and Significance of Stricture.—Dr. ALBERT ASHTON BERG read this paper.

Surgical Management and Treatment of Stricture and Its Complications.—Dr. EUGENE FULLER read this paper. (See page 569.)

An Exhibition of Instruments for Internal Urethrotomy.—Dr. WILLIAM F. FLUHRER made this demonstration, and said that the various operations in vogue in the early seventies for tight, deep strictures of the male urethra by external perineal urethrotomy were based upon a liberal incision into the perineum which included all the strictured material, together with some of the healthy urethra before and behind the stricture; consequently such an incision was a very extensive one and in most instances required a long time for healing. Dr. Fluhrer said that he began quite early in practice to reduce the length of such incisions and worked through the perineal incision, cutting the stricture with an ordinary bistoury. It seemed to him not only that strictures could be dealt with mechanically with a small incision through the perineum, but also as a logical conclusion that he might do away with the incision in the perineum altogether; accordingly he worked in the direction of making a more exact internal urethrotomy instead of incising the stricture through a wound in the perineum. If the stricture was cut thoroughly through a small incision through the perineum, one of the chief results would be that it would do away with the risk of a perineal fistula; if one could cut as much and as thoroughly, with precision internally, then the external perineal urethrotomy, mechanically considered, had no reason for being and naturally developed into a pure internal urethrotomy. However, the operation in the perineum had an added advantage; the cut of the knife was a surgical therapeusis, and, therefore, he wished to preserve this feature of the operation. Dr. Fluhrer, with instruments of precision, converted the external urethrotomy into an internal urethrotomy; he also made his cut in the perineum, as in the original external urethrotomy operation, but only to the limited extent in the urethra necessary to introduce a drainage tube, and to preserve for him as well the therapeutic advantages of the incision. This required a systematic kind of an operation, and the instruments which he exhibited should be considered in their relation to the component parts involved in the operation. The first step in the operation was to secure a communication with the cavity of the bladder along the natural path of the urethra. In every case with a tight stricture of the deep urethra permeable to urine he believed this communication could be instrumentally secured. The instruments he used were to be judged not only by the excellent results obtained with them, but by their range as well. There were about fifty urethrotomes in the market, and all had some special point of value. In testing any instrument one should not only judge of the excellent results from its use in given instances, but also the extent or range of its operation should be considered and studied. Dr. Fluhrer then made a presentation of many instruments of original design. The line of communication with the bladder having been secured, the next step was to dilate the stricture. The stricture must be distended to just receive the staff of the urethrotome, but one should make as little divulsion as possible. The caliber of the stricture was enlarged by a tunneled staff and then the instrument he exhibited, which differed somewhat from others in that it was more conical in its shaft, was passed until the tip was in the bladder; it was wedged in the stricture, which had been dilated just enough to receive it. The surgeon then was prepared to incise the stricture under the best mechanical conditions, and the cutting mechanism was run down to the stricture, which was cut. The parts were then drained through a perineal incision. In opening the perineum an ordinary tunnel staff about No. 20 F. was passed down to the point where the urethra was to be opened, then it was reversed in its direction so that its point faced the perineum. Dr. Fluhrer stated that in an active hospital experience of thirty years, affording a large number of tight strictures of the deep urethra, often complicated with false passages and presenting great difficulties for instrumentation, he had never failed to relieve his patients through the operation he had outlined. He had never lost a patient, never had a serious hemorrhage or other dangerous consequence of the operation, or left behind a perineal fistula. These accidents were, therefore, separable from the well organized and skilfully executed operation and could not constitute any basis for a valid argument against it. Dr. Fluhrer instanced a few typical cases showing the results of the operation in which the caliber of the urethra had not only been promptly but permanently restored, and the patient spared the long-continued after treatment with dilating instruments. The operation had been made one of precision through the refinement of its component elements and through the instruments shown, whose action afforded an extended range to the niceties of the touch. Considering the brilliant results of the operation in its application to tight strictures of the deep urethra, Dr. Fluhrer was convinced that it was not only the treatment of preference for these strictures but was strongly of the opinion that the same beneficence of results could be extended to strictures of moderate or even large caliber, especially in the deep urethra.

Dr. MARTIN W. WARE inquired by what physical means prior to the introduction of the finger at the operation, could the presence of a stenosis of the vesical neck be proven.

Dr. FREDERICK BIERHOFF said that there was one particular point that had not been mentioned in the discussion on strictures of the urethra, and that this was the preventive treatment. It was generally admitted that a very large proportion of these cases were due to gonorrhea and the treatment of gonorrheal inflammations was, therefore, a very important part in the treatment of strictures. Another point he called attention to was about instrumentation, and he stated that it had been his experience that in every case in which a patient could pass his urine, even though it be in droplets only, he could get a filiform into the bladder and then proceed to dilate the strictured portion and thus avoid operation, either external or internal urethrotomy.

Dr. CHARLES H. CHETWOOD said that many years ago, under the inspiration of his preceptor, Dr. Edward L. Keyes, Sr., he was taught that there existed a form of obstruction in the posterior urethra at the neck of the bladder, not essentially prostatic obstruction, which caused complete retention of urine and was due to inflammatory conditions anterior to or behind the neck of the bladder, of intense character or of long duration; it was, in fact, a fibrosis surrounding the bladder orifice. To distinguish this condition of stricture of the neck of the bladder or fibrosis, Dr. Keyes had assembled the various names that had been given to it under the one of "contracture of the

neck of the bladder." It was best recognized during operation by the finger introduced through the membranous portion of the urethra, through the prostatic portion to the neck of the bladder, where it could be readily felt as the finger could not be passed through it without the employment of some force, which was not the case with the normal orifice of the bladder, which the finger would pass through without resistance. What Dr. Chetwood wished especially to emphasize was that this stricture, or contracture of the neck of the bladder, fibrotic in character, did exist, and that it was a distinct type; it occurred both alone and associated with prostatic enlargement, when it might account for the symptoms, and when a cure could not be expected without appreciation of its important bearing.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held February 24, 1910.

DR. S. M. BRICKNER IN THE CHAIR.

Report of a Case of Erythema Multiforme Gestationis (Fourth Attack).—Dr. WILLIAM S. GOTTHEIL reported the case of a patient, otherwise entirely healthy, who had been four times pregnant since her marriage in 1900. Each time when her pregnancy had been a few weeks old she had had a severe attack of erythema multiforme, the lesions in the early part of the outbreaks being papular and erythematous, later of the iris form and vesicular, and finally bullous. This eruption persisted during the entire pregnancies, and continued for from four to eight weeks post partum. Three of the attacks had been observed by him personally. Save in so far as it alleviated the pruritus and protected the denuded surfaces, the treatment employed had not been of much effect. On the other hand, the termination of the pregnancy and of the post partum metabolic processes, appeared in each instance to have caused a cessation of the outbreak. Dr. Gottheil said he preferred to make the diagnosis of erythema multiforme rather than that of dermatitis herpetiformis on account of the very characteristic appearance of the eruption in the three outbreaks that he had observed.

DR. SAMUEL M. BRICKNER said that skin lesions occurring during pregnancy had interested him very much and he had been fortunate enough to see different kinds of eruptions occurring at this period, but he had never seen an instance of erythema multiforme gestationis. The only very serious case he had ever seen appeared at the Mt. Sinai Hospital some years ago. About four years ago he had first described a peculiar condition of the skin arising during pregnancy that from its pathological picture simulated fibroma molluscum and hence was named fibroma molluscum gravidarum (*American Journal of Obstetrics*, February, 1906). This consisted in peculiar whitish, or brown, sometimes black wart-like excrescences upon the neck and under the breasts, appearing during the early months of pregnancy and becoming darker as pregnancy advanced, and then disappearing toward the end of gestation or six or eight months later. In every instance of this nature that he had seen, these excrescences entirely disappeared after the pregnant state. Halban of Vienna about the same time described a condition that probably had been seen before, an appearance of lanugo-like areas only occurring during pregnancy. They probably were not very rare. Only last summer Dr. Brickner had seen a patient with an intense eczema which appeared during the last month of her pregnancy and disappeared promptly after the birth of the child.

DR. WILLIAM S. GOTTHEIL said that although he had seen many cases of erythema multiforme he had never before had occasion to consider them in connection with pregnancy.

Large Retroperitoneal Tumor Probably Arising from the Transverse Colon Between the Layers of the Transverse Mesocolon.—Dr. HERMANN GRAD reported this case. The woman applied at the hospital for the removal of a tumor which had been discovered during a physical examination for a position before the Civil Service Board six months before. She presented on admission an abdominal tumor, filling the entire cavity, but the bulk of the mass was situated in the upper abdomen. It was hard and unyielding. The pelvic examination showed it to be free of the tumor. A diagnosis of tumor of the upper abdomen of doubtful nature was made, although it was believed that it was of pancreatic origin. When the abdomen was opened the tumor was found to be postperitoneal, adherent to the transverse colon, and filling the entire upper abdomen. In the attempt at enucleation the tumor ruptured, causing a severe blinding hemorrhage. The enucleation was rapidly completed and then it was found that there was a rent in the transverse colon about an inch in diameter; this was immediately repaired. The transverse colon was dropped back into place, the torn peritoneal surfaces were repaired, and the abdomen closed without drainage. The patient left the bed in two weeks. The abdomen was now flat and the incision appeared normal. The nearest diagnosis the pathologist could make was a fibrosarcoma arising from the transverse colon and invading the transverse mesocolon. The clinical symptoms were not indicative of malignancy and, therefore, a definite diagnosis could not be arrived at.

DR. ROBERT T. FRANK reported an instance in which a tumor appeared in the same situation as did the one reported; it was retroperitoneal and was situated between the stomach and the transverse colon. He excised a portion of the tumor, submitted it to the pathologist, and the report was that it was a fibrosarcoma probably of pancreatic origin.

Repair of Central Laceration of Levator Ani and Perineum.—Dr. JAMES N. WEST presented this, the paper of the evening. He said that the repair of a lacerated perineum was an operation of such minor character that its real importance was by no means appreciated even by those who performed the operation the most frequently. When the pathological conditions which might follow a laceration through the levator ani and the destruction of the support given by this muscle, "the diaphragm of the pelvis," were considered one must realized its importance. The unfortunate woman who had had the support of the pelvic contents destroyed felt as though the pelvic contents were coming out of the body with every effort at lifting or the performance of any act in which the muscles of the abdomen played an important part. Even the act of defecation tended to draw the uterus downward and backward and to force the rectum forward though the hiatus created by the laceration. This force continuing to act by degrees led to retroversion of the uterus and to pushing forward of the rectum into a rectocele, to descent of the anterior vaginal wall and the formation of a cystocele and often eventually to a prolapse or procidentia uteri. All these evils with their associated pathological conditions followed naturally as a result of the descent of the pelvic organs. In a recent work on gynecology it was stated that thirty-three different operations had been described for the repair of a lacerated perineum. Did this mean that repair was so easy that it could be done satisfactorily in thirty-three different ways, or that operations usually performed had been so unsatisfactory that in the effort to reach out for a better operation thirty-three different methods had been devised? Dr. West believed the latter proposition was true. In his efforts to repair this injury he had tried to divest his mind of the thought of any particular man's operation and to make a study of each individual case, because each one had to be

operated upon according to the injuries found. In order to understand the exact nature of the operation to be performed one must thoroughly understand the anatomy of the structures to be operated upon and must recognize the change in the relation of the anus to the fixed parts, namely, to the pubis and the meatus urinarius. The usual measurement in the average woman from the meatus urinarius to the anus was from one and three-quarters to two inches; where the levator had been lacerated this measurement was about three inches. The operation should practically restore the normal distance. He was led to adopt the technique which he described by a study of the situation and action of the levator ani in normal vaginae. He found that it lay about three-quarters of an inch within the orifice of the vagina and that a certain portion of it seemed to pass down and incorporate itself within the vaginal wall, giving a sphincter-like action which held the posterior vaginal wall in contact with the anterior. He found that in the vast majority of cases the central decussating fibers of the levator ani had been torn apart. Often no scar was evident but the fasciculus of the muscle could be followed along the side of the vagina and the rectum could be seen to force itself between these bands. Dr. West said that the operation had been a little difficult until experience had taught him how to pick up this fasciculus of the muscle and the fascia with the suture from the sense of touch and also that it could be easily done by the sense of sight. For the upper landmark he took a point in the center of the vagina where the anterior and posterior walls came into contact, usually about two and one-quarter inches from the fourchette. At this point a suture of No. 3 catgut double was passed through the mucous membrane so as to get a firm hold upon it, to act as a landmark and for purposes of traction. The lower landmarks were the two lowest carunculae myrtiformes on each side. Beginning at the left caruncle myrtiformis a strip of mucous membrane was cut up to the upper landmark in the vagina. a corresponding strip was cut down to the right caruncle myritiformis. This process was continued until a complete denudation had been made down to the fourchette. This part of the operation was practically the same as practiced by Hegar. The second step in the operation and perhaps the most important one was picking up the levator ani muscle. The muscle was picked up first on the left side close to the side of the rectum and at the lowest point at which it could be felt. The suture passed from above downward on the left side and out toward the side of the pelvis gathering up distinctly the muscle near and at the side of the rectum; it then crossed over and passed from below upward on the right side gathering in the corresponding bundle of muscle and fascia. This suture was then tied so as to bring the fasciculis of the levator ani in front of the posterior vaginal wall. Two continuous sutures were taken with the same suture to bring together the little fold of tissue which had been formed by tying the first suture. These sutures remained buried. The best suture for this purpose was No. 1, forty or twenty day chromicized catgut. tied with three knots so that the ends could be cut short. He next made a similar row of sutures a little higher in the levator ani muscle thus bringing together a little broader band of muscles in front of the vaginal wall and incorporating it with the firm band of levator ani muscles and fascia. He next brought together the mucous membrane from the apex of the denudation downward. He then began at the apex of the triangle and brought together the denuded surface of mucous membrane until he came to the bridge of tissue formed by the united levator ani muscle with interrupted sutures of No. 2 chromacized gut. These sutures were passed down to the bottom of the sulcus formed by traction upon the carrying thread and lay about one-third of an inch apart. At this point the sutures no longer went to the bottom of the sulcus but passed in deeply enough to bring together the mucous membrane and a little of the cellular tissue beneath it. The object of these shallower sutures was to build up a symmetrical vaginal wall. The last of these sutures lay about one-third of an inch within the vagina from the carunculae myrtiformes. The next suture, which completed the union of the vaginal mucous membrane, was passed in opposite the top of the denudation under the caruncule myrtiformes and came out just beneath the last catgut suture. This suture, together with the other that completed the union of the perineum, was of silver wire. It was usually necessary to use from four to five of these sutures. They passed in radiating toward a common center which was deep within the denuded area and corresponded with the portion of the levator ani which had last been brought together with the buried sutures. These sutures passed deeply into the tissues and gathered up a substantial body of the elastic tissues of the perineum proper. The ends of the wires were drawn taut and twisted at right angles, each having a perforated shot placed upon it. The results in these cases had been extremely satisfactory, there having been no cases of breakdown of the perineum and examination afterwards showed that the anterior and posterior walls of the vagina lay in accurate contact and that the sphincter-like action of the levator ani was completely restored. In several cases in which he had had the opportunity to see subsequent labor there was no serious tear of the perineum; the perineum seemed to bear the strain of labor extremely well. It did not follow that in subsequent labors the levator ani would be torn. Dr. West thought that in this operation he had one of the most valuable procedures in the whole scope of gynecology.

Dr. Chas. Jewett said that the thirty-three operations to which Dr. West had alluded should not be taken as indicating confusion in the surgery of the pelvic floor but rather as the different steps in the process of evolution by which they had reached the technique employed by most operators. The aim of the modern operation, of which Dr. West's was a type, was to restore the levator ani muscles to something like their normal relation to each other. His notion of the injury and its repair would best be understood by a word concerning the anatomy of the levator. The principal muscles concerned were the pubococcygei, which swept from the posterior face of the pubic bone on either side and passed backward, laterally to the vagina and rectum, and went to the coccyx. This might be compared with the recti abdominis; just as in the latter the space between them, except where perforated for the transmission of the tubular viscera, was bridged by fascia. This fascial bridge might be looked upon as a conjoined tendon entirely similar to that between the recti. The essential character of most perineal lacerations was a rent in this conjoined tendon at one or both sides of the vagina. The rent resulted in diastasis of the levators and consequent displacement of the pelvic floor and viscera. The modern reparative technique was an attempt to correct the diastasis. Dr. Jewett's method of procedure was somewhat similar to that of Dr. West.

Dr. Samuel W. Bandler presented drawings to show his method of procedure in these cases for repair of lacerated perinei which supported Dr. West's statement as to the value of bringing together by sutures the torn levator ani-muscle fibers in a bridge-like form. The various steps that Dr. West followed constituted one of the best of the thirty-three operations in vogue. Dr. Bandler said he had seen Dr. Waldo do a single stitch colpoperineorrhapy and he had tried it and found that he got very good results and with almost no failures due to infection; he attributed this to the fact that in the operation there was not a buried suture or knot anywhere in the denuded parts that were brought together. He used a similar method in cases

of descent of the uterus, and even in cases of total prolapse. In those cases, however, he found subsequently a separation of the two halves of the denuded area that he had so well brought together, and instead of a linear scar from the posterior wall of the vagina to the anterior wall of the anus he found a scar that had resulted from a separation or a broadening, usually three-quarters of an inch wide, which gave little support to the rectocele. He, therefore, decided to bring together the two sides of the separated levator ani muscles by means of one, two, or three special buried sutures. He demonstrated how this was done by drawings. The method described by him was especially valuable in cases where there was a total prolapse of the uterus and in which the operation of perineorrhaphy was brought to the greatest test. The results of the operation he described were very satisfactory and infection was avoided.

Dr. Arnold Sturmdorf said that the title of Dr. West's paper was well chosen inasmuch as it directed attention to the evolutional factor in perineorrhaphy, namely, the repair of the lacerated levator ani muscle. This subject was elaborated by Dr. Sturmdorf and presented before the Medical Association of the Greater City of New York February 15, 1905, and published in the Medical Record April 1, 1905, although Dr. Holden, who wrote upon the same subject six months later in the *American Journal of Obstetrics* (October, 1905), was given all the credit by Dr. Kelly in his "Operative Gynecology," Second Edition. He said that obstructive retention could not replace normal visceral support, and the immediate aim in perineorrhaphy should be based on the elementary principle of accurate restitution of original anatomic relations thus restoring, as far as possible, functional as well as mechanical support to the pelvic contents. The keynote in the clinical significance and therapeutic indications of pelvic floor laceration was prolapse. Dr. Sturmdorf then quoted quite freely from his published article in the Medical Record.

Dr. Harry Aranow, in speaking in regard to Dr. Bandler's statement about Dr. Waldo's famous operation, colpoperineorrhaphy, said that Dr. Waldo only used these sutures in the milder cases; but in the severer cases he used a modification of the Hegar operation, an operation similar to the one described by Dr. West, differing only in minor details. Dr. Aranow believed that the method described by Dr. West was the only radical one for the repair of a lacerated perinum.

Dr. William H. W. Knipe said that in 1902 he had spent much time in dissecting out the levator ani muscle in both males and females, and after that he had had no respect for the perineal body, but all respect for the levator ani muscle. With regard to the question of priority of this operation as described by Dr. West, this method was employed with but a few different details by Dr. George M. Tuttle from 1903 to 1905; he used it in one hundred or more cases, and Dr. Knipe said he only knew of one case where he failed to obtain the desired result. Dr. Knipe said he had never used personally any other method. In most of the cases, after the levator ani muscle had been thoroughly sutured together with interrupted chromic acid catgut, little else was necessary to form a firm perineal body. He did not know why Dr. West had found it necessary to use silver wire sutures in these cases after the levator ani had been sutured; in all the cases he had seen and operated on, after the levator ani had been sewn up, he could see no reason for suturing the perineal body except for the cosmetic effect, using a continuous small catgut suture for this purpose.

Dr. Leroy Broun believed that all gynecologists appreciated the importance of the levator ani muscle as a support of the pelvic floor and when torn all aimed at coapting the lacerated parts, but with different techniques. The main thing was to bring up the posterior wall to lay against the anterior wall, and Dr. Broun's custom had been to do what was practically an Emmett operation, except in those instances where there was a large rectocele. His object in introducing the sutures was to take up a good bite on each side in order to go well behind the main edges of the muscle and fascia. It was a very difficult thing to make out the fibers of this muscle, the levator ani, or to be sure that the edges of the fascia could be seen with the eye. The only way he could tell that he had gotten together the edges of the muscle and fascia was by keeping the finger in the rectum; then one could recognize the body by the sense of touch. Even experts at this sort of work stated that they could not make out this muscle plainly, and some of them should give some reassurance to those who fail in this that the fault was not theirs. Dr. Broun frankly acknowledged that he found it difficult to point out the fibers of the levator ani muscle.

Dr. West, closing the discussion, thought that Dr. Broun's ideas regarding repair of lacerated perinei were the old ones and contrary to those which he had attempted to present in his paper. Dr. Jewett, Dr. Bandler, and all the other gentlemen who have spoken, agree with the author in the necessity of special sutures in the levator ani. Dr. West had found many cases that had been operated upon by various methods and without permanent results; these women returned, being miserable, weakened, and as discouraged as before the attempt at repair had been made. What he presented was a simple method of denudation, of picking up the torn or lacerated levator ani muscle, of bringing the fibers together, and closing the outer parts. The superficial sutures were introduced in order to restore the parts to their normal relationship. The priority of the operation he said he did not care to discuss.

MEDICAL SOCIETY OF THE MISSOURI VALLEY.

Twenty-second Semi-Annual Meeting, Held at Omaha, Nebraska, March 17 and 18, 1910.

The President, Dr. A. B. Somers of Omaha, in the Chair.

Psychotherapy in Relation to the General Practice of Medicine and Surgery.—Dr. Henry S. Munro of Omaha discussed psychotherapy in the field of preventive medicine; in the domain of psychophysiological therapeutics, as an adjunct in the treatment of acute diseases, as an aid to surgery in the treatment of chronic diseases, and in relation to the prevalent professional psychasthenia.

Dr. C. R. Woodson of St. Joseph, Mo., said that the physician who possessed the power to entertain, to divert, to inspire confidence, who could honestly set forth facts and take an individual's mind off of an object of worry, or who could influence him along these lines, was the best psychotherapist.

Dr. A. S. Von Mansfelde of Ashland, Neb., did not believe that a man could be educated to become a successful psychotherapist. The successful psychotherapist was born, not made. He cited instances to substantiate his statement.

Dr. R. Willman of St. Joseph, Mo., stated that instruction and investigation, if properly given and carried out, would do a great deal towards mitigating and annihilating pseudo-mind-healing. Psychotherapy was not new, but physicians had not practised it to the extent they should have done.

Dr. S. Grover Burnett of Kansas City, Mo., stated that before attempting to administer psychotherapy, the physician ought to make a diagnosis. Without a diagnosis, he had better not say or do anything. If a physician had not diagnosed correctly the ailment of a patient, he was just as likely to give pathological suggestions as he was to give physiological ones. Babinski said that functional conditions, such as so-called hysteria, were caused by sugges-

tion and relieved by persuasion. While all members of the profession were not ready to accept that, the more one studied it, the more clearly he saw the basis of such a statement.

Dr. O. Beverly Campbell of St. Joseph, Mo., said he did not believe that 75 per cent. of the people were neurasthenics. He had observed this, that as he was becoming a better diagnostician from day to day, he was able to find pathological conditions as causes in more cases of neurasthenia than he ever did before. He believed confirmed neurasthenics needed suggestion. They needed to be told some things they did not know. If they were in fear of a great calamity, if they believed they were in a serious condition, and the physician could diagnose their cases correctly and say to them, you are not in a serious condition, then psychotherapy was of advantage.

Dr. F. B. Dorsey of Keokuk, Ia., said there was not a practitioner of medicine to-day who was not using psychotherapy to a greater or less degree, but there was a limitation to it. A short time ago he had a case of confirmed neurasthenia. A diagnosis of gall-bladder trouble was made, and the operation disclosed a gall-bladder full of stones. After these were removed the neurasthenia disappeared.

Dr. C. C. Goddard of Leavenworth, Kan., said the general practitioner chased dollars too hard to make accurate diagnoses. He found that when cases of neurasthenia were admitted into private institutions they had not been properly examined by the family physician. If they had been the patients never would have been sent to such institutions, but treated at home. He thought pathological conditions were at the bottom of the majority of cases of neurasthenia.

Dr. W. O. Henry of Omaha said the value of this paper lay in the fact that the author emphasized the point that all physicians should employ psychotherapy. They should cultivate it as a means of diagnosis, but not to the exclusion of other things. Psychotherapy should be taught in the medical schools. He believed more attention would be given to it in the future than there had been in the past.

The Errors of Mind Healing.—Dr. R. Willman of St. Joseph, Mo., referred to the various cults, and said they were a danger to the human family. He summed up the dangers that followed in the trail of the pernicious practices of the healing cults, as follows: 1. The mind-healer being a non-believer in the existence of disease, its contagion, infection, etc., did not appreciate the necessity of knowing disease, and because of his unmindfulness of the danger of contaminating others, he left all gates open to the spread of disease. 2. The mind-healer had no idea of early diagnosis and proper treatment of disease when it was in its incipiency. Thus the patient was deprived of all opportunity to protect himself from danger and loss of life—things which early diagnosis and proper treatment could easily prevent.

Hemiplegia.—Dr. F. E. Coulter of Omaha read a paper in which he reported a case with acute onset, and exhibited the patient. From the history, distribution and character of the paralysis, the alteration of the reflexes, the Babinski phenomenon, spasticity, etc., the case obviously belonged in this category. He called attention to the salient points of practical importance in the management of such cases.

Dr. R. C. Woodson said the mode of onset of lesions of the central nervous system was of more importance to the physician in making a diagnosis than anything else.

The Nonsurgical Treatment of Tuberculosis Arthritis.—Dr. H. Winnett Orr of Lincoln said that many patients who had old tuberculous sinuses would have recovered without operation in from six months to a year if carefully treated mechanically. Operative interference, even under the best conditions, prepared the way for mixed infection later. He discussed the merits of different forms of mechanical treatment, as traction in bed, traction splints, braces, and plaster-of-Paris.

The Neglect of the Sacroiliac Joint by the General Practitioner.—Dr. Edward Evans of La Crosse, Wis., emphasized the anatomical importance of the sacroiliac joint, saying its neglect in the diagnosis of painful and disabling conditions about the back and pelvis led to improper treatment. He cited illustrative cases. He described the symptoms of strain of this joint, and then discussed the diagnosis and treatment.

Dr. A. S. Von Mansfelde said men in throwing sacks of grain over their shoulders sometimes produced a partial dislocation of the sacroiliac joint, which continued for years and was referred to as chronic Bright's disease, lumbago, chronic rheumatism, etc., when in reality it was nothing more than the dislocation of this joint, complete or partial, which was the cause of the trouble.

Dr. Winnett Orr had seen two cases in which the sacroiliac joint had been strained in the manner described by the essayist.

Dr. S. Grover Burnett related a case of a lawyer who sustained an injury in leaping from a street car. The hip-joint seemed normal, but when any force was brought to bear upon the pelvis pain was intense along the sacroiliac joint.

Dr. F. B. Dorsey narrated a case of a pregnant woman who sustained a complete disarticulation at the symphysis and the right sacroiliac synchondrosis. Treatment consisted in placing her in the dorsal position and applying a plaster cast from a little above the waist-line down to and below the knee, immobilizing the knee and the hip. She made a perfect recovery and pregnancy was uninterrupted.

Dr. Mary Strong of Omaha asked whether the Walcher position, which was frequently used in cases of slight degree of contraction of the pelvic inlet, was likely to injure the sacroiliac joint.

Dr. Evans said that if we put a patient in the Walcher position and applied high forceps and strained the sacroiliac joint severely, naturally we took care of it afterwards; but these slight strains were not cared for by practitioners.

Certain Facts in Ophthalmology of Practical Importance to the General Practitioner.—Dr. John Monroe Banister of Omaha said it would be most advantageous to the busy medical practitioner in general practice to possess sufficient ophthalmological knowledge to recognize the ocular conditions demanding immediate attention, and to acquire the small amount of skill necessary to palliate such urgent affections until the services of a specialist could be secured.

The Use of Antitetanic Serum in the Treatment of Tetanus.—Dr. F. B. Dorsey of Keokuk, Ia., emphasized the necessity of giving repeated doses of this serum at stated intervals as a prophylactic. Large and repeated doses did not counteract tetanus when once established.

Dr. C. C. Goddard said that antitetanic serum must be used early or not at all. There was one remedy he was going to try and use it to the limit, and that was apomorphine, as he believed one would get more benefit from it than from chloral.

Dr. R. William mentioned a case of tetanus in which he used apomorphine, as well as sulphate of magnesia and sulphate of soda combined, with gratifying results.

Dr. O. Beverly Campbell said sulphate of magnesium and sulphate of sodium were good in their place, but when tetanus was fully developed he would just as soon use Missouri River water. He had never seen a case of true tetanus cured by any method of treatment.

Should the Operation for Ruptured Tubal Pregnancy Be Immediate or Deferred?—Dr. John E. Summers of Omaha stated that in the majority, say about 95 per cent.

of cases of ruptured tubal pregnancy, no operation should be done until reaction from the shock of rupture had taken place. In the remaining 5 per cent. of these cases no delay was admissible. The urgency for operation could be recognized in most patients by the difference in the initial symptoms. In borderline cases the same rules of recognition applied.

Dr. B. B. Davis of Omaha said he had done many of these operations, and many of these patients would go through the original hemorrhage and shock and would rally and be in a much better condition for operation than at the beginning of the hemorrhage. For a long time he took the position that cases of ruptured tubal pregnancy ought to be operated on at once, but for the last two or three years he had delayed operation for at least a few hours.

Dr. O. Beverly Campbell said he believed every case of ruptured ectopic gestation was a law unto itself, and the judgment of the surgeon should be used. In many of these cases delay in operating was indicated. His experience had been that in most cases a blood clot would form and hemorrhage ceased, and that they should wait until shock had passed off and the patient had reacted before operating.

Dr. Donald Macrae of Council Bluffs, Ia., said he was not in a position to differentiate between one case and another, and to say that this case was or was not in a serious condition, and so in cases of ruptured tubal pregnancy he was going to operate as soon as he could, as he did not know which case was going to terminate fatally.

The Physical Basis of Mental Disease.—Dr. Frank P. Norbury of Hospital, Ill., delivered the oration in medicine, and, among other things, said that the interrelationship of mind and body would ever be a fruitful field for discussion, and might never be solved to the satisfaction of all, but the time was coming, and not far distant when the somatic would have precedence over purely mental symptoms. Therapeutics must and would be adjusted to meet the conditions as they were, not as they were supposed to be.

Local Anesthesia.—Dr. Leonard Freeman of Denver delivered the oration in surgery. He referred to the early history of chloroform and ether and the dangers attending the administration of these anesthetics. Nervous and hysterical patients were not suitable for local anesthesia. The patients must be selected with care and the surgeon must consider age, temperament, nervous control of the individual, etc. Among the operations which could be done under local anesthesia he mentioned the removal of tumors of the scrotum, castrations, epididymectomies, varicocele, and hydrocele operations, etc.

The Rapid and Complete Cure of Gonorrhea.—Dr. Thomas M. Paul of St. Joseph, Mo., said a cure was not complete unless it resulted in the absolute eradication of gonococci from the genitourinary tract, and such a cure could never be rapid in the sense in which that term was used by the laity.

Why the Indifference of the Profession to Morphinism Should Be Changed.—Dr. S. Grover Burnett of Kansas City, Mo., described three types. 1. Simple morphinists belonged to the better class of mentalities. They inherited or acquired a tendency to nerve weakness by exhaustive taxations of nerve energy. The drug was taken to relieve physical and exhaustive nerve discomfort. 2. Morphinomaniacs were lower in intellectual stability and acquirements. They inherited weakness or nerve and mind energy was the rule and a predisposition to add acquired exhaustive statis was strong. The drug was taken to relieve exhaustive psychic pain, mind pain, mind discomforts. The action of the drug was to cause further mind deterioration in a mind already near the borderline of insanity. 3. Delusional or motiveless morphinists were sufficiently over the borderline of insanity to cause them to take the drug because of faulty mind, delusional states. It was apt to end in a terminal insanity.

Treatment of Localized Appendicular Abscess.—Dr. Van Buren Knott of Sioux City, Ia., said the removal of the appendix at a secondary operation was frequently very difficult because of the density of the surrounding adhesions and in the majority of instances it would be found much easier to remove it at the first operation, and this should now be done rather than subject the patient to a prolonged and often serious operation. The incision was invariably made through the right rectus muscle, splitting the fibers and the peritoneal cavity freely opened. A small gauze pack was tucked into the upper angle of the wound and so adjusted as to prevent any extravasation of pus towards the liver or diaphragm. Another small pack was tucked in towards the median line from the upper angle of the wound to the lower pelvis to prevent any extravasation towards the left. The abscess cavity was then freely opened with the fingers, unless opened by the peritoneal incision, and the pus rapidly mopped up with gauze sponges. The appendix was then exposed and removed. All adhesions separating the abscess cavity from the lower pelvis were now freely separated and the pus or sero-pus, which was usually found in the lower peritoneal pouch, was rapidly mopped up with sponges. A large split rubber tube, from one-half inch to one inch in diameter and carrying a wick of iodoform gauze was inserted through the lower angle of the wound to the bottom of the rectovesical pouch, or cul-de-sac, the protecting gauze removed and the wound closed down to the tube with interrupted through-and-through silkworm sutures. Attention was called to the large size of the tube, as he believed the first two hours of drainage were those which counted. This method was not advocated for the occasional operator, but for men of great experience.

Increasing Mortality in the United States from Heart, Brain, and Kidney Lesions.—Dr. W. F. Milroy of Omaha directed attention to the enormous increase of deaths from these diseases and offered suggestions as to what may be done by way of remedies.

The Treatment of Angiomata and Nevi.—Dr. John Prentiss Lord of Omaha said that the angiomata fell within the pale of surgery, while nevi, involving the skin only, fell within the sphere of dermatology. The conditions were so frequently associated that it became impossible to divide their treatment. He spoke of the superior value of boiling water in the treatmtent of angiomata and of carbon dioxide snow in treatment of pigmented hairy nevi.

THE PRACTITIONERS' SOCIETY OF NEW YORK

229th Meeting, Held February 4, 1910.

Dr. John W. Brannan, President, in the Chair.

A Child Operated on for Very Bad Tuberculous Peritonitis Remaining Cured for Twelve Years After.—Dr. Abbe reported this case on account of the remarkable recovery of the patient, who was a child two years old at the time of the operation. The only physical findings at the time of operation were the great pallor, ascites, and daily fever. Laparotomy revealed a tuberculous peritonitis of the most extensive nature. The peritoneum was one-quarter of an inch thick in many places and there were large masses of thick turbercle and caseating nodules. In the pelvis the tuberculous masses could be scooped out in large pieces. These masses were cleared away, the peritoneal cavity was washed out, and peritoneum smeared with camphor naphthol (method of Rendu). The patient made a good recovery and at present shows no signs of tuberculosis. The abdomen was symmetrical, soft, and not distended. There had been no ascites or obstructive symptoms since the operation. At the time of operation about one gallon of

fluid was obtained and the temperature had been 101.5° to 102° F. for some time.

A Young Woman in Perfect Health Eighteen Years After Removal of a Very Large Renal Sarcoma.—Dr. Robert Abbe showed this patient on account of the absence of recurrence for a longer period than any recorded in surgical annals. At the time of operation she was one year and two months old and weighed 22½ pounds. The mother had noticed a slight enlargement of the abdomen only six weeks before and since that time the child had lost in weight and strength. The case seemed quite hopeless on account of the rapid development and large size of the tumor, as well as the poor condition of the child. She was operated on in November, 1892; the Trendelenburg position was employed and the limbs were swathed in cotton. After making a small exploratory incision, a long transverse cut was made from the median incision to within two inches of the spine. A huge, vascular tumor was found which was removed with difficulty on account of the great vascularity. The tumor occupied the upper pole of the kidney and examination showed that it was possible to amputate the kidney above its pelvis, leaving an inch and a half of apparently sound structure attached to the tumor. This was done after ligation of those vessels passing to the tumor mass. The recovery was uneventful and the patient had never been ill since the operation. The case was very unique in that the patient had remained well for such a long period and there was no reason why the recovery should not now be regarded as permanent. The patient had a perfect scar without a sign of hernia. Pathological examination of the tumor showed a mixed growth,

Fig. 1.—Sarcoma of the kidney in a nursing child of 14 months, weighing 15 pounds after the operation.

Fig. 2.—Same child as in Fig. 1, in perfect health, more than a year after the operation.

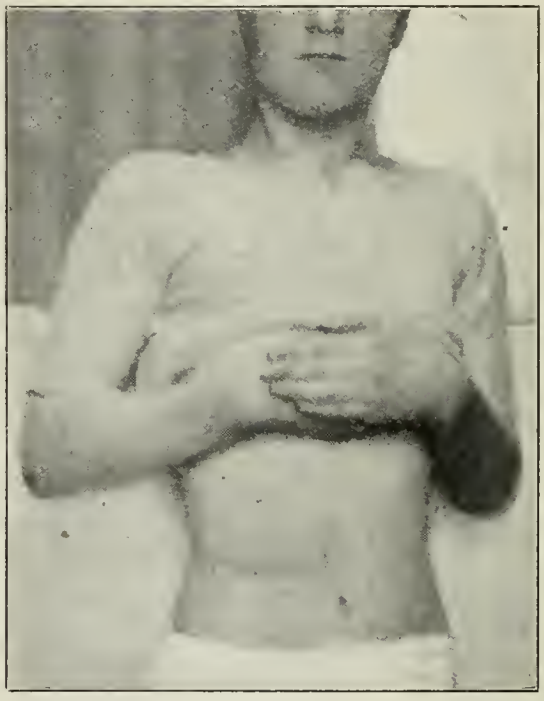

Fig. 3.—Same patient as shown in Fig. 1, eighteen years after the operation.

rhabdomyosarcoma, containing a large proportion of round and spindle-celled sarcoma with some striated muscle structure.

Visceral Sarcomata; Cases of Sarcoma of the Stomach, Heart, Mediastinum, Etc.—Dr. W. Gilman Thompson read this paper (see page 563).

Dr. Abbe spoke of the interesting frequency of internal sarcomatous metastases from pigmented moles. Primary internal sarcomata were not found as frequently, with the possible exception of ovarian sarcoma. The latter were very amenable to operative treatment. Pigmented moles could be removed very safely by the knife, if widely circumscribed, especially if skin was grafted after the operation. He had seen several cases, however, followed by a rapid general sarcomatosis, where the growth had been carelessly removed. Removal of the mole by excision after irritation involved some risk. Radium removed pigmented moles neatly and with least scarring. In cases where there was much irritation radium retrograded the superficial tumor, but did not affect the disseminated metastases. He did not advocate the use of knife or radium in cases where there was active irritation of the mole.

Dr. Blake spoke of a case of pigmented mole, in a young woman, which was situated at the umbilicus. This was excised and in about one year the patient had acute abdominal symptoms similar to those of peritonitis. There was vomiting, but no fever; later, there were evident signs of peritonitis and intestinal obstruction. The patient was operated upon and a melanotic bleeding growth was found in one ovary. There were also minute pigmented spots in a fibroma in the uterus. A microscopical examination of the ovarian growth and the pigmented areas from the fibroid of the uterus revealed a structure identical with that of the mole removed the year before; namely, a pigmented epithelial neoplasm, or, in other words, a pigmented carcinoma.

Successful Operation for Removal of Cerebellar Tumor.—Dr. M. Allen Starr reported a case of cerebellar tumor, which was first seen by him in October, 1908. The patient at that time showed a slight weakening of the external rectus on the left side, with defective winking. This was the only symptom, but later the patient developed headache, vomiting, slight choked disk, and considerable vertigo. No history of lues was obtained, but in order to rule out that as a possibility the patient was put on specific treatment. This had a marked effect for two months, but then symptoms returned and increased and became quite severe. He developed a cerebellar stagger with a tendency to fall to the right. The paralysis of the left side of the face increased and deafness of the left ear ensued with tinnitus aurium. There were also vagal attacks, characterized by faintness and slow pulse, due to irritation of the pneumogastric nerve. An operation was strongly advised, and the patient was sent to the Johns Hopkins Hospital in Baltimore. On May 20, 1909, an operation was performed by Dr. Cushing, the entire cerebellum being exposed in order to render the deeper parts accessible. When the dura was exposed the cerebellar tissue was found to press down into the foramen magnum. The posterior portion of the foramen was removed as Dr. Cushing considered such a step advisable in all cases of cerebellar tumors. Sudden death might occur in these cases from compression of the medulla and in this case a grooving of the cerebellum by the pressure of the bone was seen. A tumor was found in the region of the acoustic nerve and was removed without injury to the deeper parts. The patient made an uninterrupted recovery, and when last seen, in January of this year, was perfectly well. The only symptom that still persisted was a slight nystagmus on looking to the left. The optic neuritis and interlacing of the visual field had entirely disappeared. Examination of the tumor removed showed a small, hard, encapsulated fibroma. Tumors in this location have generally been fibromata of this nature. Dr. Starr said that there were 270 cases of operation for cerebellar tumor on record. In this series of operations 162 tumors had been removed and the patients were well three months after the operation. He spoke of the distortion of the color fields and thought it a very reliable symptom in cases of tumor. The question of its being due to the choked disk alone had arisen and some observers thought it an accompaniment of choked disk from any cause.

Pathological Society of Philadelphia.

At a stated meeting, held March 10, Dr. John Speese exhibited a specimen of "carcinoma of the larynx," obtained from a man with characteristic symptoms, and for the relief of which, after tracheotomy, laryngectomy had been performed. The case pursued a favorable course for a week, when acute edema of the lungs set in and terminated fatally. The growth was situated within the larynx and there had been no extension to adjacent parts. Dr. D. B. Pfeiffer presented a specimen of "rhabdomyoma of the kidney" from a child thirteen months old, in whom rapidly increasing abdominal swelling had been observed for three months. The case was not considered suitable for operation and it pursued a progressively unfavorable course until death ensued. After death an enormous growth was found largely filling the abdomen and displacing the contained structures. Histological examination disclosed the presence of fibrous tissue and striped muscular fibers in considerable amount. Dr. Pfeiffer presented also a specimen of "teratoma from the kidney region." This was obtained at operation on a child a little more than a year old. Its relations with the left kidney were so intimate that this organ also was removed. Histological examination showed the formation to be made up of many different kinds of structure, cartilage, bone, intestine, brain. The little patient survived. Drs. Charles S. Potts and Howard T. Karsner exhibited a specimen of "endothelioma of the brain." The patient had been a man with partial palsy in the extremities on the right side, occasional clonic movements in the affected parts, slight aphasia, hemianopsia, and little or no headache, and vomiting. Post-mortem examination disclosed an enormous tumor on the surface of the left hemisphere arising from the dura and creating a depression in the brain into which it fit snugly. Dr. Judson Daland presented a specimen of "bullet wound of the heart," obtained from the body of a colored man who had been shot from the left side, the missile entering the right ventricle at one point, passing through this cavity and making its exit from another point of its wall and finally entering the liver. The patient lived for about ten minutes after the shot had been fired. Dr. E. W. Holmes presented a communication entitled "Acid-fast Bacilli in Waters." He had made numerous examinations of waters, distilled, artesian, drawn from tap, and other sources, and had succeeded in finding acid-fast bacilli in varying number, particularly when the water had been standing for some time. The bacilli could not be found in freshly distilled water. It was believed that the organisms represented contamination from the air. Dr. Eugene L. Opie of New York presented a communication entitled "Experimental Cirrhosis of the Liver." He cited experiments to show that cirrhosis of the liver could be induced in animals by the administration of chloroform by inhalation or the stomach, if at the same time infection were induced, as with *Bacillus coli communis*, *Streptococcus pyogenes*, or the staphylococcus. The condition was one of recurrent degeneration of the parenchyma of the organ, with a tendency to recovery, provided the insult be not repeated.

Teething.—Shropshire says that in the case of a teething child, we have actually two patients—the child, who needs its alimentary canal cleaned out, and the mother or nurse, who needs a large dose of plain facts, emulsified with clear and terse directions for infant feeding—*Texas Journal of Medicine.*

Presence of Trypsin Ferment in the Stools of Healthy and Sick Babies.—G. Rovere experimented to ascertain whether trypsin was present in the intestines of infants whether sick or well. He tested for the trypsin in the feces of children from birth to eight and nine years of age. In new-born children who have not suckled the meconium shows no trace of trypsin, due to the lack of intestinal peristalsis, not to absence of production of trypsin in the intestine. As soon as suckling begins peristalsis is excited reflexly. In the first year of life the reaction for trypsin is very prompt. The function of the pancreas does not suffer by the occurrence of intestinal trouble. The author concludes that the trypsin ferment occurs in the feces of infants as early as the second or third day of life; in the most varied diseases the trypsin reaction is never absent.—*Rivista di Clinica Pediatrica.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

STOMACH, INTESTINES, AND PANCREAS. Edited by JAMES CANTLIE, M.A., M.B., C.M. Aberd., F.R.C.S., Eng. 12mo; cloth; 665 pages; illustrated; $4 net. Wm. Wood & Co., New York.

LEHRBUCH DES SPEZIFISCHEN DIAGNOSTIK UND THERAPIE DER TUBERKULOSE. Von BANDELIER UND ROEPKE. 4to; paper; 250 pages; illustrated; M. 6. Curt Kabitzsch, Würzburg, Germany.

DIE VERGLEICHENDE PATHOLOGIE DER HAUT. Von Dr. Med. JULIUS HELLER, 4to; paper; 633 pages; illustrated; M. 24. August Hirschwald, Berlin, Germany

VERÖFFENTLICHUNGEN AUS DEM GEBIETE DES MILITÄR-SANITÄTSWESENS. Von. Dr. HABERLING. 8vo; paper; 79 pages; illustrated; M. 2.80. August Hirschwald, Berlin, Germany.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS. Vol. III., 181 pages; Vol. IV.; 8vo; paper; 306 pages; illustrated. The Grafton Press, New York.

FUNDAMENTALS AND REQUIREMENTS OF HEALTH AND DISEASE. By THOMAS POWELL, M.D. 8vo; cloth. Powell Publishing Co., Los Angeles, Cal.

PRACTICAL HANDBOOK OF MEDICAL ELECTRICITY. By HERBERT MCINTOSH, A.M., M.D. 8vo; cloth; 510 pages; illustrated. Therapeutic Publishing Co., Boston, Mass.

A QUIZ-BOOK OF NURSING. By AMY ELIZABETH POPE. 12mo; cloth; 469 pages. G. P. Putnam's Sons, New York.

IMAGINATION AND IDEALISM IN THE MEDICAL SCIENCES. By CHRISTIAN A. HERTER, M.D., 12mo; cloth; 40 pages. American Medical Association, Chicago, Ill.

THE DIETETIC TREATMENT OF DIABETES. By B. D. BASU, Major, I.M.S. (retired). 12mo; cloth; 52 pages. Panini Office, Allahabad.

DES HAARSCHWUNDS URSACHEN UND BEHANDLUNG. Von Dr. S. Jessner. 12mo; paper, 52 pages. Curt Kabitzsch (A. Stuber's Verlag), Würzburg.

SERUM DIAGNOSIS OF SYPHILIS, and the Butyric Acid Test for Syphilis. By HIDAGO NOGUCHI, M.D., M.Sc. J. B. Lippincott Company, Philadelphia and London.

LES GREFFES OVARIENNES. Par le Docteur LOUIS SOUVE. 8vo; paper; 90 pages; illustrated; frs. 3.50. G. Steinheil, Paris, France.

HÉMATOLYSE ET HÉMATOGENÈSE, BACTÉRIOLYSE ET BACTÉRIOGENÈSE. Par Dr. G. FROIN. 8vo; paper; 272 pages; 6 frs. G. Steinheil, Paris, France.

DISEASES OF THE STOMACH AND INTESTINES. By ROBERT COLEMAN KEMP, M.D. 8vo; cloth; 766 pages; illustrated; $6.00 net. W. B. Saunders Co., Philadelphia, Pa.

SCIENTIFIC LIVING; or the New Domestic Science. By LAURA NETTLETON BROWN. 12mo; cloth; 284 pages. The Health-Culture Co., New York.

FIFTY YEARS OF DARWINISM. 8vo; cloth; illustrated; 274 pages; $2.00 net. Henry Holt & Company, New York.

DER EINFLUSS PSYCHISCHEN VORGÄNGE AUF DEN KÖRPER. Von Professor Dr. med. ERNST WEBER. 8vo; paper; 426 pages; 14 marks; illustrated. Julius Springer, Berlin, Germany.

DIE BEHANDLUNGSMETHODEN DES CHRONISCHEN MAGENGESCHWÜRS. Von Prof. Dr. M. MATTHES. 8vo; paper; 56 pages; marks, 1.40. Carl Marhold, Halle, Germany.

ANLEITUNG ZUR MIKROSKOPISCHEN UNTERSUCHUNG DES AUGES. Von Prof. Dr. R. GREEFF. 8vo; cloth; 146 pages; 4 marks. August Hirschwald, Berlin, Germany.

MODERN SURGERY. By JOHN CHALMERS DA COSTA, M.D. 8vo; cloth; 1,502 pages; illustrated; $5.00 net. W. B. Saunders Co., Philadelphia, Pa.

THE ELEMENTS OF THE SCIENCE OF NUTRITION. By GRAHAM LUSK, Ph.D., S.C.D., F.R.S. (Edin.). 8vo; cloth; 402 pages; illustrated. $3.00 net. W. B. Saunders Co., Philadelphia, Pa.

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A SYSTEM OF CLINICAL MEDICINE. By THOMAS DIXON SAVILL, M.D. (Lond.). 8vo; cloth; 963 pages; illustrated. Longmans, Green & Co., New York.

NUTRITION AND DIETETICS. By WINFIELD S. HALL, M.D. 8vo; cloth; 315 pages. D. Appleton & Co., New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of March 26, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	695	222
Diptheria	386	42
Measles	1,539	31
Scarlet Fever	716	49
Smallpox	—	—
Varicella	141	—
Typhoid Fever	35	7
Whooping Cough	35	3
Cerebrospinal Meningitis	8	7
Malarial Fever	—	—
Totals	3,555	361

Bacteria in the Eye of the New Born.—Rosenhauch, after examining the conjunctival sacs of two hundred new-born babies, came to the following conclusions: The conjunctival cul-de-sac is absolutely clear immediately after birth. The first microorganisms appear twenty-four hours after birth. After twenty-four hours the bacterial flora is constant. It is not to be differentiated from the adult. The *Staphylococcus non pyogenes, non liquefaciens,* and the *Bacillus xerosis* are constant inhabitants. Other microorganisms are only sporadic. Pathological microorganisms are seldom found, and then only a few. Twenty-four hours after birth the conjunctival sac was never free from microorganisms. Gonorrheal infection is hardly possible during birth, but usually occurs during the first couple of days of life.—McKee in *The Montreal Medical Journal.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 25, 1910:

		CASES.	DEATHS.
CHOLERA.			
India, Calcutta	Jan. 27–Feb. 5	..	66
Java, Batavia	Jan. 27–Mar. 5	1	Among natives.
Siam, Bangkok	Dec. 26–Jan. 12	6	6
YELLOW FEVER.			
Brazil, Manaos	Feb. 13–26	..	12
Para	Feb. 19–26	8	6
Panama, Canal Zone—			
Ancon	Jan. 24	..	1
At Ancon hospital from S.S. *Barbadian.*			
Culebra Island	Mar. 1–8	1	1
At Culebra quarantine station from S.S. *Huallago.*			
PLAGUE.			
India, Bombay	Feb. 9–15	..	63
Calcutta	Jan. 27–Feb. 5	..	13
Karachi	Feb. 6–12	55	53
Rangoon	Jan. 27–Feb. 5	..	4
Hawaii, Hilo	Mar. 19–22	2	2
Russia, Astrakhan, government	Feb. 21–27	..	20
Bodai	Mar. 1	9	..
Turkey in Asia, Jiddah	Feb. 4–27	3	3
Zanzibar	Nov. 9–17	2	2
SMALLPOX.			
Argentina, Buenos Aires	Dec. 1–31	..	69
Brazil, Pernambuco	Jan. 1–15	..	44
China, Amoy	Jan. 27–Feb. 5	..	1
Hankow	Jan. 27–Feb. 5	Present.	
Hongkong	Feb. 5	1	
Shanghai	Feb. 2–8	..	2
Egypt, Cairo	Feb. 12–18	1	..
France, Paris	Feb. 27–Mar. 5	8	..
Formosa	Feb. 6–12	3	2
Germany, general	Feb. 13–Mar. 5	14	..
Great Britain, London	Feb. 19–26	1	..
Nottingham	Feb' 20–26	3	1
India, Bombay	Feb. 9–15	..	38
Calcutta	Feb. 6–12	..	2
Karachi	Feb. 6–12	1	..
Rangoon	Jan. 27–Feb. 5	..	17
Italy, general	Feb. 21–27	5	..
Genoa	Feb. 14–28	2	..
Naples	Feb. 21–27	21	..
Java, Batavia	Jan. 27–Feb. 5	1	..
Korea, Fusan	Feb. 1–12	6	1
Manchuria, Tieling	Feb. 19	Present.	..
Mexico, Aguascalientes	Jan. 27–Feb. 5	..	3
Chihuahua	Mar. 8–14	3	1
Mexico	Feb. 13–19	..	1
Portugal, Lisbon	Feb. 20–26	33	..
Russia, Moscow	Feb. 13–19	25	8
Riga	Feb. 7–26	9	..
St. Petersburg	Feb. 13–19	49	16
Warsaw	Dec. 19–Jan. 8	..	50
Siam, Bangkok	Jan. 16–22	4	3
Siberia, Vladivostok	Jan. 22–28	1	1
Spain, Barcelona	Feb. 22–28	..	1
Tarragona	Feb. 20–26	..	1
Straits Settlements, Singapore	Jan. 22–Feb. 5	..	3

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Original Articles.

ERRORS OF DIAGNOSIS IN SURGICAL LESIONS OF THE KIDNEY.

By ALEXANDER B. JOHNSON, M.D.,

NEW YORK.

THAT errors of diagnosis in surgical lesions of the kidney are frequent will, I think, be admitted by all. The consequences to patients may be serious. Operations may be omitted which should be performed, or operations may be performed in cases where no necessity for such procedures exists, or an operation may be performed which does not fulfill the needs of the individual case.

I have thought it worth while to enumerate some of these diagnostic errors and to point out how and why they occur and how they may best be avoided. Many of these diagnostic errors have come within the range of my own experience, and have been made by myself, or by surgeons with whom I have been associated. I have chosen to group the cases according to the pathological lesion rather than to describe errors which may occur in the presence of certain signs and symptoms. The following grouping has been made:

1. Injuries of the Kidney. 2. Movable Kidney. 3. Hydronephrosis. 4. Suppurative Lesions of the Kidney. 5. Tuberculosis of the Kidney. 6. Stone in the Kidney. In a subsequent paper will be considered the error which may occur in other surgical lesions of the kidney.

1. *Injuries of the Kidney* may be divided into—a. Subcutaneous Wounds. b. Open Wounds. (a.) Subcutaneous Injuries.—While the diagnosis of severe subcutaneous injury of the kidney is as a rule, quite simple, nevertheless serious diagnostic errors are possible. The cardinal signs and symptoms of rupture of the kidney are: Following an injury to the loin the patient suffers from pain in the region of the kidney. There is tenderness over the kidney and the patient passes bloody urine per urethram. Shock may or may not be present.

The symptom hematuria or its absence may be misleading. It is to be borne in mind that after very serious injuries of the kidney, namely, those in which the ureter is torn across, or, in which that canal, being violently stretched or contused, has become clogged by a blood clot, the quantity of blood in the urine may be small, microscopic, or blood may even be absent. If the ureter is thus early plugged, the appearance of blood in the urine may be delayed for many hours; or even if the kidney be extensively pulpified, for a longer period. In this group of cases the occurrence of severe renal colic may aid in establishing the gravity of the injury.

In a certain grave form of subcutaneous injury hematuria may be intermittent. I refer to that group of cases in which a considerable artery is torn within the kidney without rupture of the capsula propria and with the formation in the substance of the organ of an arterial hematoma or traumatic aneurysm. In these cases, while a greater or less increase in the size of the organ may occur, such increase may not be discoverable upon palpation. The surgeon may be misled by the intermittent character of the bleeding into the belief that it has ceased permanently. The intermissions may be prolonged for days, or even weeks; and at the end of such times, bleeding may recur in such large amount as to produce a dangerous degree of anemia, or even to bleed the patient to death. Such an occurrence is well illustrated by the following case, which was observed in the service of Doctor Charles McBurney in the Roosevelt Hospital in 1894.

The patient was a boy, aged sixteen years. A week before coming to the hospital he had fallen, while running, against a wooden beam, injuring his right loin. He had not suffered from shock, and had walked a considerable distance to his home, where he went to bed, and remained during the following week. He had observed that his urine was red after the accident. Upon admission to the hospital his temperature was 99° F., his pulse 100. He was passing a diminished quantity of urine, 14 ounces in twenty-four hours. This was slightly brownish in color, and contained a moderate amount of blood. There was pain in the region of the right kidney, moderate tenderness, and muscular rigidity. He left the hospital against advice, at the end of three days, feeling better, and desired no further treatment. Twelve days later he returned. On the preceding day he had passed a large amount of blood *per urethram*. There was no tumor in the loin nor noticeable tenderness. At this time his pulse had become rapid, 110. He had a slight amount of fever. His urine contained some blood. Upon the two following days he passed a considerable quantity of blood with the urine. The bleeding continued during the next five days with the symptoms of progressive anemia. Three weeks after the accident his right kidney was removed. The kidney was slightly enlarged. There was a bulging tumor at the center of its convex border. Upon incising the kidney a considerable cavity was found in the kidney substance, an inch and a half in diameter. The cavity contained a globular clot of bright blood, inclosing firm clots and masses of fibrin, partly decolorized. In the wall of the cavity an open mouth of an artery of considerable size plugged with a soft and recent thrombus was discovered. The cavity communicated by a small orifice with one of the calyces. The capsule of the kidney was not ruptured. The patient did not survive.

The following case history illustrates that a serious subcutaneous rupture of the kidney may be

attended by trifling symptoms at first. In this case the kidney and pelvis of the ureter were torn by a fall against a hard object. The persistent hemorrhage would, no doubt, have caused the patient's death had not the kidney been removed.

A. C., male, aged fifty-nine years, native of France, a cook. On July 6th, 1907, at about 7 A. M. he was lowering a small cart down some stone steps. He stumbled and fell a distance of only two or three steps, striking on his left side against the edge of the lowest step. He experienced a sharp pain in his left side, but arose, went about his work, and did not consider himself seriously hurt. He had some pain like a stitch, in his left side, some difficulty in taking a long breath, and that was all. Nearly eight hours later he had a strong desire to urinate; he went to the closet, urination was difficult and painful, and he observed that his urine was deeply stained with blood. He sent for an ambulance and was brought to the New York Hospital.

On Admission.—The patient is a large stout, man. Skin and mucous membranes normal in appearance. There is a fracture of the tenth rib on the left side about three inches from its anterior extremity. Abdomen.—There is tenderness beneath the free border of the ribs in the left hypochondrium, and tenderness in the lumber region of the same side. Temperature, 98.2° F., pulse 76; respirations, 20. The patient urinated liquid of a dark wine color. He entered the service of Doctor F. W. Murray. He was kept quiet in bed. His urine continued bloody. On the eleventh day of July, four days after admission, his hemoglobin was 60 per cent., on the seventh day 58 per cent., on the ninth day after admission it was 52 per cent. On that day the kidney was exposed by Doctor Murray through a five-inch incision parallel to the twelfth rib. The fatty capsule of the kidney was found infiltrated with blood. The kidney itself appeared swollen in its lower half. The capsula propria was incised and the incision gave exit to blood clots. The hematoma was cleaned out and the wound in the capsule drained by a strand of gauze. Suture of the external wound. The patient then fell under my care. From July 15th until July 19th he continued to pass bloody urine. He suffered from pain and difficult urination and much vesical tenesmus. On this day I exposed the kidney through the same incision. A jagged rent was found in the posterior surface of the kidney near its lower pole. The tear extended from a point an inch and a half distant from the hilum inward and opened the pelvis of the ureter for the distance of an inch. The borders of the rent in the kidney substance were friable and appeared to be necrotic. The kidney was removed. The patient made a good and satisfactory convalescence. In addition to the lesions described, the kidney contained several small areas of contused tissue resembling infarcts. These were necrotic.

In the group of cases in which the capsule of the kidney is torn and the organ itself is extensively pulpified and where the blood and urine are extravasated into the surrounding tissues, there will develop in the course of hours, days or weeks, a tender tumor in the loin, accompanied by the constitutional signs and symptoms of hemorrhage and followed later by septic symptoms. In these cases the accident will usually have been followed by marked shock and the diagnosis of rupture of the kidney will sooner or later become quite plain.

The rarer group of cases accompanied by laceration of the peritoneum and extravasation of blood and urine into the peritoneal cavity will be attended by the symptoms of peritoneal irritation, and if not operated upon at an early date, by peritonitis. In the last group the general signs and symptoms of any severe intraabdominal injury will be present and will usually furnish adequate indications for immediate operation.

A small group of cases occur of multiple injuries, or of injuries in which the exact site of the lesion cannot be discovered, either because localized evidences of contusion are wanting, or because the patient is unconscious; in these, it may be necessary to distinguish whether the blood comes from the bladder or the kidney. This is sometimes possible. Usually in bleeding from the kidney, the urine is equally mixed with blood; if, however, the bladder is the source of hemorrhage, the *last* portion of the urine passed often contains more blood than the *first*. The following procedures are sometimes useful in the differential diagnosis; if there is reason to suspect that the bladder is actually ruptured they had better be omitted.

If the bladder be washed clean with salt solution and the hemorrhage comes from the kidney, further immediate washings will return clear, or but slightly stained with blood; if the blood comes from the bladder, repeated washings will usually appear blood-stained, since the mechanical distension of the bladder with fluid will usually be sufficient to keep up, or inaugurate fresh bleeding. The same may be true in some cases of rupture of the membranous urethra. The cystoscope will enable us to clear up the diagnosis in some doubtful cases. If the hemorrhages comes from the bladder, the fluid medium will usually become opaque at once; if from the kidney, gushes of bloody urine, in case the bleeding is still going on, may be seen proceeding from the orifice of one or other of the ureters; or, a clot may be seen adhering to the orifice of one ureter. If the bleeding has permanently or temporarily ceased, the cystoscopic field may be so clear as to enable us to eliminate the bladder as a source of blood. It is to be borne in mind that the mere presence of a blood clot overlying one ureteric orifice is not proof positive that the blood has come down the ureter. In order to be distinctive we must be able to recognize that the clot protrudes from, or is actually attached to, the orifice of the ureter.

Subcutaneous injuries of a kidney, containing a large or rough stone, or the seat of a new growth, or of polycystic degeneration, though of slight severity, may cause hematuria from contusion or rupture of the organ; and, in such cases, the actual condition will not be recognized until the kidney is exposed through an incision.

A case illustrating one of these conditions came under my observation on Sunday, May 23, 1909, with the following history:

He was a man, aged 34 years, who had enjoyed throughout his life reasonably good health and had never suffered from any symptoms referable to his genitourinary tract. He was said to have had an attack of malarial fever, acquired during a visit to Cuba. During the past few years he has had, from time to time, attacks of pain referred to his epigastrium, for which he had consulted several physicians, who had made a diagnosis of gastric dyspepsia of indeterminate causation. The attacks were not very severe and were never referred to the region of the kidney.

On Saturday evening, May 22, 1909, the day before admission to the hospital, while about to de-

scend the stairs of an elevated railway station in Brooklyn, he caught his heel in the rubber matting and pitched headlong down a flight of steps. He was rendered unconscious by the fall, was picked up by a patrol wagon, and taken to the police station. He regained consciousness in a few minutes after he was hurt, and felt well enough in a short time to proceed to his home in New York. He received several contusions of the face and scalp, but no other injuries of which he was conscious except that he suffered a moderate amount of pain in the left loin. He went to bed and slept fairly well. The next morning he observed that his urine was bloody, and at about the hour of three in the afternoon he came to the hospital in a cab. I saw him about an hour later.

He was a fairly well-nourished individual, rather slender than stout. He said that for some time he had had a chronic cough. There were no external evidences of injury except the contusions of the face and scalp and a small abrasion in the mid-axillary line opposite to the seventh rib upon the left side. Urine passed after he entered the hospital was of a deep port-wine color. The heart and lungs appeared to be normal. His temperature was not elevated, his pulse was 90. He complained of a sense of distention and soreness in the left side of the abdomen and loin, just below the ribs.

Physical examination showed that the left loin was occupied by a considerable tumor mass extending downward to the umbilicus and nearly to the median line in front. The mass extended upward beneath the ribs. It was flat on percussion, and the colon, displaced somewhat toward the inner side, lay in front of it and produced an area of tympanitic resonance. The left side of the abdomen over the tumor was markedly rigid, and quite tender. The patient looked rather pale and anemic, and a diagnosis was made of a rupture of the left kidney with a large perirenal retroperitoneal hematoma.

The patient's condition being good I did not operate upon him until the following morning. Under gas and ether, an incision was made parallel to the ribs upon the left side, beginning at the outer border of the rectus in front, two inches below the costal margin and extending backward and outward slightly convex downward to the outer border of the erector spinæ muscle. Upon opening the loose perirenal fat, a hematoma of moderate size was entered; but further explorations showed the presence of a large polycystic kidney, which was ruptured horizontally at the junction of the upper with the middle thirds of the tumor. The pictures shown are about one-half the size of the organ. The rupture was on the anterior aspect of the kidney and almost completely separated it into two parts.

Upon palpation of the opposite kidney through the wound it appeared to be of normal size and consistence. The kidney upon the left side was removed without difficulty and with trifling hemorrhage. The ureter appeared normal and the renal artery and vein were of about normal size. The wound was sutured, with a suitable gauze drain introduced at its posterior angle. The patient did not suffer from shock and continued to pass abundant urine. The wound healed *per primam,* except for the drainage opening.

Upon the third day after the operation he passed seventy-two ounces of urine, three weeks after the operation he was passing from forty to fifty ounces a day. The urine, however, showed evidences of a moderate nephritis. It was of a specific gravity of 1.012, contained a perceptible trace of albumin, together with granular and hyaline casts. He had moderate cough, with very little expectoration in which no tubercle bacilli were found. The probabilities seem that he will survive, but whether or not his remaining kidney will continue to functionate, whether he will die eventually of nephritis, or, on the other hand, whether the organ will undergo a similar cystic change, it is at present impossible to say.

The interesting features of the case were that the tumor had never produced any definite symptoms, and that it should only have been discovered after its accidental rupture, the latter accident being, so far as I am aware, unique.*

In the cases attended by profuse bleeding, the bladder may have become filled with clots, there will be intense pain in the bladder with tenesmus, and often complete inability to urinate. The later septic complications of subcutaneous ruptures of the kidney rarely lead to diagnostic error.

(b.) *Open Wounds of the Kidney.*—These may be divided into I, Incised, stab, and puncture wounds with or without protrusion of the kidney; and II, Gunshot wounds.

Diagnostic errors should be infrequent in cases of incised, stab and punctured wounds of the kidney. If the wound enters a calyx, or the pelvis, immediate hematuria will usually render the diagnosis certain, urine, or urine mixed with blood will escape from the external wound, or if that be very narrow, will form a retroperitoneal tumor in the loin, or, if the peritoneum be opened, will soon produce signs and symptoms of peritoneal irritation. In many instances the necessary exploration of the wound for the control of hemorrhage, drainage, etc., will permit the wound of the kidney to be felt and seen.

It is well to bear in mind that wounds which do not enter a calyx or the pelvis, or at least enter a pyramid, will not, as a rule, be accompanied by macroscopic hematuria. If the wound passes through the anterior abdominal wall and injures other viscera, or through the pleural cavity and diaphragm, the diagnosis of kidneys injury in the absence of hematuria is not apt to be made at once, unless the abdomen is explored through an incision. Wounds in the loin accompanied by protrusion of a sound or injured kidney offer no diagnostic difficulties.

Gunshot Wounds.—Gunshot wounds of the kidney unaccompanied by injuries of other important viscera are rare. The liver, stomach, intestines, pancreas, lung and pleura, and the spinal vertebræ and cord, one or several of them, are often wounded, therefore, shock, intraabdominal bleeding and peritonitis are common results. As in other open kidney injuries hematuria and the escape of urine from the external wound are the cardinal signs. The latter, owing to the small size of the wounds in the skin, is often absent.

Primary bleeding has been slight in a large proportion of uncomplicated gunshop wounds of the cortex, secondary hemorrhage at the end of the week or more, has been rather frequent, and in many instances severe. On the other hand bullets which cut the renal artery, or vein, or both, bleed so rapidly that immediate operation offers the only

*Since the above was written, eight months ago, the patient has apparently made a complete recovery. He has resumed his work and feels well. There are evidences of a slight nephritis.

hope of saving life. As in subcutaneous injuries, the symptom hematuria, may be slight or absent when the bullet wounds the cortex merely, or when the ureter is cut.

The path of the military rifle bullet through the tissues is straight; so that in perforating wounds of the trunk, injury of the kidney might be inferred with probability on anatomical grounds. When a bullet enters from in front other viscera are almost sure to be injured, and in these cases shock, hemorrhage and peritonitis produce symptoms which may overshadow the injury of the kidney.

In one case upon which I operated the patient was shot through the left chest; his history was as follows:

G. R., a well-nourished, vigorous-looking man in the prime of life, was admitted to the New York Hospital on the afternoon of November 24, 1904. Twenty minutes before admission he had been shot in the chest with a .32 caliber revolver at close range. On admission his face was pale and anxious. Extremities cold. Pulse rapid and feeble. Rectal temperature, 99.6°. Respiration, 28, and labored. There was a bullet wound in the seventh intercostal space on the left side, in the anterior axillary line. There was no hemoptosis or external bleeding. The abdomen was moderately distended, tympanitic, and rigid. There was absence of liver dullness. The rigidity was most marked in the left hypochondrium. The patient had vomited partly digested food. I saw him a few minutes after his admission, and operated upon him under ether, less than an hour after the shooting. Abdomen opened along outer edge of left rectus muscle. Free blood, air, and a small amount of intestinal contents in the abdominal cavity. Upon retracting the wound edges and pushing aside the stomach a perforation could be seen in the diaphragm about four inches from the middle line, through which air and blood rushed in and out during respiration. There was a single contused wound of the transverse colon which had not opened the gut. There were two perforations in the jejunum about seven inches from its junction with the duodenum. The wounds in the gut were sutured and the abdomen washed. Efforts to close the wound in the diaphragm had to be desisted from on account of the bad condition of the patient. No active bleeding into the belly, other than from the diaphragm, was observed. Stimulation, drainage, closure of the abdominal wound. Patient rallied from shock, but had a gradually increasing abdominal distention. Continued vomiting, finally, dark brown in color and with a foul odor. There was marked dyspnea and the physical signs of hemopneumothorax on the left side. On November 25th the urine contained a moderate amount of blood. His temperature and pulse gradually rose, and he died November 26th at 9.30 A. M. The autopsy showed, in addition to the injuries described, a wound of the lower pole of the left kidney in which the bullet was lodged. There was a moderate amount of blood-stained fluid in the peritoneal cavity. The intestinal wounds were water-tight. The wound of the kidney was not discovered at the time of operation, though failure to discover it had nothing to do with the fatal result.

2. *Movable Kidney.*—Errors of diagnosis in cases of movable kidney in so far as they relate merely to the discovery of the fact that the kidney is loose and unduly mobile are scarcely likely to occur. On the other hand errors quite frequently occur in attributing pain, digestive disturbances, nervous symptoms, etc., to the mere mobility of the organ. No doubt every surgeon has operated in the hope of curing such symptoms by fixation of a movable kidney or kidneys only to be disappointed in the result. It is difficult to lay down any fixed rules for avoiding such errors. If the symptoms subside or disappear from prolonged rest in bed, elevation of the foot of the bed, or even a partial "Trendelenburg's posture" it is probable that fixation of the kidney may effect a cure. If, on the other hand, the patient suffers from general enteroptosis and is markedly neurasthenic or hysterical, and in cases where severely painful crises are absent, and where there are no changes in the quantity and quality of the urine during and after the attacks of pain, the surgeon will do well to be very cautious in advising operation.

3. *Hydronephrosis.*—In considering the errors which may occur in the diagnosis of hydronephrosis it is to be borne in mind that dilatation of the kidney may be produced by urinary obstruction situated anywhere between the orifice of the fore-skin and the calyces of the kidney. Further, that, in the cases due to obstruction at any point lower than the ureters before they enter the bladder, or even above this point, the disease may be bilateral. Stricture of the urethra, prostatic obstruction, tumor of the bladder, intrapelvic tumors, tumors of the uterus, etc., must be sought for and eliminated before we can be certain that but one kidney is affected and that our measures for relief should be directed to the kidney itself, or to the ureter of one side, rather than to the urethra, the bladder, the prostate, etc. I cannot take the time or space to enumerate and describe the causes and varieties of hydronephrosis, suffice it to say, that the causes are very varied and are due to either congenital or acquired obstructions. That the closure of the ureter may be partial and continuous or intermittent; each of these latter groups producing more or less characteristic symptoms and signs, and that the causes may be intrinsic or extrinsic. The lesions with which hydronephrosis is most likely to be confounded are cystic tumors of the liver, pancreas, and spleen, more rarely with cystic dilatation of the gall-bladder. Some years ago I made an error in diagnosis mistaking a cyst of the tail of the pancreas for a closed hydronephrosis. Had ureteral catheters been passed, the error, although of no moment from a practical point of view, would have been avoided. In this case the tumor grew from the tail of the pancreas and presented exactly like a hydronephrosis in the left flank. The tumor was tense and elastic, flat on percussion, and was crossed in front by the colon. Cysts of the mesentery or any other cystic retroperitoneal growths presenting in the flank may be differentiated from a hydronephrosis by catheterizing the ureter on the affected side. If we are dealing with a closed hydronephrosis the catheter will pass either not at all, or only for a short distance. In the latter instance a dry tap will result. If the tumor is cystic in character but not connected with the kidney the catheter will deliver urine from both kidneys, and such urine may or may not be normal. The size and consistence of a cystic tumor will remain unchanged. In the female, a hydronephrotic kidney may sometimes be mistaken for an ovarian cyst. The differential points are as follows: A large ovarian cyst occupies a nearly central position in the abdomen; a hydronephrosis, even though it may extend be-

yond the median line, does not occupy a strictly central position in the belly. The inflated colon lies in front of a hydronephrotic sac, in all but enormous dilatations, when it may lie to the inner side. Ovarian cysts only very rarely have intestinal coils in front of them. The relations and attachments of the tumor to the uterus and its adnexa may sometimes be made out in doubtful cases by seizing the cervix with a vulsellum forceps and drawing it strongly downward toward the vulva; the uterus and adnexa are then palpated per rectum and their mobility and freedom from attachment to the tumor or the contrary may thus be determined. In some cases a calculus may be felt in the lower end of the ureter, making the diagnosis of hydronephrosis almost certain. Hydronephrosis of a congenitally misplaced kidney will, in the absence of a history of urinary symptoms, nearly always lead to an error in diagnosis. I have myself made this error in four cases. Hydronephrotic kidneys, if not of enormous size, will usually be mobile laterally, sometimes vertically as well, whereas a congenitally misplaced kidney is firmly fixed. Injection of the ureters with argyrol solution and an *x*-ray picture may clear up the diagnosis. I have never personally mistaken a distended gall-bladder for hydronephrosis. A very large thin-walled sac has been mistaken for ascites; the two conditions may of course co-exist. Echinococcus of the liver may be mistaken for hydronephrosis; the former has usually a very long history, is immovable, and can in no wise be differentiated from the liver. If movable, echinococcus cyst of the liver may have a vertical respiratory mobility. Hydronephrosis of the kidney, if not enormous, will usually be movable laterally, sometimes vertically, and percussion and palpation will usually permit differentiation from the liver.

It is often impossible to determine before operation whether a hydronephrotic sac is infected or not. In the presence of chronic septic symptoms such infection is probable, but in all closed hydronephrotic sacs with thickened walls chronic suppuration may occur without much absorption, and septic symptoms may be entirely absent. Certain other conditions may be mistaken for hydronephrosis. Perinephric suppuration is usually rather an acute process, is accompanied by marked sepsis, fever, an accelerated pulse, an increase in relative number of polymorphonuclear leucocytes with blood cells, etc. The local signs of acute inflammation are present in the loin, or soon develop pain, tenderness, later redness of the skin. The swelling is not a sharply circumscribed tumor but a hard or boggy diffuse infiltration.

A very important diagnostic error may be committed in those cases of hydronephrosis due to the presence of a stone in the ureteric pelvis or in the ureter. The position of the stone should be determined if possible before any operation is undertaken. This can be accomplished in many instances by a series of *x*-ray pictures. In some it cannot. In my experience, in cases of intermittent hydronephrosis due to the presence of stone or stones, the calculi have acted as a ball valve and have lain in the dilated pelvis or just at the beginning of the ureter. When the stone lies further down the ureter and causes hydronephrosis, the symptoms are more apt to be continuous and the obstruction constant whether complete or incomplete. The *x*-rays and the passage of styletted ureteral catheters and of wax-tipped bougies may sometimes enable us to locate the position of the stone. Rectal and vaginal palpation should not be omitted. It would of course be a grievous error to open and explore a hydronephrotic kidney still, perhaps, capable of functionating when the seat of the obstruction, stone, or other was situated far down the ureter.

4. *Suppurative Lesions of the Kidney.*—Unilateral hematogenous pyogenic infection of the kidney may escape recognition during its early stages on account of the intensity of the general septic symptoms and the absence of distinctive signs pointing to a kidney lesion. While this is more particularly true of the bilateral cases, the same may be said of the unilateral infections, though to a less extent. The changes in the urine may be slight, though albumin, pus, and blood are usually present, the pus and blood may only be discovered by microscopic examination. The cystoscope will usually reveal swelling of the papilla of one side, sometimes redness and ulceration, or injection of the entire trigone. Ureteral cathterization will usually show the presence of albumin, pus, and blood in the urine of the infected kidney.

There will nearly always be pain sometimes referred to the loin, but rarely so severe as in the attacks of renal colic caused by stone. In other cases the pain will be referred to one side of the abdomen, or to the iliac fossa, so that if upon the right side, a diagnosis of appendicitis may be made. The pain may be central in the abdomen or without definite localization. There will be tenderness upon palpation of the kidney region in front, and always behind over the last rib, or below the rib at the outer border of the erector spinæ muscle. There will always be abdominal rigidity, often very marked over the affected organ. This sign has in my experience been useful in differentiating a mere pyelitis from a suppurative lesion of the kidney. Palpable enlargement of the kidney will usually be absent during the early stages of the disease for, although the kidney is swollen, abdominal rigidity will prevent its recognition except under a general anesthetic, or, the swelling may be confined to the upper pole of the organ and thus be entirely out of reach. In thin and flabby subjects it may be possible to feel that the kidney is increased in size.

The group of signs and symptoms briefly outlined together with the general symptoms of sepsis have been in my experience sufficient justification for exposing and exploring the kidney. The early diagnosis of these cases is particularly important since, if untreated, the other kidney will often be secondarily involved.

Subacute Cases.—In another group of cases primary pyogenic infection of the kidney runs a far less acute course. The onset may be insidious, there may be no pain, or only dull pain in the loin, or a sense of dragging and fullness. Continuous or intermittent pyuria may be the only local sign to point to disease of the genitourinary tract; or, these patients will suffer from frequent and painful urination. They are often treated during long periods for cystitis. In a large proportion of these cases symptoms of chronic sepsis are more or less marked. These patients have an evening rise of temperature, occasionally chilly sensations, or chills and sweating. They become anemic, suffer from loss of appetite and loss of flesh. In some cases constitutional disturbances—fever, etc.—are associated with attacks of renal pain and with retention of urine and pus in the affected kidney. If during these attacks the patient passes clear and normal urine, followed by marked pyuria and synchronous subsidence of

fever, etc., the diagnosis of a unilateral kidney or ureteral lesion is quite plain. During the period of retention there will usually be tenderness over the kidney and in some cases a palpable tumor. A somewhat similar series of events may occur when an abscess in the kidney ruptures into the renal pelvis. The patient may have suffered from pain and tenderness in the kidney region with more or less marked sepsis with or without palpable tumor; suddenly a very marked pyuria will occur, often with temporary abatement of the septic symptoms, and diminution in the size of the tumor—if such existed.

Secondary stone formation is very common in these cases, and in my experience more mistakes in diagnosis are made in these than in any other surgical lesion of the kidney. These patients are often treated for cystitis and for stricture of the urethra for years. A very important thing to bear in mind when deciding for or against operation is that septic nephritis of considerable severity may exist in one kidney without constituting an absolute contraindication to the removal of its fellow. I have reason to believe that in many cases operation is needlessly refrained from because the urinary findings indicate a chronic nephritis of the better kidney. Some of these cases can be restored to health by the removal of the suppurating kidney. Many cases might be quoted in which an apparently severe nephritis caused by chronic suppuration in any part of the body has entirely disappeared after the septic focus has been removed by operation.

Pyonephrosis.—In typical cases of pyonephrosis and of infected hydronephrosis the physical signs, the history, the palpable enlargement of the kidney, the *x*-ray examination, the pyuria, offer such a distinctive clinical picture that diagnostic errors should be infrequent, and yet as in the preceding group the condition of the kidney may pass unrecognized for many years. Many of these patients are treated for cystitis or other bladder lesions.

5. *Tuberculosis of the Kidney.*—In no other surgical lesion of the kidney is an early diagnosis more important than in tuberculosis. Experience shows that in a very large proportion of these cases the disease is confined at first to one kidney, the removal of which at an early period will result in cure. Failure to make an early diagnosis in these cases depends upon several conditions—first, many patients with primary renal tuberculosis in its early stages have the appearance of good health. Every young person who comes to us complaining of polyuria usually noticed at night, and in whose urine we find a moderate amount of pus, without a history of gonorrhea, should be regarded as a possible subject of kidney tuberculosis, and the diagnosis of the case should command our earnest, and, if necessary, prolonged attention. An early positive diagnosis is frequently difficult, sometimes impossible, for four additional reasons, namely: 1. The difficulty of finding and identifying tubercle bacilli in the urine. 2. The complete latency of the disease in many cases during its early stages. 3. The frequency with which the early symptoms are referred to the bladder, leading to a false localization of the disease. 4. The protean character of the early symptoms when they are referred directly to the kidney—thus, renal colic and hematuria may usher in the tuberculous infection of the kidney, and lead to the probable diagnosis of renal calculus. In the later stages of the disease, mixed infection still further obscures the diagnosis, though, at this time, the presence of a surgical lesion of the kidney can usually be established without much difficulty.

Many of the errors in the diagnosis of pyogenic and tuberculous infection of the kidney may be avoided by bilateral ureteral catheterization, by repeated search for tubercle bacilli in the urine, and the inoculation of guinea pigs. There will, however, remain a considerable number of cases, notably in males where for one reason or another catheterization of the ureters is impracticable, and in these we may be unable to assure ourselves positively of the condition of each kidney. In my experience, also, search for tubercle bacilli in the urine has been negative in a large proportion of cases of tuberculosis of the kidney. Search may be unavailing 1, When mixed infection with pyogenic germs is present. 2. When the tuberculous lesion is confined, as it often is in early cases, to the cortical portion of the kidney. 3. When the ureter is obliterated or plugged.

In cases attended by early ulceration of the apices of the pyramids, tubercle bacilli will usually be found in considerable numbers early in the disease. In case one kidney is entirely destroyed by tuberculous infection and its ureter is plugged, or obliterated, the mistake has sometimes been made of removing the other kidney, which, while tuberculous was still functionating sufficiently to keep the patient alive. I have seen this fatal error made in two cases; one was a man, the other a woman. In neither was catheterization of the ureters successful. It is to be borne in mind that mere palpation of the kidney through a wound does not permit an accurate conclusion as to its condition. In the absence of data derived from the urine, nothing short of visual inspection of the organ will suffice.

Chromocystoscopy following the administration of indigo carmine subcutaneously (4 c.c. of a 4 per cent. solution) is sometimes a useful aid in diagnosis where ureteral catheterization is impracticable. The functional activity of the supposedly healthy kidney in the given case is to be determined by estimation of the urea. An average daily excretion below 15 grams is usually regarded as pointing to a grave functional incapacity on the part of the kidneys. The phloridzin test is sometimes useful.

6. *Renal Calculus.*—In spite of the great value of the *x*-rays in the diagnosis of stone in the kidney, more mistakes, positive and negative, are probably made with reference to this condition than is true of any other surgical lesion of the kidney. The mistakes in my experience may be divided into several groups. A negative diagnosis of renal calculus may be made by the *x*-rays, whereas a uric acid stone is sometimes present in the kidney. In my experience such stones cannot be shown with certainly in an *x*-ray picture. Other stones may be missed, if small, in case the patient is very stout, or, in case the *x*-ray technique is imperfect. This last error is made with decreasing frequency as *x*-ray technique and apparatus are perfected. In a certain number of cases kidneys are explored in search of stone, and no stone is found. This may depend upon incorrect interpretation of the *x*-ray picture, an indefinite shadow upon the plate is regarded as that of a stone. This mistake will most often be made when the *x*-ray pictures are of inferior quality, though it may be due to the fact that the bowels have not been thoroughly empty when the picture was taken. The error may be avoided by refusing to make a diagnosis from *x*-ray pictures of poor quality and by having two or more pictures taken of

each case, so that the shadow of the stone, if such there be, can be positively identified. Another error occurs occasionally, when, with a very definite history of stone, the patient has unknowingly passed one or more calculi per urethram, and the surgeon operates in spite of negative *x*-ray findings in the belief that the stone is either uric acid, or that numerous minute calculi exist in the renal pelvis, a not very rare condition which, in my experience, cannot be diagnosticated with certainty in all cases by means of an *x*-ray picture. In these cases the shadows cast by the minute calculi are faint, diffuse, and without definite outline, and this group of cases again may lead a cautious surgeon to refrain from operation, whereas it is distinctly indicated. In these cases, however, the clinical history will usually be very characteristic. The changes in the urine will be quite marked, and there will usually be a history of the passage of gravel as well as of the recurrent attacks of renal colic.

The typical kidney colic is characterized by a sudden onset, and is of excruciating character; it is felt in the kidney region affected, along the course of the ureter, sometimes in the bladder, the testes, and external genitals. The pain may also radiate upward into the shoulder or down the thigh along the distribution of the anterior crural nerve. The pain is sometimes accompanied by vomiting, great prostration, sweating, by a constant desire to urinate, and in some cases by general convulsions. The attack may last for a few minutes, for hours, or for several days. The pain generally subsides suddenly, leaving the individual quite free from discomfort.

This typical history of an attack of renal colic is, clinically, the exception rather than the rule. Any one of the characteristic symptoms may be absent. The pain may be referred in such a manner as to lead to suspicion of disease of a different character. The symptoms may point to acute gastrointestinal disturbance. The pain may closely resemble an attack of biliary colic. If the pain is localized in the epigastrium, is a general abdominal pain, or is felt chiefly on the right side of the abdomen, low down, it may be mistaken for disease of the appendix. There are numerous instances in which kidney stone has been mistaken for scoliosis and for tuberculous disease of the bodies of the vertebræ.

It is also to be remembered that a number of conditions, other than stone, affecting the kidney may give rise to precisely the same train of symptoms. The invasion of the kidney structure with tuberculosis, with its accompanying congestion and tension of the kidney capsule, may produce identical symptoms, and be accompanied by characteristic hematuria. A new growth into which a hemorrhage takes place may exactly simulate a renal colic. It is asserted by several authorities on the subject, although denied by others, that the pain may be located upon the opposite side of the body. My own observation supports the affirmative view. Hemorrhagic pyelitis may give rise to symptoms precisely the same. Kinks in the ureter, in cases of movable kidney, may give rise to similar attacks. In general, any condition which produces a sudden increase in the intracapsular tension of the kidney or which obstructs the ureter may accurately simulate an attack of renal colic, an intraabdominal tumor, or an aneurysm—by pressure, for example.

There remain to be considered the very large group of cases in which the stone remains, so to speak, quiescent, giving rise to no symptoms at all, or at most to a slight amount of discomfort from time to time, or to symptoms hardly to be differentiated from those of ordinary functional gastrointestinal disturbance.

In another class of cases the typical symptoms of renal colic are entirely wanting, and the patient may suffer from constant or intermittent pain, sometimes referred to the region of the kidney, often to the bladder, and not infrequently to distant parts of the body, as, for instance, the sole of the foot. A large number of these cases are treated for bladder disturbance, none of the symptoms being referred to the kidney.

Calculous Anuria.—A patient who suffers from kidney stone may suddenly be seized with suppression of urine. If the other kidney is absent, destroyed, or seriously diseased, or if both ureters are obstructed at the same time, the condition will usually end in death in a few days, unless relieved by operative removal of the stone obstructing the ureter, or unless, as sometimes happens, the obstruction is partly or entirely overcome by natural means. If the other kidney is sound it usually continues its function. Sometimes a reflex anuria, usually of a temporary character, may occur in this sound kidney also. In fact, it is probable that such reflex anuria in a sound kidney rarely, if ever, endures to a fatal issue.

The symptoms of the onset of urinary suppression from calculus differ to some extent from the ordinary symptoms of uremia. At the beginning there is usually pain, referred to the kidney region or to the lumbar region, and down the course of the ureter. The pain may last throughout the attack, or more often will subside after hours or days. Many of the symptoms may be referred to the bladder, as in an ordinary attack of renal colic. When the obstruction is absolute, no urine may be passed after the beginning of the attack. If incomplete or intermittent, oliguria may alternate with polyuria. These are the cases in which hydronephrosis develops. The suppression is rarely so absolute as in ordinary cases of uremia, and, usually, small amounts of urine of low specific gravity will be voided, even though the case is to end fatally. In case the useful kidney is hydronephrotic a certain tolerance appears to be established; and even if the obstruction is not overcome, death may be delayed for many days. When uremic symptoms develop, they resemble those accompanying other forms of suppression, except that vomiting is more common and diarrhea less so.

Changes in the Urine.—The evidences furnished by the urine are valuable, although there are no data to be obtained from the urine, which enable us to make a certain diagnosis of kidney stone. The urine may be entirely free from abnormal ingredients. In certain cases the examination of the urine suggests merely a hyperemia of the kidney. The urine frequently contains blood in small amount, constantly or only at intervals. The blood in many cases is only discoverable under the microscope. There will sometimes be a quantity of albumin present in the urine, slightly in excess of the amount of blood or of the number of pus cells, if such are present. Sharp, and even dangerous, hemorrhage may occur, but such cases are the exception. The type of bleeding which furnishes us with the strongest evidence of the presence of calculus is small in amount and frequently microscopic. The number of blood cells present in the urine is often increased by muscular exertion, and entirely disappears when

the individual is kept quiet. When the hemorrhage is coincident with an attack of renal colic the bleeding usually continues for hours or days after the colic has subsided. Blood casts of the renal tubules do not occur, nor are blood casts of the ureter at all common. When the hemorrhage is severe, we must depend upon other physical signs and symptoms to exclude the presence of a malignant growth, an invasion of the kidney with tuberculosis, or the presence of a hemorrhagic pyelitis. A moderate increase in the number of leucocytes contained in the urine, or even a mild catarrhal pyelitis, may exist without infection.

In the absence of lesions of the lower genitourinary tract, the presence of a small quantity of blood, a trace of albumin, a moderate number of leucocytes in the urine is, when combined with attacks of renal pain, in the absence of tubercle bacilli and failure to appreciate a notable enlargement of the kidney on palpation, and especially if there is a previous history of the passage of calculi, strong presumptive evidence of the presence of stone.

When infection of the kidney has taken place and the urine is loaded with the products of inflammation, it is scarcely possible by urinary analysis to say whether the primary cause of the trouble is stone or some originally infections process; indeed, a stone or stones are often found in the pelves of pyonephrotic kidneys, apparently as a secondary condition to the suppurative nephritis, and also in tuberculous kidneys in which the secondary purulent infection has occurred, stone is not very rare.

These secondary cases of renal calculus present themselves to us more commonly as cases of pyonephrosis, perinephritic abscess, or other serious destructive lesion of the kidney, in which the stone plays a subordinate rôle from a pathological as well as from a diagnostic point of view. In those cases of primary calculus where infection occurs, a series of signs and symptoms are exhibited, complex in character, and due in part to the presence of stone; either set of signs and symptoms may predominate in any variety of prominence.

Physical Signs and Symptoms To Be Observed by Palpation.—Manifestly the only positive signs of the presence of kidney stone discoverable by palpation are the actual appreciation of the stone under the examining fingers or a sensation of grating obtained by moving one stone upon another. Such signs are rarely observed, and only in cases presenting stones of unusual size or in the persons of individuals unusually flabby and with thin abdominal walls. Such cases must of necessity belong to the surgical rarities, and although occasionally observed and reported by surgeons, these signs can scarcely constitute a common means of diagnosis.

A physical sign to which many surgeons have attached much importance is the occurrence of pain elicited by a light, quick blow upon the last rib of the affected side, or localized tenderness on pressure just below the last rib. In the absence of pronounced changes in the urine and of other signs of serious deorganization of the kidney, this sign is often given a high diagnostic value, when taken in connection with subjective symptoms, such as commonly accompany the presence of a stone in the kidney. Since the presence of a stone in the renal pelvis is not incompatible with a kidney normal in size, shape, and position, the existence of a tumor of any description corresponding to the situation of the kidney, or the absence of such a tumor, is not necessarily significant of the presence, or, on the other hand, of the absence, of stone. Stone impacted in the lower end of the ureter may occasionally be felt *per rectum* or *per vaginam*.

The Cystoscope and Ureteral Catheter.—The cystoscope and ureteral catheter sometimes afford useful aid. A stone projecting through the opening of the ureter into the bladder can be seen through the cystoscope. The ureteral catheter, when passed into the ureter, may meet with obstruction, and such obstruction may be due to stone. A positive diagnosis even is possible, and has been made by inserting a wax-coated bougie into the ureter. The bougie coming in contact with the stone was moved back and forth, and scratch marks were found upon the surface of the wax, thus showing the presence of some hard, rough substance (Kelly). The general conclusion must, then, be drawn, that in by far the largest proportion of cases no positive diagnosis of renal calculus can be made by the ordinary methods of examination. In many cases the operative exposure and examination of the kidney is necessary.

Errors and Limitations in the X-ray Diagnosis of Renal Calculi.—With the best apparatus and expert technique it is probably possible at present to detect stones in the kidney and ureter in nearly all cases, provided the stones do not consist of uric acid merely. The difficulties in the way of a positive diagnosis are, however, considerable when the patient is stout, when the stones are small; unless a negative of very good quality is obtainable, stones which are present may be missed, or, on the other hand, a diagnosis of stone may be made when no stone exists.

In my opinion it is unjustifiable to make a positive diagnosis of stone in the kidney or ureter, unless the shadow produced by the stone is absolutely distinct, and is found to be present in successive plates, preferably taken at intervals of several days. If these conditions are fulfilled, mistakes will rarely occur; still, errors are possible. A shadow may appear upon the photographic plate which is really not a urinary calculus; such may be scybalous masses, vein stones, prostatic calculi, calcareous plaques in the muscles and ligaments, calcified mesenteric or retroperitoneal lymph nodes, as well as other similar concretions. The passage of styletted ureteral catheters and their radiography in situ may prevent such errors, or, in some cases, it may be possible to inject through the catheters argyrol solution, thus filling the ureters and their pelves with a liquid rather impervious to the rays; the negative then produced by an *x*-ray exposure will show the outline of the ureters and pelves quite plainly, and, of course, shadows which do not lie in the ureteric paths do not have their home in the genitourinary tract.

As already noted, minute gravel distributed through the calyces, pelvis, and ureter may cast such faint or diffuse shadows as to escape notice. As mentioned in one of the case histories, very numerous calculi may, in rare instances, cast so diffuse a shadow as to escape notice, even in a fairly good negative.

When the apparatus used is imperfect and the quality of the *x*-ray pictures is not the best obtainable, the number of diagnostic errors are, in my experience, enormously increased. The day is past when the average surgeon can do his own *x*-ray work. The best *x*-ray apparatus is so expensive and cumbersome and the time, care, and skill nec-

essary for its successful use are so great, that the best *x*-ray work to-day can scarcely be done except by the specialist or in a large hospital.

Even after the presence of a stone in the kidney has been demonstrated by the *x*-rays, it may be quite hard to find it after the kidney is exposed. A case of this kind came under my observation a few weeks ago. A boy aged thirteen years entered the hospital, in my service at the New York Hospital. The *x*-ray showed very clearly the presence of a small stone in the pelvis of the right kidney. Upon exposing the kidney, the stone was readily felt at the junction of the pelvis with the ureter. In order to make access to the stone easier, the kidney was freed from its fatty capsule and delivered from the wound. It was my intention to incise the pelvis, remove the stone, sew up the cut in the wall of the pelvis, and put the kidney back in place. The stone, however, could no longer be found; it had slipped back into the uppermost of the calyces, where it was found and extracted, only after incising the convex border of the organ and searching with a finger in the pelvis and several calyces, one after the other. Had no *x*-ray picture been taken, or had the shadow of the stone been doubtful, and had I not felt it very plainly earlier in the operation, I should probably have assumed a diagnostic error and desisted from the rather prolonged search.

In a subsequent paper I shall consider the diagnostic errors which may be made in perienal inflammations, in congenital defects and displacements of the kidney, in tumors of the kidney, and shall also consider the diagnostic errors in those diseased conditions where hematuria is the most marked symptom.

MEDICAL PRACTICE LAWS.*

A REVIEW OF CERTAIN PHASES OF THE LEGAL REGULATION OF MEDICAL PRACTICE.

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"WHEREAS, many ignorant and unskilled persons in physic and surgery, in order to gain a subsistence, do take upon themselves to administer physic and practice surgery in the City of New York to the endangering of the lives and limbs of their patients, and many poor and ignorant persons inhabiting said city, who have been persuaded to become their patients, have been great sufferers thereby. For preventing such abuses for the future, be it enacted that no person whatever shall practice as physician or surgeon before he shall first have been examined and after due examination of his learning and skill, shall be approved and admitted to practice."

These words introduced the first medical practice law of New York, that of June 10th, 1760, and constitute an admirable statement of a principle which has animated every law regulating the practice of medicine in New York during the 150 years since it was enunciated. In other words, the people of New York for at least a century and a half have recognized the fact that uneducated doctors are a menace to the community. It is, moreover, a demonstration of the old saying that there is no new thing under the sun. Our modern medical examining board had its prototype in Colonial New York one hundred and fifty years ago, for under the law of 1760 a medical examining board was appointed by the high officials of the city, including the Mayor, the King's Counselor, and the Judges of the high court. This law applied only to the City of New York, which then occupied but a small portion of Manhattan Island. In 1792, a law was enacted by the State Legislature renewing the colonial law and applying it to New York County. By its provisions two years of medical study were required of college graduates and three years of others. In 1797, the law was extended to cover the State. It is an interesting fact pointed out by Dr. Rogers that restrictive medical laws have always advanced in this State from the densely to the sparsely populated regions, from city to county, from county to State. We may take just pride in the fact that from colonial times New York City has evinced an appreciation of educated physicians.

The profession has passed through some grave periods of trial, however. One of these resulted in bringing about a material change in the methods of medical education and incidentally led to the founding of the first dispensary. On April 13th, 1788, some boys at play found the remains from a dissecting room. A crowd soon gathered and excitement rapidly spread throughout the town. Mobs formed in the streets, the houses of physicians were attacked, and many medical practitioners were injured. After the excitement had subsided, a feeling of antagonism was left against the profession, and to allay this a charitable enterprise was undertaken by several of the younger physicians. They induced the magistrates of the city to establish an apothecary shop to be maintained at public expense and gave their professional services to the sick poor. This was the origin of the New York Dispensary, the first in New York. Those connected with this dispensary began to deliver lectures and give instruction in medicine and at the end of three years sixty medical students were in attendance. The medical department of King's College (now the College of Physicians and Surgeons) had been organized in 1768 and the first degree of Doctor of Medicine was conferred in 1770. The rivalry between the Medical College and the Dispensary Clinic is not within the scope of this paper.

On April 4, 1806, the law was passed which looms up as a great landmark in the medical history of this State. Under its provisions the State and county societies were organized and clothed with great legal powers and were specially commissioned to "regulate the practice of physic and surgery in this State." So radical were its provisions that every legally qualified physician was declared by the courts to be "*ipso facto* a member of the medical corporation." Upon its enactment a contest for the control of the power to license medical practitioners was begun which lasted one hundred and one years. This contest has been admirably described by Dr. Howard J. Rogers, until recently the efficient First Assistant Commissioner of Education of New York, to whom I am indebted for many facts. During this period three forces contended for this control: first, the medical profession acting through its county and State societies; second, the medical colleges; third, the State of New York, acting through the Regents of the University. Under the law of 1806, the power to license practitioners was vested wholly in the county societies, the Board of Censors in each county being the examining board. This power was held without interruption by the county societies from 1806 until 1880. Exclusive

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control, however, was held for only three years, for under the law of 1809 graduates of the State medical schools, on a degree granted by the Regents, were entitled to practise without examination by the censors.

During the earlier part of the nineteenth century, therefore, there were two sources from which a license to practise medicine emanated: (1) The diploma of the Regents of the University; (2) The license granted by medical societies to those who had studied with a licensed practitioner. As time passed the power of the societies diminished and that of the colleges increased. During this period the homeopathic and eclectic schools of practice developed and finally obtained the same rights for their State and county societies as that held by regular practitioners. Toward the latter part of the century there came to be, in fact, a triple control in the licensing power; that of the societies, the Regents, and the colleges. In 1872, a law was enacted by which the principle was first established that licenses might be granted by a State department, and not by those engaged in teaching and practising medicine. This principle was limited, however, and the other methods were continued in force. This was the first step toward absolute State control and completed an epoch which has now passed into history.

The second step toward State control was taken in 1880. By the law then enacted, the power was taken from the societies and the provisions of the act of 1872 were broadened and strengthened, thereby giving the Regents additional power. The character of the medical diploma as a license was still sustained, however. There was thus again established a dual control, but this time it was divided between the Regents and the colleges, instead of the Regents and the societies as in the first half of the century.

The third step toward State control was taken in 1890 when a law was enacted vesting the power to grant licenses to practice wholly in the Board of Regents and giving that Board the authority to determine the qualifications to be required of medical practitioners as regards preliminary and professional education. The medical degree was then deprived of all power as a license to practise. This was done with the willing consent of the colleges and the action was approved by all the schools of medicine. In 1893 radical changes were made in the medical practice act, particularly those portions defining preliminary and professional standards of education, but the principle of licensure was unchanged.

The fourth and final step toward State control was taken by the enactment of the law of 1907, by which the State, though its Education Department, was placed in full control of all matters relating to the practice of medicine, without regard to medical sects, societies, or colleges. Thus after continuous agitation for more than a century, the various forces seeking to control the licensing power were set aside and one of the most potent incentives to medical politics and intrigue was swept away. The rational principle was established that it is the duty of the State to assume complete control of the safeguarding of the health of the people. The principle was formulated by Commissioner Draper that the State may properly establish and uphold a single scientific basis for the practice of medicine in all schools. "Establish a fundamental standard for all medical practice," he said, "which will protect the people against ignorance and let those who can come up to that standard practice."

The law of 1880, to which reference has already been made, contained another feature of the greatest importance, that of requiring all persons engaged in medical practice to register their licenses in the office of the County Clerk. The significance of such a requirement is obvious, for an authentic license must be presented for registration. Any practitioner whose name does not thus appear is an illegal practitioner and is at any moment liable to arrest and prosecution. This list is consulted almost daily by the legal department of this society and much of our legal work would be impossible without it. This law uncovered a surprising number of practitioners who were not graduates from any medical school. I was cognizant of a man who had long done a considerable practice upon a sutler's certificate which he had gained during the Civil War. He came to New York and took a course in Bellevue College, and obtained a legal license.

Preliminary education of medical students has been another important subject of State legislation, the law of 1889 being the first radical enactment. Previous to that time there was virtually no State requirement as to preliminary education, and scores of students came to the medical college direct from the country district school. Advances in preliminary requirements have been made from time to time until now twelve years of preliminary education are required by the statutes of this State, namely, four years in the primary school, four years in the intermediate school, and four years in the high school. This subject of preliminary education is probably being now discussed more earnestly than any other pertaining to medical education and licensure, and views are very divergent. The medical colleges of this State are finding that the students from the average high school have not a satisfactory basis upon which to begin the professional training required for a modern physician. This is true even of the high schools of New York, which are the best in the country. In many of them instruction in chemistry and physics is inadequate and the feeling is strong among the colleges that more preliminary training is required. The remedies suggested are numerous. It is proposed by some to require a special preliminary course of one or two years. Others would require a five years' course in the medical college of those who have had insufficient training in physics and the biological sciences. This would virtually mean a year of preliminary study given in the medical college itself. Those who have had adequate instruction would be admitted to advance standing and could complete their medical course in four years. This plan has much to commend it.

Still others would require the first two years of the literary college course. This, it is true, would give a certain degree of intellectual culture, but it seems to me doubtful whether a medical college should make anything but knowledge of medicine an indispensable condition for the granting of a degree. I fully believe that the State has no right to set up any standard but that of knowledge. The question of intellectual culture as given by the literary college should be decided by the inclination and financial ability of the individual. The first two years in the curriculum of most colleges may give culture but it does not give the technical knowledge required by the medical student. The requirements for admission to the medical school should be

like those imposed by any other school, namely, the knowledge possessed by the applicant, not mere length of time spent in study. For the medical school, culture should be encouraged, technical knowledge only should be obligatory.

A few universities have perfected a plan for so combining the medical and literary courses that they may be completed in six or seven years. After three years in the literary college and one year in the medical college the bachelor's degree is conferred in recognition of the four years' work then accomplished. This scheme presents certain objectionable features, which will probably prevent its adoption except in universities having a medical department. A few medical colleges now require a full literary course of four years as preliminary to admission. Last year 15.6 per cent. of the medical students of the United States and 20 per cent. of those in New York were graduates of literary colleges. While it is right perhaps for certain colleges to adopt this severe requirement, very few advocate the proposition that the State should decree that only college graduates should be permitted to study medicine within its borders.

The advocates of radical increase in the preliminary requirements in the advanced states apparently do not consider the different classes of students who are being educated in the medical colleges of this country. They are of three general types. (1) A few will do little or no medical practice but will enter upon research work in laboratories and institutes and will devote themselves to the advancement of pure medical science. (2) A somewhat larger number will settle in the cities and adopt a specialty and in time will become consultants. (3) By far the greater number will scatter over the land, in both city and country, as general practitioners. The popular idea that most physicians are now specialists is without foundation. The family physician and general practitioner was never more firmly established in our social system than he is to-day. The first two of these classes will of their own volition seek the most ample training they can secure, that they may be the better able in later life to attain the high places in the profession. No legal enactment is necessary to induce them to take the higher education, either before or after graduation. To hurriedly raise the barrier too high against the third class would exclude many desirable men from the profession and bring about several unfortunate conditions. It would galvanize into new life many systems of quackery and weak third-class colleges. The great bulk of the medical students of the country are to become practitioners, not research workers, a fact ignored by some recent enthusiasts, and they should receive the training which will make them practitioners. Research and the specialties are subjects for postgraduate study.

Opinions differ radically and honestly upon this subject and I can only express my own. I cannot too strongly assert belief that every medical student who can possibly do so, should take a college course before he enters the medical school and a hospital course after graduation. I firmly believe that more preliminary education is desirable than is given by the average high school. But it seems to me that the time is not ripe for the general legal requirement by this State of more than one year of special preparatory work. This would involve seventeen years of unbroken study to obtain the doctor's degree in medicine. College-bred men who have spent twenty-two expensive years in preparation will not settle down in the villages and rural communities, unless they gravitate there after failure in larger places. They will seek return for their heavy investment, either in income or reputation, which they can best secure in the cities. Too rapid advancement of the medical standard will aggravate the present marked tendency to congestion of the profession in the cities and its depletion in the country. It would be unfortunate to fit doctors only for the easier and more attractive practice of the cities. Every raising of the educational bars adds incentive to the systems of pseudo-medicine to fight for a lower standard or to break in through loop holes. We had better hold what we have than to risk losses by premature attempts to advance our standards. It seems to me that the most we should ask in this State is one year between the high school and the medical college of those who do not hold a literary degree or have had no special training in the physical sciences, and at present I do not believe we should ask that.

Still another subject of State legislation has been that of the medical college course and the scope of medical education. The almost universal standard throughout the United States for many years was three years' study of medicine, with two courses in a medical college. The actual time of instruction in the medical college was often not more than five months in each year and the course was not graded. The remaining time was supposed to be spent in the office of a practitioner. When conscientiously carried out according to its intent, this system had much to commend it. The medical aspirants who were brought into close contact with practitioners of strong character and broad experience learned much of human nature and the humanitarian side of their character was early developed. They obtained a valuable fund of practical knowledge and acquired an attitude of mind toward the sick and unfortunate which scientific training alone does not impart. They were imbued with a correct professional spirit and obtained an esteem for the profession which the students of to-day do not always acquire. But there were many weak places in the system and they gradually became more pronounced. The average preceptor did not take the interest in his students that was taken by the doctor of fifty years before. As pharmacy developed and the office work of the medical student was reduced, the relations between preceptor and student became less intimate and instruction was frequently perfunctory and valueless. In too many cases the two short college terms furnished all the instruction in medicine which the student ever received. With these conditions coupled with the rapid strides of medical science, a different system became imperative. The whole system of instruction by preceptors was, therefore, wiped out when the State required three years' attendance at the medical college. In 1896 four college courses were required of at least seven months each in four different calendar years.

When the State assumed control over licensure under the law of 1890, three examining boards were appointed, representing the regular profession, the homeopaths, and the eclectics. Those boards began their work in 1891. It was not possible at that time to ignore sects in medicine. Although a compromise, it was a distinct advance. In process of time, however, systems of pseudo-medicine arose, and alleging that they were "schools" of medicine, demanded recognition. Without exception they asked for the privilege of practising upon educational re-

quirements inferior to those imposed upon physicians. Contest before the legislature was renewed year after year, for medical men necessarily combatted such demands. The profession chafed under the false position in which it was placed every winter by these contestants and the Legislature and the State Education Department became thoroughly wearied of them. Two courses and only two were open. The one was to recognize every medical sect as it arose and obtained a following and to give it a State examining board. The alternative was that the State should refuse longer to recognize medical sects, or "schools" of practice. It was impossible to longer maintain the three examining boards without adding to their number. The State Educational Department, therefore, took the matter in hand, upon the ground that medical laws are a part of the educational laws of the State. These laws are wide in their application, and cover many professions and diverse conditions, and are administered in all their ramifications by the State Education Department, an organization of great power and efficiency. "The first Assistant Commissioner is in charge of universities, colleges, and professional schools, and of the execution of the laws concerning the professions."

After long deliberation the Department laid down the principle that the State of New York, which does not recognize sects in religion, ought not to take cognizance of disputed dogmas in medicine and should not, therefore, put its seal of approval upon any medical sect or special system of practice; that it should establish definite educational requirements; that any person fulfilling these requirements should be recognized as a physician and should be licensed to practise medicine, using his own educated judgment in the selection of treatment. It was recognized that diagnosis is the foundation stone of medicine, as there can be no rational treatment without diagnosis. It was, therefore, held that every applicant to practise should be obliged to give evidence of sufficient education to diagnose disease.

This is the identical ground which I took in my inaugural address as President of this Society in 1905, when I said: "Our opposition to pseudo-medicine is and should be, educational, not professional * * *. The medical profession approves the system which requires the same education for all practitioners. We are not the ones who are seeking to bring half-educated practitioners through the back door. We simply ask equal requirements for all * * *. It is one of our fundamental principles that every man and woman exhibiting proper qualifications should be admitted to practice."

After much consultation the Education Department prepared a bill in which these principles were embodied and after a bitter struggle it was enacted into law in April, 1907. It was commonly known as the "medical unity law" or "single board law" but was in fact a general medical law, the most comprehensive that has been enacted since 1806. It did not emanate from the doctors but from the State Education Department, as part of a broad educational plan. Unless misled into unwise legislation, the State in the future will not again place its seal either of approval or condemnation upon any medical sect or ism. It is now on the sane and unassailable ground of licensing physicians as it licenses lawyers, dentists, pharmacists, veterinarians, nurses, and public accountants, without qualifying adjectives or restrictions as to methods of practice. Licenses are granted by the Regents upon the recommendation of a single examining board, nominated and appointed by the Regents and consisting of nine members. Examinations are conducted in anatomy, physiology, chemistry, pathology, bacteriology, hygiene, sanitation, obstetrics, gynecology, diagnosis, and surgery. The various specialties are included under the last two headings. The examinations are held simultaneously four times a year in New York, Albany, Syracuse, and Buffalo. About 750 candidates are examined each year.

It is sometimes asserted, and with truth, that examinations are not unmistakable means of determining fitness for practice. It would be difficult to devise any method that is strictly unmistakable. It should be understood that written examination is not the only test relied upon in New York and in twenty-six other States, for candidates are not admitted who have graduated from colleges of low standing. There are many colleges in the United States as well as in foreign countries whose graduates are not permitted to enter the examinations. Admittance is a guarantee that the applicant has had good educational opportunities. The examinations determine how well he has utilized them. It is no small thing that applicants from foreign countries must pass an examination written in the English language. A prime object of the State is to secure adequate education of its medical practitioners with the least possible interference with the colleges in their actual work. This object is admirably attained under this system, for in its supervisory capacity the State now has in its hands a potent means of keeping the colleges up to their work. The position of medical examiner is one of importance and responsibility. A competent and conscientious man may do much to cause the colleges of his State to raise the standard of education in his department. On the other hand, an examiner who lags behind the times or allows himself to ride hobbies may seriously impair that standard in his department.

Under our form of government the power to establish educational standards is vested wholly in the States. The standards, therefore, differ in each State and many unfortunate and actually unjust situations arise. This, however, is inevitable, for it is impossible for the general government to establish educational requirements, except for the army, navy, and marine hospital service. Upon elder practitioners who wish to remove to other States, this often inflicts great hardship. It is evident that a State with a high medical standard cannot admit practitioners from a State with a low standard without some assurance of fitness. It would be unfair to thus discriminate against its own students, who cannot escape any of the requirements, including an examination before a State board, and such discrimination is forbidden by the laws of New York. The blame for irksome requirements is usually placed by a disappointed candidate in the wrong place. When "reciprocity" between two States is not possible, the blame rests upon the State which permits inferior qualifications in its practitioners, not upon the one which has established a proper standard and takes the necessary measures to maintain it. The standard is still deplorably low in some States, there being no less than thirteen which have no legal requirement whatever for preliminary education. It is probable that in time a common standard may be evolved which will be acceptable in its essential features to most if not all the States. It is not possible

to force such a standard upon any State, and capable practitioners in low standard States must suffer whether they remain in their own State or remove from it.

Previous to 1907, certain osteopaths had been practising in this State under alleged shelter of the celebrated decision of Judge Daniels, which asserted that the administration of drugs was necessary to bring a practitioner under purview of the medical practice laws. In other words, until three years ago the practice of medicine in New York, according to judicial decision, consisted only in the prescribing of drugs. The opinion was forcibly expressed by many members of the State Senate that the osteopaths were here by tacit consent and could not then be legally evicted from practice, and they asserted that an adjustment of the rights of the osteopaths was necessary. Those holding this view formed a majority of the Senate and had passed a full osteopathic bill the previous year. Therefore, those osteopaths who were graduates from a recognized osteopathic college, and were already established in the State, if they fulfilled certain requirements of the Regents, were licensed by the law of 1907 to practise osteopathy, but were specifically forbidden "to administer drugs or to perform surgery with instruments." This was necessary to prevent State recognition and a full osteopathic examining board, which the Legislature would otherwise have certainly given, and it prevented the granting of greater privileges.

After November, 1907, a three-years' course was required of osteopaths and the same examination before the State board as that exacted of physicians. After 1910 an approved four-years' course and the State examination is required, thus placing all applicants for practising the healing art in New York upon the same basis.

Until 1907 there was no statutory definition in New York of what constituted the practice of medicine. The extraordinary decision of Judge Daniels, of the Supreme Court, has already been referred to. A judicial decision has the power of law in all lower courts. The importance of a proper legal definition in attempts to enforce medical practice laws is at once apparent. As a result of the persistent efforts of Mr. Champe S. Andrews, the recent legal adviser of this Society, other judicial decisions of very different character had been obtained. Using these as a basis, the following definition was written into the law of 1907 and was by no means the least of its important features: "A person practises medicine within the meaning of this act, except as hereinafter stated, who holds himself out as being able to diagnose, treat, operate, or prescribe for any human disease, pain, injury, deformity, or physical condition, and who shall either offer or undertake, by any means or method, to diagnose, treat, operate, or prescribe for any human disease, pain, injury, deformity, or physical condition."

The masculine pronoun has been used throughout this article without the intention of ignoring the admirable women of the profession. Their actual number is not large. In the United States last year but 3.7 per cent. of medical graduates were women. A portion of them will take up research work in laboratories and institutes and a considerable number will seek positions in sanatoria and similar institutions, so that the proportion of women in private practice is very small.

Some of the laws placed upon the statute books during the past 150 years have been enacted to meet changed conditions. A few have been retrograde in their effects and have lowered existing standards. The greater proportion, however, have been well-considered steps toward better conditions. Laws of this character have been enacted during every decade since 1792, except during the sixth and seventh decades of the last century. During that time the homeopathic and eclectic medical societies were chartered and invested with legal powers. From 1854 to 1872 not a single law to advance the standards of medical education or practice was enacted. This is a striking commentary upon the folly of professional strife and contention. During the time when the contest between the schools of medicine was at its height, the energies of the profession seem to have been completely exhausted by the strife. Not a single successful effort was made for eighteen years to improve professional conditions by new enactments.

Since 1872 legislative enactments have been frequent and important. Without exception the object of successful efforts has been to equip medical men more thoroughly and to render medical practice more effective. Compromises have sometimes been accepted, but the effort has been persistent and tireless to make at least a little advance in each new law. As the profession has become more homogeneous, its influence has vastly increased and has been steadfastly used to further every effort to send out better qualified physicians to the people. A united and homogeneous profession will, without doubt, be able to hold all that has been secured. If judicious it will in time be able to attain its ideal standards for both education and practice.

The laws of New York as they now exist are but a reflection of a tendency that has been active for fully three decades. They recognize physicians only and take no cognizance of medical sects. The profession itself has been rapidly drifting to the same position and is now more homogeneous than it has been at any previous time for almost a century. It is a surprise to most physicians as well as to laymen to know how little the profession of to-day is divided into "schools." Few medical practitioners are now willing to place upon themselves either legal or moral bonds to limit their practice to a single method. They wish to be free to adopt every resource in diagnosis and treatment which modern science has placed at their disposal and refuse to be restricted by a dogma.

Of the 22,145 students in the medical colleges of the United States last year, 20,554 were in the regular colleges. Of the graduates of the New York State medical colleges, 93.2 per cent. were from the regular colleges; 4.8 per cent. from the homeopathic; 2 per cent. from the eclectic. In the United States, 92.1 per cent. of the medical graduates were from the regular colleges, the remaining 7.9 per cent. being divided between the homeopathic, eclectic, physiomedical, and nondescript colleges. In other words, 92 of every 100 medical graduates prefer to go out to their life work without sectarian limitations and restrictions, bearing only the simple and honorable title of physician.

113 West Ninety-fifth Street.

Pediatrics and Orthopedic Surgery.—Steinhart calls attention to the necessity of the study of these branches of medicine as they should be. It is disconcerting to see men who are wholly ignorant about these specialties treating or pretending to cure cases that fall to the lot of the specialist.—*Crónica Médico-Quirurgica de la Habana.*

IS INSANITY INCREASING?

By AMOS J. GIVENS, M. D.,

STAMFORD, CONN.

We may point with pride to the record of progress in the arts and sciences, and especially in the humanities and philanthropies of the nineteenth century. We may rejoice that we were privileged to form a part of that great army of workers who in its closing years gave a new impetus to the many movements for the betterment of State and nation. The nineteenth century made immense strides in advance of any of its predecessors, but its record is no less admonitory and instructive than it is stimulating, for it is ended. It may not now, though we wish it ever so much, be altered or revised. It is irrevocably closed. To that gift, however, which it held by inheritance, the most valuable of all its possessions—the gift of opportunity—the twentieth century has fallen heir. It is the recognition of the value of this gift, and of the highest use to which it may be put, that is the fundamental cause of the existence of the body of altruistic men and women gathered here to-day.

This Conference of Charities, the first ever held in the State of Connecticut, is a notable event in the history of a commonwealth ever distinguished by its enlightened and progressive spirit. The occasion calls together from various sections of the State men and women deeply interested in the welfare of feeble-minded and defective children; men and women who have devoted their lives to the betterment of individuals who are in the industrial schools, reformatories, jails or prisons, as well as those who need the special treatment and protective care of a State hospital or sanitarium. In fact, this conference is composed of persons who are actively interested in sick and suffering humanity. It enables those who are co-workers for the betterment of the sick and unfortunate to meet, to exchange helpful ideas, and to combine all of the agencies in the State having a part in this beneficent work.

The subjects which necessarily demand your consideration are very many. When they are regarded attentively, it will be seen that each requires not only a knowledge of past and present conditions in the State or country, but also a comparative knowledge of conditions in other States and countries. To this must be added a comprehension of underlying causes, so that the trend and outcome may be intelligently recognized and forecasted, and remedial measures wisely chosen.

One of the most important of these topics is undoubtedly that which I have the honor to bring to your attention to-day, and that is, "Is Insanity Increasing?"

And first, in a country like the United States, of such a cosmopolitan people, it is necessary to know whether, relatively to the proportion each bears to the total population, the native born or the foreign born furnishes the larger number of the insane. the answer is, the foreign born. That is to say, government statistics tell us that of white individuals at least ten years of age in the general population of the United Sates in 1900, 80.5 per cent. were native born and 19.5 per cent. were foreign born, while of the white insane of known nativity enumerated in hospitals, 65.7 per cent. were native and 34.3 per cent. were foreign born! To a nation receiving a million of immigrants a year, such a fact is of great significance.

Aliens come to us chiefly by way of our seaports, and it is therefore pertinent to inquire what protection we are receiving at these points of entry. About two years ago, in accordance with the suggestion and advice of Theodore Roosevelt, a special commission was organized for the purpose of investigating conditions in Europe, and for lessening, if possible, the number of insane or defective persons constantly seeking homes in the United States. During a period covering one year, and the last year of which we have any definite report, there were admitted at Ellis Island, New York City, 424 insane persons. The immigration inspectors succeeded in deporting all of this number. Forty-nine insane persons were sent back to Austria, 37 to Germany, 28 to Hungary, 74 to Italy, 76 to Russia, 12 to Sweden, and a small number to Turkey, Syria, Poland, Norway, France, Denmark, and other European countries. It is of interest to note in this connection the number of insane refused entry at Ellis Island in 1907. This number was 189, to which must be added 360 deported for insanity the same year. Of the 360 there were 64 Irish, 43 Greeks, 35 Northern Italians, and 32 Scandinavians.

The immigration laws are now very strict, but have been rigorous for only a short period of time, and for many, many years defective and unbalanced aliens have not only sought homes in this country, but perhaps have been intentionally sent here. By referring to the statistics of the foreign born population of our insane hospitals, it will be observed that it will take a long time for a lessening of these conditions and a demonstrable change for the better; but with a commission like the one established by Congress, and with the rigid laws for the exclusion of defectives, it is reasonable to suppose that eventually this evil will be somewhat abated. Should the phrase "somewhat abated" suggest but a moderate degree of optimism, let it be remembered that many factors enter into the problem for which even deportation of immigrants becoming insane within a stated time after admission cannot wholly provide.

The annual report of the Commissioner-General of Immigration for the year ending June 30, 1907, contains this interesting statement: "The vast majority of the arriving aliens have been destined to a few of the large cities, over 30 per cent. to New York State." Now, on October 1, 1908, there were 30,507 patients in the various hospitals for the insane and sanatoria in New York, an increase of 1,414 over the previous year. Concentration of population, and consequent and ultimate degeneration mentally in those unable to withstand the change to such environment, exclusion and deportation cannot adequately provide against.

The first census of the United States, in 1790, gave only eight cities of eight thousand or more inhabitants and containing 3.4 per cent. of the total population. In 1900, on the other hand, there were 545 such cities, holding 33.1 per cent. of the total population, while of this total number nearly 26 per cent. was distributed in communities of 25,000 or over. Urban life provides not only a highly stimulating environment, but one in hygiene and housing least favorable to the integrity of the nervous system. Above all else, urban life offers every facility for the indulging in those vices, extravagancies, and breathless pursuit of fortune and pleasure increasingly hostile to normal mentality or the begetting of normal offspring. These factors affect native as well as foreign born individuals, but not equally. To a certain extent the former are, as it were, con-

genitally acclimatized to this artificial atmosphere; the latter are not.

Again, not only is there a yearly increase in the number of the insane in New York State, but also an increase in excess of the growth of the population. This increase during the past twenty years has reached 97 per cent., while the population has increased in the same time only 53 per cent. The ratio of insane to the general population in the State of New York, according to the latest figures, is 1 to 340. Figures from other States taken at random tell the same story of constant increase. Idaho, for instance, gives us such reliable figures as these: Insane patients under State charge, proportion to population in 1880, about 1 in 1,300; in 1900, 1 in 769. For the State of Washington in 1880, 1 in 695; in 1900, 1 in 402. Dr. Fletcher, of the State of Indiana, says that fifty or a hundred years ago it was rare to hear of a case of lunacy; now it is of almost daily occurrence. To-day in Indiana there is one case of insanity in every 400 of the population. About the same ratio obtains for Illinois. In Virginia the ratio of insane to the general population is 1 in 540.

We should naturally expect that in those communities where the stress and strain on the nervous system is greatest, degeneracy would be most evident. This is increasingly being demonstrated, as has already been pointed out, urban life proving a hot bed of degeneracy, and insanity one of its most prominent forms. It is possible that there is a certain fallacy in these figures of the increase of insanity, but not enough, it may be confidently assumed, to vitiate them to any extent. The better and more reliable the statistics, the less liable are they to underestimate the proportion, and it is highly probable that their accuracy has been increasing with each decade. Any error, in any case, would be in favor of a better proportion, and of fewer insane.

The attitude of the scientist must ever be impartial and dispassionate; the discovery of truth, and not the confirmation of his impressions or prejudices, is primarily his object. It is proper, therefore, to point out such elements in the present inquiry as might lessen the significance of statistics quoted. Such elements are chiefly increased longevity of the insane, with consequent decrease of mortality, attributable to the marked improvement in the care and treatment of this class of cases, but adding as a result to the number of uncured cases. There should also be cited the greater tendency at the present day to transfer the insane to the protection of hospitals and sanatoria, rather than to endeavor to provide for them in their homes.

Undoubtedly in the compiling of statistics the maximum of accuracy as to the actual increase can be obtained only by reporting the number of new cases occurring each year. While this would probably give us somewhat better figures, it is unfortunately highly improbable that the most conservative returns would indicate other than a steady increase. This increase, varying in degree, its exact ratio for the most part not yet determined, has been noted in nearly every civilized country where registration of the insane exists.

It would be impossible within the limits of a single paper to survey in the most cursory way the situation in all these countries. Conditions in Great Britain, however, may be cited as fairly illustrative, and of peculiar interest since the English speaking nations are so closely allied.

In Great Britain the figures of the English commissioners in lunacy show that in 1860, 1 in every 523 of the population was insane; in 1870, 1 in 411; in 1880, 1 in 360, and in 1890 the ratio had risen to 1 in 320. In thirty years insanity had therefore increased from 1 in 523 to 1 in 320, or had come unpleasantly near to doubling the ratio to population in that period. For England and Wales the commissioners in lunacy gave out the statement that January 1, 1903, the proportion of insane to population was 1 in 293. For the previous year it was estimated that the number of people throughout England and Wales who lost their minds was 22,581, or about 500 per week. This is about 3 every hour, day and night. January 1, 1904, the ratio had increased to 1 in every 285 of the entire population of England and Wales. Dr. Robert Jones, in his presidential address on the "Evolution of Insanity," delivered before the Medico-Psychological Association of Great Britain and Ireland, July 26, 1906, after quoting the above figures, said: "We also know that possibly the same number are on the borderland of insanity and are being daily precipitated into the asylums."

For Scotland in 1907, it was reported in the London *Lancet* that during the last three years there had been a decrease of insane persons in proportion to the population, and that this was the first time such a thing had occurred since 1858. During the whole period, however, the increase had amounted to 200 per cent., while the population had increased only 56 per cent. While this tremendous increase was attributed in part to the large number of senile cases no longer cared for in their homes, as well as to a remarkable increase of senile insanity and of general paralytics, the temporary decrease for the last three years of the number of the insane registered in asylums had been attributed in part to a growing disinclination among the upper classes to send the mentally diseased to public institutions. We find that this attitude is also common to the upper classes in England, and is yearly becoming more evident, and just the reverse of conditions with us. In Ireland, between 1871 and 1901, there was no appreciable increase in the proportion of insane to population between the ages of 20 and 55, but there was a very large increase in ratio in the old-age period. The situation in Great Britain, then, as a whole, is one showing a steady yearly addition to the number of the insane. Into causes we cannot go to any extent. The causes operative in Britain are operative here, and will be briefly enumerated later.

In all data relating to the United States, you will have noticed there was no reference to our own State, on the principle that that which is of greatest interest to us may fittingly be reserved until the last.

In Connecticut, the increase in insanity has not been so great as in a State with a seaport like that of greater New York, a State with a population of which approximately 30 per cent. is either foreign born or of foreign parentage, and 60 per cent. of its insane, also, either foreign born or of foreign parentage. But that there is a steady if relatively small increase in the number of the insane in our own State, we cannot doubt. The figures for the total number of insane persons under restraint in 1904 were 3,120; 1906, 3,351; 1908, 3,603. With a population for the State in 1900 of 908,000, the ratio of insane persons under restraint

was 3.2 per thousand. With an estimated population for the State in 1906 of 1,000,000, the ratio of insane persons under restraint at that time was 3.3 per thousand of the population. In 1908, estimating the population at 1,025,000 the ratio rose to 3.5 per thousand, a very decided gain for so short a period.

From the reports of the State hospitals of Connecticut, we learn that the annual average increase for the twenty years preceding 1900 was 76; during the next two years it rose to 90; while in 1907 the number reached 134, the same number being maintained for 1908. We should be misled by these figures, however, did we not make due allowance for the accumulation of insane in hospitals and the commitment to them of cases formerly cared for elsewhere.

In times gone by it was customary to provide for imbeciles, idiots, epileptics, old people or dotards, or persons evidencing the physiological decay of senility, as well as persons suffering from alcoholic insanity, in the individual's home or that of friends, oftentimes a portion of the house being set aside and arranged for their custody and welfare. This is hardly to be wondered at when the methods of the past, as to the public disposition of the insane, are contrasted with those of the present. The institutions of those days known as insane asylums have undergone so material a change as to be hardly recognizable in the State hospitals of the present. Restraint, the chief and almost the only idea in the past, has been so modified and improved upon by modern conceptions of the nature of insanity, and the possibilities of prevention and cure—to say nothing of humaner methods in the management of the insane while protecting society—that the great public at large is fast coming to realize that to be able to place the mentally afflicted in the care of physicians of great experience and skill, under the most favorable conditions for improvement or recovery, is an opportunity not to be lightly foregone. The result is that persons who were formerly cared for in their own homes are now cared for by the State. The hospital life is systematic and methodical, the hours and meals regular, the diet nutritious and carefully selected, various healthful activities encouraged, entertainments often provided, and hygienic surroundings secured so far as the frequent overcrowding of these hospitals makes it possible.

It has been said that during the past twenty-five years there has been such a revolution in public sentiment toward general hospitals for the sick that the average individual seeks, or willingly would seek, hospital treatment for any condition, from that of an attack of grippe to one requiring surgical intervention of the highest order. The same revolution is now taking place in the attitude of the public to hospital treatment for the insane. Both economy in administration and efficiency in treatment are thus largely promoted, and whether to the general advantage of society or not, the lives of the insane are prolonged.

The causes of insanity furnish a most interesting and fruitful field for investigation, and their bearing upon the increase of insanity becomes the more obvious the more they are studied. They are, therefore, essentially pertinent to the subject of this paper, although their mere enumeration will be sufficient to show that any extended consideration is impossible at this time. Hereditary predisposition, alcoholic excess, and influenzal poisoning have recently been assigned by a London alienist as the three principal causes of insanity in Great Britain. To syphilis in conjunction with the free use of alcohol, he attributes 70 to 80 per cent. of the cases of general paralysis coming under his observation. Another English alienist says: "If only the evils of alcohol and venereal diseases were disposed of, then half the problem of insanity would disappear with them." Additional causes are found both in our own and other countries in sudden changes in environment, trauma, fevers, and infective processes, the excessive use of drugs, especially morphine and cocaine, sexual excesses and perversions, overwork, malnutrition, the suppression of normal functioning of the generative system, conditions incident to puberty and the menopause, to pregnancy, and more especially to the puerperium. Much emphasis must be laid upon emotional factors, heightened and multiplied by the concentration of population, with the numerous stresses incident to progressive civilization and its limitless demands upon the highest organized structures of the human body.

To heredity, 60 to 70 per cent. of cases of insanity are attributed, while alcoholism is given the second place. Yet we find the statement, so far uncontroverted, that 50 per cent. of the inmates of all the insane hospitals in the United States are descended from alcoholic parents. A study of 520 males, new admissions to the Norristown State Hospital for the Insane, Norristown, Pa., from April 1, 1907, to April 1, 1909, gave the following results: "In 46 per cent. alcohol, either alone or in combination, was an important etiological factor. In 13.5 per cent. they were classed as alcoholic psychoses. In 41 per cent. of the imbeciles and 34.5 per cent. of the epileptics, alcohol was responsible for their commitment."

In the course of this statistical study of alcoholism as a causative factor in insanity, the percentages for male patients whose psychoses were due to alcohol are quoted as follows: "In the State of New York, 28.9 per cent.; Massachusetts, 30.6 per cent.; in a group of three asylums in England, 26.3 per cent.; in a group of five asylums in Austria, 24.9 per cent. Of 961 cases of insanity in the Manhattan State Hospital, New York, in which the causation was accurately determined, it was found that alcohol alone was the cause of mental impairment in over 40 per cent. of the men, and more than 25 per cent. of the women. Over 33 per cent. of insanity, epilepsy, idiocy, and prostitution," says Dr. Kraeplin, "shows alcoholism in parents." Statistics indicate that out of 22,113 cases of insanity admitted to the public institutions of France, 2,896, or a little more than 13 per cent., were directly traced to alcoholism. By referring to the report of the Connecticut Hospital for the Insane of 1908, we find a table enumerating the causes of insanity in 12,823 persons admitted since the opening of the State hospital. Intemperance is given as the cause of insanity in 1,566 cases. These figures represent more than twice the number of cases of insanity due to any other two of the known causes.

It is now a well-established fact that the excessive use of alcoholic beverages may induce nearly every form of insanity from simple sensorial aberrations to general paralysis. Indeed the rapid increase of the latter malady here and abroad is attributed almost entirely to intemperance. If, as is the case, the toxic action of alcohol is manifested even when

taken in comparatively small quantities, not only by outward signs but also by marked changes in the cortical neurons of the brain—changes in the cells of the brain which are clearly demonstrable—its long continued and excessive use must produce the most disastrous and ineradicable results. These cells are the media of the expression of the highest consciousness of man, and it is the law of his physical being that these most highly organized tissues should sustain the most irreparable injury, and that the influence of degenerative changes, physical, mental, and moral should be impressed upon his descendants.

For years different statutes have been enacted in various states for the purpose of regulating the liquor traffic. The manufacturers, distillers, and brewers expend $355,000,000 per year for raw materials for the manufacture of these beverages. The United States Government, from 1863 to 1907, has collected liquor taxes and duties amounting to $3,540,011,893. In 1880, 10 gallons of liquor of all kinds were consumed per capita in the United States; in 1890, 15½ gallons per capita; in 1900, 17½ gallons per capita; in 1902, 19½ gallons per capita.

According to a map of the United States pubished in November, 1909, to show the advance in temperance reform, Pennsylvania, Wyoming, Idaho, Utah, Nevada, and Arizona are the only states without at least partial prohibition, yet we find the statement that, in the last twelve years, the manufacture, sale and use of liquors have doubled. Prohibitory laws do not necessarily lessen the sale of stimulants or their consumption, but do change the situation to the extent of causing a substitution of closed doors for open doors. Prohibitory laws are seldom enforced, but apparently favor the multiplication of kitchen bar rooms, with inferior liquors and the most demoralizing surroundings. High license and restricting the number of licenses do not materially lessen the consumption of ardent spirits, nor will any number of license fees at $500 or $1,000 each ever reimburse taxpayers for the enormous expense of caring for the insane, the criminal, the pauper, and other classes recruited so largely from the ranks of the victims of the liquor habit. The best preventive measure, and the best solution of the problem, would be not to manufacture or import any alcoholic beverages at all. Such a solution being wholly and entirely out of the question, some practical measure must be adopted.

Within the past few years the attention of the public has been called to the danger of consuming impure food. Such a danger exists as well in respect to beverages, especially those containing alcohol. We have in this country a pure food law passed by Congress, intended to regulate the purity and adulteration of foods, but it either does not apply to liquors or is not effectively enforced with regard to them. In some European countries laws have been enacted, and are enforced, which inflict severe penalties for the adulteration of wines, and if in this country we must have liquors, we should be equally protected not only against adulteration but also against the use of liquors of an inferior grade.

Apparently the most practical measure yet advocated, is one which proposes both to lessen the sale of liquors and to eliminate their most harmful elements through the passage of a law by Congress, forbidding the collection of taxes on liquors until ten years after their manufacture, they to remain in bond during this time. Imported liquors would be required to be accompanied by certificates that they were made ten years before being shipped. The sale of beers would be restricted to those having been made more than six months. This plan is based upon the fact, doubtless well known to you, that liquors are more injurious when recently distilled or brewed. The cheaper grades of strong liquors contain an excess of fusel oil including various other poisonous constituents such as aldehyde alcohol, butylic alcohol, amylic alcohol, and furfural. These are the liquors bought and sold in enormous quantities, their crudeness partially concealed by the addition of syrups and prune juice, but incapable of containing anything to modify at any age their deadly and toxic action upon man's vital organs, and especially his wonderfully sensitive nervous system. In high grade liquors, on the other hand, properly made, aged, and matured, the fusel oil is largely eliminated as such by chemical transformation into essential oils and ethers, while the time required for this process—from ten years upward—both reduces their volume and very materially increases their cost. The provision affecting the sale of beer would prevent the manufacture of low grade beers, also, as they would not keep for a period of six months. The uniformity of such a law, the consequent diminution in the supply of alcoholic beverages, and the increase in their cost should markedly reduce the number of those using alcoholic stimulants; while those indulging in them would no longer be exposed to the deleterious effects of injurious constituents. One of the greatest causes of insanity would thus be regulated and restricted.

This is an age of great enlightenment and rapid progress. We ourselves can bear witness to this. Wireless telegraphy is the marvel of the age, approached only by aerial navigation. New means of rapid transit or communication, or improvements in existing facilities are almost daily brought to our attention. Schools, colleges, laboratories, universities are multiplied. All the sciences are fostered, including the art and science of medicine. Moneyed men and women freely endow institutions for the investigation of the cause and cure of the most contagious or most baffling diseases, while medical science seems to be on the very verge of solving the most difficult problems they present.

The State of Connecticut, which has always been a leader in educational matters, is also abreast of the times in medical affairs, and in this connection its Legislature has appropriated a considerable sum of money for the construction of a special building, or a special section, as an adjunct to the State Hospital for the Insane, to be known as the psychopathic pavilion. The object is to encourage the early treatment of insanity, in order that incipient cases may have that immediate and skilled care and treatment most favorable to their prompt recovery. The statement has been made for both Europe and the United States that fully 50 per cent. of those recovering from insanity began treatment in the first three months of the disease. The necessity for their early care is thus emphasized forcibly.

During 1908 the average number of the insane under restraint in Connecticut was 3,603. For their custody, care, and treatment the State has made wise provision, and there are at the present time two State hospitals and twelve private sanitoria in which they are received.

The formation of a medical society in the State

of Connecticut, the Connecticut Society of Alienists, may be cited as still further indicative of the spirit of progress most fruitul in the betterment of the social body. This society was established about two years ago, and held its annual meeting in New Haven last January. It numbers among its members the superintendents and assistant physicians of various State hospitals and sanatoria, as well as eminent specialists throughout the East who are devoting their time to the treatment of insanity. It also has the cooperation of numerous persons who are interested in this scientific and important subject. The members, almost without exception, are in a position to devote considerable time to scientific research, and with the assistance of the numerous specialists elsewhere throughout the New England States, it is expected that a great deal will be accomplished in the study of the causes, care, and prevention of mental and nervous diseases. The object of the society is specifically stated and defined in the first article of the by-laws which reads as follows: "The purpose of the society shall be to promote the welfare of those afflicted with mental and nervous diseases in this State, to encourage the discussion and promulgation of scientific principles, and the adoption and application of the most approved methods for the care and restoration of those mentally or nervously unbalanced, whether in the incipient or more advanced stages."

When to the collective efforts of this society are added the work of the various hospitals and sanatoria, and the efficient aid received through the sympathy and cooperation of the Connecticut Conference of Charities and Correction, who can doubt that material service will be rendered the State, and that great progress will be made in this essential and beneficent undertaking. At the same time it should be remembered that one of the most important and helpful boards which the State has, and has now had for many years, is that known as "The State Board of Charities." It is composed, as you know, of five members who are appointed by the Governor and confirmed by the Senate. Its powers as defined by the State are comprehensive and far-reaching. It has the supervision of all the almshouses, homes for neglected or dependent children, hospitals for the insane, and all hospitals and other institutions for the care and support of the dependent and criminal classes. The members of this board have always generously given their time and services, and with the truest altruism have devoted themselves without reward to promoting the welfare of those for whom the State is responsible. A moderate sum of money has been appropriated in years gone by for the expenses of this board. But the amount certainly seems very inadequate for the carrying on of work so extensive, and resulting in so many and obvious benefits to society. It is greatly to be hoped that the good work this board has done and is doing, may be fully recognized and endorsed in the future by a reasonably increased appropriation.

In conclusion let me say that we can not be too generous in the acknowledgments we pay to the different agencies which, under the fostering care of our State, contribute to the protection and well-being of all citizens. We can not be too ready to join in encouraging their aims and efforts. We must mutually labor for the support and upbuilding of our institutions and societies for the care and cure of those afflicted in mind or morals, in body or estate. Not least among these are the afflicted in mind, and as we mark the increase in their number in this and other countries we shall, I believe, apply ourselves with renewed energy to securing those favorable conditions in public and private life, which shall tend to bring about more rational living, and a consequent lessening of insanity by decreasing the army of neurotics and the congenitally defective, from which the ranks of the insane are so largely recruited.

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ANTIDOTE FOR ALUMINUM PHOSPHATE, THE POISON THAT CAUSES MILK-SICKNESS.

By E. L. MOSELEY,

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In the MEDICAL RECORD of May 15, 1909, the writer showed that milk-sickness is due to aluminum phosphate. At that time he had never had an opportunity to examine milk or butter that had actually caused the death of persons. But the following September a family living on a farm in Sandusky County, Ohio, lost two children from milk-sickness caused by butter. They had very little milk on their table, as nearly all the milk that their two cows supplied was used for making butter. The cows were kept in a woodland pasture where the only other grazing animals were four horses, which were turned in the pasture at night. These horses were afflicted with trembles, though not fatally. In the woods the white snakeroot was well distributed, and, as has been found in so many other places where trembles have originated, a large part of the snakeroot had been browsed, the grass being poor. A crock of butter from which the family had been using before the disease was diagnosed was sent to me, and I found it to contain about two one-hundredths of one per cent. of aluminum phosphate. This determination has been verified in other laboratories.

The butter fed to kittens produced milk-sickness or trembles for a few days, but they would not take very much of it. A corresponding amount of aluminum phosphate put on fat meat was taken readily and caused the same symptoms. With lean meat it produced trembles, but the effect was not so pronounced as with fat meat. When given with a diet mainly vegetable (potato or pancake), it had no perceptible effect. With milk it was generally less effective than with fat meat, although a single dose of .03 gram of aluminum phosphate given in milk to a kitten weighing 1½ pounds was followed by trembles, resulting in death in seven days. Cats poisoned with aluminum phosphate shun fat. They prefer potato to meat, and in some instances they take potato in preference to milk.

A little soda generally prevents the aluminum phosphate from doing any harm. This was found true of the butter as well as the aluminum phosphate artificially prepared. Once potassium bicarbonate was tried instead of soda, with the same result. In some of the tests commercial baking soda was used, in others chemically pure sodium bicarbonate. Different amounts of soda were used, but .02 gram seemed to be enough for 25 grams of the butter. When a little aluminum phosphate and alkaline carbonate were given with a quantity of fat meat, the meal was not readily digested. The use of soda in milk-sickness was recommended by W. E. Walsh of Morris, Ill., who, having found diacetic acid in the urine of his patients, administered soda at intervals with good results. After the funerals of the children referred to above their father became quite sick with the same trouble. Following Dr. Walsh's example, soda was given, and he made a speedy recovery. Soda put in the feed of his horses was followed by noticeable improvement in their condition.

Aluminum is less basic than the metals normally present in the animal tissues. Its salts have an acid reaction. The serum of cats which had taken several doses of aluminum phosphate I found to have a lower titration alkalinity than that of normal cats. In one case the alkali in one gram of serum was equivalent to not more than .0002 gram of sodium carbonate; in others it was several times this amount, but less than in a normal cat. The urine of the cats that had taken the aluminum phosphate was strongly acid. Dr. Walsh writes me: "The acidosis, I believe, is the cause of the extreme symptomatology." We have reason to believe, therefore, that a part of the injury to the system produced by aluminum is due to its producing a tendency to acidity. Hence the usefulness of an alkaline carbonate. The pancakes referred to were from a restaurant and not intended for experiments, but soda had been used in making them. Potatoes contain considerable potassium. I presume that some of this potassium is in such form as to neutralize the aluminum. A neutral salt of an alkali metal does not answer the purpose, for the butter referred to contained much common salt.

Probably many kinds of vegetable food contain enough alkaline carbonate to neutralize the minute amounts of aluminum contained in the same foods, and even considerably larger amounts. Animal foods are relatively poor in alkalis. Persons taking with impunity considerable of the butter that has caused milk-sickness in others may escape from injury on account of their diet containing more alkali, but commonly it is because they eat less of the butter. The boy referred to is said to have eaten about half a pound of butter each day, and the girl was also very fond of it. Three men eating the same butter once a day for a week were unaffected, but a relative who remained with the family three days had some milk-sickness. A little of this butter, 3 grams, had no perceptible effect on a cat, nor 12 grams on three cats.

Do butter and fat meat with aluminum phosphate prove so effective because they contain less alkali than other foods, or because the digestion of fat withdraws so much alkali from the blood, or is it because the fat is a good vehicle for carrying the aluminum into the blood? The following explanation I am inclined to think more important than any of these. It is likely that the aluminum phosphate, dissolved by the hydrochloric acid of the gastric juice, is slowly absorbed, absorption continuing as long as the food with which it was mixed remains in the stomach, but ceasing when it mingles with the alkaline pancreatic juice. Fats, as shown by experiments of W. B. Cannon on cats, "remain for a long period in the stomach, and leave that organ slowly. Carbohydrates remain in the stomach about half as long as proteids." Thus the aluminum phosphate, if given with much fat, remains for a long time in an acid medium; if with carbohydrates, for but a short time. "When fat is added to either carbohydrates or proteids it retards the passage of both foodstuffs through the pylorus."

Several peculiarities of the disease may be due to the acidic tendency produced by aluminum. The serious consequences of prolonged or violent exercise observed in persons affected with milk-sickness and in various domestic animals affected with trembles may be due to the production of sarcolactic acid without enough sodium carbonate in the blood to neutralize it. Moreover, diminution in alkalinity is accompanied by a diminution in the capacity of the blood for carrying off carbon dioxide, whose production is increased by exercise. The accumulation of carbon dioxide explains the panting so noticeable in milk-sick animals after exertion.

Lambs and calves are very susceptible to milk-sickness, often dying from it without their mothers showing much effect of the poison. Unlike their mothers, they are subsisting on animal food, and so are not getting enough alkaline carbonates to neutralize the aluminum contained in the milk. Our analyses showed that the aluminum contained in one day's milk of a cow which had been taking daily ten ounces of white snakeroot was not a large fraction of the quantity of aluminum contained in the snakeroot she had eaten.

Dogs and cats get trembles by eating considerable of the meat of animals that have died of that disease, although the amount of aluminum phosphate contained in the meat they eat is much less than that contained in the food of the animal that died, but the latter was subsisting on a vegetable diet, and our experiments have shown that a very small amount of aluminum phosphate, when given with a vegetable diet, is not harmful, but with an animal diet it is.

The recurrence of milk-sickness after recovery from the first attack is doubtless due to the persistence in the tissues of the phosphate or some other compound of aluminum. Such recurrences are said to follow overwork and overeating. An eight-pound cat which at first was made quite sick by aluminum phosphate in time became accustomed to it so that the effect was less marked. After daily doses for two weeks of about .06 grams, with oc-

casionally larger amounts, he was chloroformed and some of the tissues examined for aluminum, with the following results, expressed in grams of aluminum phosphate found in the ash of each gram of tissue: Clotted blood, without serum, .00024; serum, .00020; small intestine, washed, .00008; liver, .00006; muscle from fore leg, .00006; fat, .00000; kidney, .00000; urine, .00000.

This animal had an enlarged liver. The urine contained neither albumin nor casts. In rabbits which died of trembles, albumin and casts were found in the urine, and aluminum phosphate in both urine and kidney.

The blood of cats that have been given aluminum phosphate appears to contain a fine white powder. In the blood of the cat mentioned above I observed this while the blood was flowing into a beaker from the vena cava ascending. On standing, this formed a scum on the serum. When poured on an ashless filter paper and washed, the filtrate contained no aluminum, but the paper with the residue was burned in a platinum dish and aluminum found. It appears, therefore, that an insoluble aluminum compound, probably the phosphate, occurs in the blood of these animals.

THE CARD SYSTEM FOR RECORDING HISTORIES OF PATIENTS IN PRIVATE PRACTICE.

By EBEN C. HILL, M.D.,
U. S. ARMY.

At the present time practically all of the leading hospitals in this country keep very accurate and complete records of their cases. The value of such a method needs no comment. Each patient is indexed and catalogued so that upon re-admittance a complete history with the previous diagnosis and treatment is immediately at hand for reference. The clerical work entailed, however, is considerable, and the general practitioner, although appreciating the value of these histories, finds little time for such complete records in his private cases.

Yet nearly every physician, at some time, has experienced a desire for a more detailed record of a case in which the diagnosis is obscure. Upon studying the symptoms he frequently finds that certain pertinent questions have been unasked, and that a few of the minor symptoms are hazy in his mind. As a result he must wait until these facts have been ascertained at his next visit before the diagnosis is settled and rational treatment begun.

For some time I memorized what I considered the more important questions relative to the habits of life and the symptoms which, although not bearing directly on the disease in question, were suggestive, and recorded the answers and observations. The clerical work involved and the time consumed made this method almost impracticable. After various other attempts at shorter methods, the following card system was devised and it has proved of value. The size of these cards (9.5 inches by 12 inches) is sufficiently large to allow considerable writing on the printed side, and yet can be folded so as to be conveniently placed in an inside pocket. Ordinarily, little writing is necessary except to note the dates at which illnesses have occurred and the results of the "Physical Examination" and "Present Illness." However, should more space be needed to complete the examination

Name .....Age.....Date.....191.... Weight, gain, loss.....

Family History

F. l. w. F d. M. l. w. M. d. Brothers Sisters

Tuberculosis, Rheumatism, Renal, Malignant, Alcoholism

Personal History

Married, Single, No. Children....., Miscarriages, Cause.
Periods, regular, irregular, missed.....Bowels, regular, irregular.
Urination, painful, frequent.

General Health, good, poor. Measles, Whooping Cough, Mumps, Tonsillitis, Diphtheria, Rheumatism, Cholera, Malaria, Typhoid, Pneumonia, Pleurisy.

Head—Eyestrain, Headache, Earache, Discharge, Fainting, Dizziness, Vertigo.

Cardia-Respiratory—Chronic Cough, Morning Cough, Shortness of Breath, Bronchitis, Expectoration, Hemoptysis, Night Sweats, Edema, Pleural Pains, Palpitation.

Gastrointestinal—Appetite, good, bad. Digestion, Habits of Eating—fast or slow, Jaundice, Bloody Vomit, Bloody Stools, Piles, Abdominal Pain, Relation to Eating.
Coffee .....Tea.....Alcohol ..... Smoking .....

Genitourinary—Bladder, frequency of urination.....if gets up at night..... Hematuria, Lues.

Present Illness—Began—

.....

.....

.....

Physical Examination—Head, Glands, Heart, Lungs, Liver, Kidneys, Spleen, Intestinal, Genital.

.....

.....

.....

Blood—R. C.....W. C.....Hb....% **Urine**—S. G.....Color.....Reaction, acid, Alkaline, Albumen.....Sugar.....Casts and Microscopic.

Fecal Examination.....

Diagnosis..... Prognosis .....Rx.

Name Jones, Roger S ..... Age 37 ½ Date January 20 ..... 1910 Weight, ~~loss~~ loss 42 lbs in Past 14 months — Present wgt 113

Family History

~~Fath.~~ F. d. T.B. 27 M. l, w. ~~M d.~~ Brothers 0 Sisters 0

Tuberculosis, ~~Rheumatism~~, ~~Renal~~, ~~Malignant~~, Alcoholism in father

Personal History

~~Married~~, Single, ~~No Children~~ . . . , ~~Miscarriages, Cause~~

~~Periods, regular, irregular, missed~~ . . . . . Bowels, ~~regular~~, irregular q/ 2-3 days

Urination, painful, frequent. - q/ 2-3 hours

General Health, ~~good~~, poor. Measles, Whooping Cough, Mumps, Tonsillitis, ~~Diphtheria~~, Rheumatism, ~~Cholera~~ ~~Malaria~~ ~~Typhoid~~ Pneumonia, 3/ Pleurisy. 3/

Head—~~Eye-strain~~. Headache, ~~Earache~~, ~~Discharge~~, ~~Fainting~~. Dizziness, ~~Vertigo~~ in past few months

Cardia-Respiratory—Chronic Cough, Morning Cough. Shortness of Breath, ~~Bronchitis~~, Expectoration, Hemoptysis, Night Sweats, ~~Oedema~~ ~~Precord. Pains~~, ~~Palpitation~~. for 2 years —

Gastro Intestinal—Appetite, ~~good~~, bad. Digestion, Habits of Eating—~~fast or~~ slow, ~~Jaundice~~, ~~Bloody Vomit~~, ~~Bloody Stools~~ ~~Pain~~ ~~After meals~~ ~~Pain~~, ~~Relation to Eating~~

Coffee 2 cups q/ day Tea 0 Alcohol 50cc t.i.d. Smoking Not now.

Genito Urinary—Bladder, frequency of urination q/ 2-3 hours if gets up at night - yes Hematuria, ~~trace~~ at times lately

Present Illness—Began—

About November 1907. Cough, sweats, expectoration, went away, got better, returned to city. - worked as stone cutter. July 1909 unable to work, weakness, loss of wgt. no appetite. Frequent-painful urination, bloody at times, constant cough

Physical Examination ~~Head~~, Glands, Heart, Lungs, ~~Urine~~ ~~Kidneys~~ ~~Spleen~~, ~~Intestinal~~ ~~Genital~~

Cervical glands enlarged; heart rapid - 90-100, no murmur, temperature 97.6 - 7 a.m. 99.8, 6 p.m. Lungs. left upper consolidated, right, 2-3, 4, I.S. M.M. Lie cavernous breathing, Sputum - T-bacilli - Patient emaciated.

Blood—R. C. 3,450,000 W. C. 6,100 Hb. 75 % Urine—S. G. 1.026 Color Cloudy yellow Reaction, ~~acid~~ Alkaline, Albumen Trace Sugar 0 Casts and Microscopic. many pus cells, Oxalate crystals, Amorph. Urates. T.B. present

Fecal Examination Not made

Diagnosis Pulmonary Tuberculosis Tuberculous Cystitis Prognosis Bad Rx. Sent to Sanitarium

EBEN C. HILL M.D.

or in detailing the treatment or subsequent diseases the reverse side gives ample space.

In the use of this system few details escape the physician, a ready reference is always at hand and a rather complete history is rapidly made. The absence of any of the listed symptoms or diseases is quickly noted by running a line though that disease or symptom. On the other hand, if any symptom or any fact in the family history has a very significant bearing on the case the importance of this is indicated by underscoring that symptom.

For instance, a history of tuberculosis might appear as in Card 2.

This system is, I believe, applicable to any of the branches of medicine. Each physician, surgeon or specialist has certain questions, symptoms and results of examinations to be recorded and all that would be necessary would be to formulate the cards so as to meet the requirements of that particular specialty.

The cost is comparatively small. Printed on medium heavy Bristol board of the size mentioned, the expense is about $8 per thousand. The size of the cards permits their being filed flat and arranged alphabetically or otherwise in practically any of the commercial sectional systems.

The noisy breathing of nasal obstruction, according to Pisek, should not be confused with true dyspnea. Particularly in infants are adenoids, enlarged tonsils, acute rhinitis, the snuffles of syphilis, congenital obstruction, and cretinism liable to give rise to this symptom.—*The Post Graduate.*

THE MANAGEMENT OF HEMORRHAGE DURING OPERATIONS ON THE TONSIL.

By CHARLES J. IMPERATORI, M.D.,

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As far as can be ascertained, there are few operators who pay any particular attention to the amount of blood lost during operative procedure on the tonsil before operation, during operation, or post-operative, unless there is considerable bleeding: most men considering it as one of the annoyances that must be encountered when operating in this region.

While it is true, as we all know, that the great majority of cases cease bleeding within a few moments after the operation, there are cases that during the operation give us considerable trouble, because of the hemorrhage-in obscuring the field, particularly during the complete removal of the tonsil. I might add, that, while it is certain that most cases are materially benefited by a tonsillotomy or a partial removal of the tonsil, it seems to me that, for the benefit of those few and infrequent cases of return after tonsillotomy, we should perfect our technique so that all of the diseased tissue will be removed. A tonsillotomy by means of the tonsillitome is comparatively an easy operation; the enucleation of the tonsil is somewhat more difficult. It is admitted that the past has shown good results in the majority and individual cases where tonsillotomies have been done. Occasionally we see chil-

dren with enlarged remains or stumps that appear to all intents as hypertrophied tonsils. The fact that the operator tries to get as much of the tonsil as possible with the tonsillitome argues for tonsillectomy.

Though tonsillotomy is an easy method and partially successful in most cases, the tonsillitome alone should not be the instrument of selection, but we should elect the enucleation and complete method, that is, the dissection of the tonsil and its capsule from its attachments, and then the completion of the operation with the knife, scissors, snare, tonsillitome, or, if necessary, the punch. The consensus of opinion is that in tonsillectomy there is less danger of postoperative bleeding than in tonsillotomy. If it is at all necessary to operate upon the tonsil, it is diseased, and should be removed *in toto*.

During the operative procedure the field of operation should not be obscured, either by poor light or by blood and mucus.

The first can be overcome by the aid of the head mirror, or the electric head light, while the second cause can be overcome by rapid sponging of the field with gauze sponges. In this way we can ascertain exactly where the bleeding point is, if the hemorrhage is profuse, and also, of as great importance, the fact that we can see what we have done.

Too much attention cannot be given to an unobscured field in tonsil operations, viz.:

To emphasize the different methods to be pursued in order to obtain as nearly a bloodless field of operation as possible, the following classification is suggested:

(1) Preliminary. I would advocate the examination of the blood, to determine the coagulation time, of all patients presenting themselves for operation. Though it may be possible that many cases may be thus examined unnecessarily in routine work before a positive case is found, still, there are many pathological conditions in which the coagulation time is considerably longer than normal.

In hospital practice this routine can easily be accomplished, the pathologist being called upon to make the examination in detail. In private practice or in dispensary work the coagulation time can be determined very easily by the simple procedure of puncturing the lobe of the ear, after cleaning it with alcohol and ether, allowing a drop of blood to fall on a previously (alcohol-ether) cleaned slide, and at intervals of a half a minute drawing the needle used in getting the blood across the drop, thus ascertaining when clot formation takes place. While it is true that this method is crude, it suffices for clinical purposes. The slide should be kept warm by keeping the under surface in contact with the skin of the examiner. Coagulation should take place in from one and a half to three minutes under normal conditions. If the time is longer it is necessary to go further into the history of the case and determine the exact conditions by further diagnostic methods. In those cases in which the coagulation time is delayed the administration for a week previous to the operation of calcium lactate in 20-grain doses from four to six times a day has proven of benefit, clinically, whether or not from an experimental standpoint, the administration of this drug is of value or not.

(2) During the operation with cases under an anesthetic, the hemorrhage can be controlled by sponging or, after the removal of one tonsil, by placing a gauze sponge against the site of the tonsil, as recommended by Dr. Cohen of Baltimore, or by the use of the tonsil compressor, as devised by Dr. Smith of Philadelphia or Dr. Hurd of New York, or any other similar instrument, or by a suction apparatus.

The posture of the patient is of importance. The head should be in such a position that the best view of the field can be obtained. Either the recumbent, semi-recumbent or the erect positions may be used—depending on the operator's selection. In those cases of removal of the tonsil under local anesthesia the cocaine should be combined with suprarenal extract 1-200, using from ¼ to 1 per cent. cocaine. This gives a field particularly free from oozing.

(3) After operation, that is, immediately after, the site of the tonsil should be sponged as nearly dry as possible and inspected for more than the usual amount of bleeding. Should we find a small artery bleeding, usually a small branch of the ascending palatine, we can stop it by torsion with forceps, or should the hemorrhage be severe, by ligation with catgut.

If the patient is conscious, swallowing pieces of ice will stop a moderate hemorrhage and swabbing the site of the operation with alcohol—provided the hemorrhage is a general oozing—suffices.

An easy method is to place the catgut—a number one or two—in a gauze packer, loosely knotted in a granny knot, with a loop of sufficient size to pass over the hemostatic forceps. The loop is slipped over the forceps and down to the bleeding point, when the gauze packer is removed, thus leaving the ends of the ligature in the operator's hands. The loop of the ligature is tightened and the forceps removed. The reason for using the granny knot is that it can be slipped along itself into place. The anterior and posterior pillars may be approximated by suturing or by the use of the Pierce tonsil hemostat.

Cauterizing agents may be used—such as strong silver nitrate solution or subsulphate of iron—but, as a rule, pressure with gauze sponges soaked in 1-2000 suprarenal extract is sufficient.

Recapitulation. Coagulation test of the blood as a preliminary method and the use of calcium lactate where indicated. Clear view of the field while operating—good light and swabbing. Tonsillectomy to be preferred over tonsillotomy. Suprarenal extract to be used in cases done under local anesthesia. Compression over the site of the operation either by special apparatus or gauze sponge with adrenalin. Torsion and ligation of the bleeding point.

245 West One Hundred and Second Street.

Surgery of the Thymus.—Victor Veau and Eugene Olivier make a study of seventeen cases of hypertrophy of the thymus, from which they have evolved indications for operation and a surgical technique. The functional symptoms that are prominent in this condition are permanent dyspnea, crises of suffocation, and stridor in respiration. There are signs of dysphagia, of vascular compression by the tumor, which are exceptional. The dyspnea is characterized by contraction of the diaphragm, with retraction of the region of its attachment. The permanent dyspnea is caused by compression of the trachea. Sudden crises of suffocation arise, which are made worse by lying down, and intubation does not benefit them. The stridor is laryngeal, due to compression. In some cases the mass of hypertrophied gland may be felt. Radiography and radioscopy give little aid. The only relief is operation, which should be subcapsular thymectomy. This is always partial and leaves behind enough of the gland to carry on its function.—*Archives de Médecine des Enfants.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE ARMY AND NAVY ENDURANCE TESTS.

THE wise and judicial remarks of the Surgeon-General of the Army, relative to the harm done to elderly officers by the excessive strains of endurance tests, seem to have had a sobering effect upon laymen both in and out of the service. The first propositions called for such severe effort that they were toned down after General O'Reilly, then Surgeon-General, had shown how dangerous they were, but it now appears that the value of his advice was not fully appreciated and that the tests as finally devised have, in fact, caused serious damage, in several cases fatal, to officers who were of the highest value to the nation and who were sufficiently robust to do duty even in war. This result was predicted, for it is one of the best established facts in practical medicine, and laymen, too, are beginning to understand why many heart or nerve cases are traceable to the irreparable damage of long forgotten strains, and why there are so many such chronic invalids that physicians can specialize on them. There is still more or less ignorance in professional circles, and those who know find it necessary to call attention repeatedly to the fact that the normal senile changes in all tissues are so rapid that the efforts necessary for development or health in one decade of life are harmful excesses in the next. More and more often do we find in current medical literature the statement that, in this sense, men of 45 or 50 are old, and that formerly, when existence depended upon severe physical exertion, they were crowded out of existence by younger competitors. Almost always a careful examination of a man over 40 reveals a disease or damage from prior disease, which indicates that he is on the downward path and must guard his weak point to survive. It is accepted as proved that men now live beyond the period of full physical vigor because they can avoid excessive exertion and that the danger line drops quite rapidly after 35. There seems to be no doubt that the recent enormous increase of deaths from diseases of the heart and kidneys is due in large part to the strenuous life of America. There is then no mystery whatever in the disablement of so many officers in middle life, in spite of, or because of, the fact that they had been noted athletes. It was because of athletics that they kept up the strains too long. Perhaps all of them were overstrained years before, in the period when they supposed themselves equal to the tasks. The present tendency to restrict within safer limits the activities of athletic naval cadets is wisdom based on a solid scientific foundation.

History shows that most officers instinctively keep themselves fit for war and have always given an excellent account of themselves. The public has, therefore, been somewhat bewildered as to the necessity for all this nagging. In addition, as the strains of war are always beyond human endurance and invariably result in a high percentage of invalidism, it is folly to subject men to these strains until it is necessary to sacrifice them in the nation's defense, as the excesses render them less fit. If not actually disabled, they are kept "stale" and have no staying powers. But it is said that the tests have actually been more severe than the strains liable to be encountered in modern campaigns. The naval officers in particular are never required in battle to do the equivalent of walking fifty miles around and around the decks, and a heart sufficiently enlarged to stand a bicycle test is a distinct disadvantage and danger in a mode of life so devoid of exertion as to be possible for even leaky heart valves, providing compensation is established. The naval officer should not have an athlete's heart, and to insist on it is to ruin our highly efficient personnel.

Now that experience has shown what harm the physical tests can do, we hope the whole matter will be laid aside, with the other vagaries of the strenuous life, and more attention be given to the qualities which make officers valuable. It is hinted that a few muscular men have gone through the endurance tests with flying colors, though not possessed of sufficient intelligence for the commands they fall heir to, while professional experts of the highest value to the nation have been killed or retired disabled. The little Napoleon would have difficulty in holding a commission nowadays, and perhaps Cæsar would be eliminated, while the husky barbarians he slaughtered would attain high rank. It is a pity that so little attention has been given to the intellectual side of the matter, and we trust that more will be given in the future to avoid the bitter criticisms which invariably come in such cases from an aroused public opinion. Fortunately there are signs of such a betterment. The War Department authorities have formulated a tentative plan "to maintain a physical condition which will enable officers, especially those approaching the close of middle life, to be always fit for active field service and in condition to perform as high a class and as large an amount of office work as possible." This plan which, we believe, calls for a daily walk of three miles or ride of six, is to be tested by the officers on duty at the Army War College in Washington and at Fort Meyer. Such a plan, when the modifications which experience will probably show to be necessary are made, will be a decided improvement over the annual test, or would be if this test were abandoned. As yet no announcement is made of its abolition, but

now that the War Department is beginning to display reason in the matter we may hope that it will substitute the daily walk for the excessive and injurious annual test. It is more sensible to base the habits of life on the proved fact that after judicious training has developed any ability, physical or mental, efficiency is retained by very small exertion and that if we strain ourselves beyond a rapidly diminishing maximum safe limit we cause irreparable damage. In physical exertion the heart is the sufferer, for it cannot resist much internal pressure, as many a poor invalid has realized too late. A boy may recover from an acute dilatation, but men over 40 rarely, if ever.

HUMANE TREATMENT OF THE INSANE.

A STRANGE residuum of the middle ages during which barbarous practices toward the insane were considered good treatment, consists in the present practice of the care of the insane pending commitment. Under the law, the superintendent of the poor in counties or the overseers of the poor in towns are charged with the duty of caring for the insane in their respective districts, from the time they are noticed and apprehended until they are examined for commitment to a State hospital. The insanity law provides that a temporary paper, consisting of the certificates of two physicians, who are certified examiners, sworn to before a notary, may be prepared hastily and used for the quick transportation and lodgment of a patient in a hospital, if, within ten days, a duplicate paper, properly completed by the addition of the commitment of a judge, follows. Without an hour's delay after the receipt of notification that a patient has been committed a nurse or nurses are sent forthwith to bring the patient to the hospital in the most comfortable and reassuring manner. It is probably due to absence of information as to how such unfortunates can be handled that over five hundred men and women are lodged in jails and lockups in this State, contrary to the provisions of the insanity law. Some superintendents and overseers of the poor are skillful, humane, and judicious men, who take good care of the insane pending commitment; others, unfortunately, either lack initiative or lack information as to how to perform their duties in this respect. Often patients are brought to the hospital from uncomfortable, sometimes filthy and vermin-infested cells, not infrequently occupied in common with persons accused of crime, notwithstanding that this is specifically forbidden by law. In many cases also there is entire lack of provision for attendance on the insane by persons of their own sex, the impropriety and danger of which proceeding to both the patients and their custodians can scarcely be exaggerated. Innocent persons may be exposed to false accusations, from which they may have no opportunity to defend themselves, for many physicians, even those accustomed to analyzing the charges and reports of the insane, believe the stories told by these defenseless women. The danger to the female patient needs no comment. In one instance, a nurse found an insane woman entirely nude in her cell, and the only person to attend to her was a man who handed her food in at each meal.

A Senate bill No. 831, introductory No. 766, has recently been introduced by Senator Cobb, to provide for the substitution of the local health officers for the superintendents and overseers of the poor, in the matter of caring for the insane pending commitment. This bill provides that the health officer shall be paid proper fees and expenses, which shall be determined and allowed as a charge upon the respective county or town by the judge ordering the commitment or hearing the application for the commitment. The bill is approved and endorsed by Dr. Eugene H. Porter, New York State Commissioner of Health, by Dr. Albert Warren Ferris, the President of the State Commission in Lunacy, and by Dr. William L. Russell, the medical inspector attached to that commission. The latter's wide experience with the condition of all the patients recently received into State hospitals renders him peculiarly fit to judge of the present status of this matter, and the proper means for obviating the difficulties and dangers of the situation. The bill is endorsed also by the medical superintendents and managers of the thirteen civil State hospitals, and also by many health officers.

In the interest of ordinary humanity this bill ought to become a law, and its passage would be ensured if the physicians in the State would write to the Honorable George A. Davis, Chairman of the Committee on Judiciary, and to the Honorable George H. Cobb, Temporary President of the Senate, urging that the bill be reported out of committee immediately and advanced rapidly to final passage. The press of the State has alluded to the sad conditions of the uncommitted insane at frequent intervals; but it is still a fairly common occurrence to find these poor sick people spoken of as "prisoners suspected of insanity" or "insane offenders," terms which recently appeared in one of the Buffalo newspapers. The insane are neither paupers nor prisoners, but simply sick people, who deserve the same kind care and treatment as the unfortunate victims of any other form of illness.

EXPIRATORY STRIDOR IN TUBERCULOSIS OF THE BRONCHIAL LYMPH NODES.

INFECTION of the bronchial lymph nodes is now looked upon as one of the earliest pathological pictures in the tuberculosis of infants, the accompanying or antecedent infection of pulmonary tissue often giving very few clinical signs. Infection of these nodes, however, is likewise difficult to recognize in clinical observation, the frequent dry cough, the change in voice and in the size of pupils, the consequences of venous stasis, all being very frequently too indefinite to allow any diagnosis. Of the newer methods, von Pirquet's reaction, if positive in an infant under two years of age, speaks for a tuberculous infection, but does not localize it. Roentgen photographs, though frequently pathogno-

monic in appearance, are difficult to obtain and difficult to interpret. A new phenomenon, observed by Schick among young infants in Escherich's clinic in Vienna, and described by him in the *Wiener klinische Wochenschrift*, Vol. XXIII, No. 5, is therefore of much practical significance. It consists of a respiratory stridor, heard during expiration in a quietly breathing infant. This stridor resembles most the sound heard in bronchial asthma or in capillary bronchitis. The former, however, occurs in paroxysms, while the stridor under consideration often continues without change for weeks or months; capillary bronchitis is usually accompanied by more or less marked constitutional symptoms and by well defined pulmonary signs. Moreover, von Pirquet's reaction serves as a control, being negative in these two affections.

Schick's material is abundant enough to prove the value of the sign he describes, of the thirty-six infants, in whom it was observed thirteen showed tuberculosis of the bronchial lymph nodes at the autopsy. During life twenty-seven gave pathognomonic Roentgen pictures and seventeen gave a positive von Pirquet reaction. In seven children, the diagnosis was not corroborated by any of these control methods, for various reasons, but five of them had other distinct signs of pulmonary and lymphatic tuberculosis. Anatomically, the cause of the stridor proved to be the compression of one bronchus, usually the right, by an enlarged tuberculous lymph node. Schick lays stress upon the fact that in most of these patients the expiratory stridor was the first sign that guided the diagnostician in detecting tuberculosis of the bronchial lymph nodes, which was then further corroborated by photographs and by physical diagnostic methods. The phenomenon is so easily detected that control of Schick's observations and conclusions by other pediatrists should not be long in coming.

Measles and Mice.

In a paper read before the Washington, D. C., Medical Society by A. F. A. King of that city, the suggestion is made that the microbe of measles may be conveyed by the mouse. The paper was published in the *Washington Medical Annals* for March. The theory is ingenious, and has been hinted at before, but at one time, and not so very long ago, it would have been received with complete incredulity and probably with a considerable amount of scorn. Of late years, however, the rôle of animals and insects in the dissemination of disease has been so conclusively demonstrated that he would be a bold and ill-advised man who scoffed at any suggestion, wild as it might seem, which endeavored to trace a connection between an animal and infection. Moreover, it should not be forgotten that Dr. King was a pioneer of the theory that there might be a causal relation between mosquitos and malaria. After all, there is nothing inherently improbable in the idea that mice may be the means of conveying measles to the human subject, and it will be interesting to discuss briefly Dr. King's arguments in support of the theory. Numerous cases are on record in which measles appears to have originated from contact with straw. According to Dr. King, during our civil war it was generally understood that the soldiers in both armies contracted measles by sleeping upon straw. In 1862, Dr. J. H. Salisbury of Newark, Ohio, obtained from wheat straw spores of fungi, which when introduced into the body, produced a disease which appeared to be identical with measles and which conferred immunity upon those who had been inoculated with these spores. True, Salisbury's conclusions seem to have been discredited by subsequent investigations; but if the mouse be admitted as an etiological factor in producing measles, the conflicting results of Salisbury and his opponents may possibly be reconciled, for as Dr. King points out, one may have been experimenting with straw containing mouse infection and the others with straw in which the mouse factor was absent. Is there any coincidence between an increased prevalence of measles and mouse-plagues? Dr. King attempts to answer this question in the affirmative and to show that during the three most notable mouse-plagues of recent times measles was also prevalent in one of the localities at the same time. The scenes of the superabundance of mice were, respectively, Scotland, Thessaly, and Russia during the years from 1892-1895. In Scotland in 1893, when the mouse-plague had reached its acme, the number of deaths recorded from measles was greater than for any previous year for which a record was kept. The author adduces other evidence presumably in favor of the theory, and while confessing that this is for the most part only probable or presumptive, explains how positive evidence might be obtained by experiment. If it is admitted that mouse excreta are the original source of measles, it is easy to conceive that these excreta, when dried by the warmth of houses, crushed by passing feet upon the floor, and dispersed by housemaids' brooms into the air, can readily come in contact with the respiratory and other mucous surfaces. At present, it must be confessed, the case against the mouse as the originator or transmitter of measles is not very strong, but the matter is worthy of further investigation.

News of the Week.

An Outdoor Public School.—Arrangements for an open-air schoolroom experiment in this city have been completed, and the first of the twenty provided for in the appropriation will be opened within a few days. The room selected for the experiment is on the second floor, overlooking the court around which the school is built. On one side windows extending from floor to ceiling will make the room entirely open to the air. Outside these windows a good-sized balcony overlooks the court, on which at intervals the pupils will have light gymnastic exercises. Regular school seats, such as are used in the other rooms, will be supplanted by more comfortable benches. For the stronger children there are separate chairs and desks of varied heights and sizes to accommodate the children of various ages. Besides these are reclining seats, much like steamer chairs, made of canvas stretched on wooden frames. Nourishing food and warm wraps will be supplied to the pupils. The schools are intended for anemic children, not for those suffering from tuberculosis.

A Quiet and Safe Fourth of July for New York.—Mayor Gaynor has decided to let stand the order issued by Fire Commissioner Hayes before he left office prohibiting the retail sale of fireworks in this

city between June 10 and July 10. The sale of fireworks at retail cannot be carried on unless a permit is first obtained from the Fire Department.

A New State Hospital in Westchester County.—On March 28 Governor Hughes signed the Goodwin bill creating the Mohansic State Hospital at Yorktown, Westchester County, and providing that the Governor within ten days shall appoint a board of seven managers, of whom two shall be women.

Dartmouth Medical School.—At a recent meeting, the trustees voted to accept the resignation of Dr. Miles Standish, professor of ophthalmology in the medical school. Three new medical professors were appointed. Dr. William Edwin Butler of Brooklyn, N. Y., becomes professor of medical jurisprudence; Dr. Elliott Gray Brackett of Boston, professor of orthopedics, and Dr. Elmer H. Carlton, clinical professor of diseases of the eye, ear, nose, and throat.

New York Polyclinic Medical School and Hospital.—Among recent endowments to this institution are one of $250,000 by William P. Clyde, and another of $125,000 by Mrs. Helen Hartley Jenkins.

Hospital Accident.—A senior pupil in the training school for nurses in the Long Island College Hospital in Brooklyn died last week of injuries suffered by falling through a freight elevator shaft. She boarded the elevator to take supper to a private patient on the third floor. When starting to leave the elevator her foot caught between the floor of the elevator and the floor of the corridor. The elevator man started it and she fell down to the subcellar, five stories below.

A Coroner's Physician Sued.—A coroner's physician in New York has been made the defendant in a suit for $25,000. The plaintiff charges that the defendant illegally abstracted and retained her son's spleen and heart when he made an autopsy on the young man who came to his death as the result of an accident which ruptured his spleen.

Serum for Rheumatic Fever.—Dispatches from Paris state that on March 30 a paper was read by Dr. Rosenthal before the Academy of Medicine in which the author claimed to have discovered a curative serum for rheumatic fever. The academy has appointed a commission to investigate the subject.

Low Birth Rate in England.—England's birth rate last year was the lowest on record—25.58 per thousand of population.—This is nearly 1.0 below the rate for 1908, which showed a slight increase over 1907, the first for many years.

University of Pennsylvania Alumni Association.—The Medical Department of the University of Pennsylvania began the celebration of Old Home Week on March 28 with a series of clinics and demonstrations. Several former classes held dinners and the banquet of the Alumni Association was held on March 30, when announcement was made of the resignation of Dr. James Tyson from the Chair of Practice of Medicine and the election by the trustees of Dr. David Linn Edsall as his successor, together with the transfer of Dr. Allen J. Smith from the Chair of Pathology to a new Chair of Comparative Pathology, and the election of Dr. Howard Taylor Ricketts of Chicago to the Chair of Pathology, of Dr. Richard Mills Pearce of the University and Bellevue Hospital Medical College to the newly created Chair of Experimental Medicine, and of Dr. Alonzo Englebert Taylor to the newly created Chair of Physiological Chemistry. Tablets in the medical laboratories were unveiled to the memory of Professor Nathaniel Chapman and Professor Samuel Jackson. The following were elected officers of the Alumni Association for the ensuing year: *President,* Dr. Samuel S. Stryker; *Vice-Presidents,* Drs. James B. Walker, George A. Peirsol, Charles W. Burr, George W. Guthrie, Edward Jackson, William A. Edwards, and T. H. T. McKennan; *Historian,* Dr. Roland G. Curtin; *Secretary and Treasurer,* Dr. E. A. Shumway.

Iowa State Board of Health.—A proposition is to be presented to the Iowa State Medical Society in May recommending that the present State Board of Health be abolished and in its place be adopted the system of an appointed health commissioner and advisory board. The purpose of the change is to remove health matters from politics.

The Twenty-fifth Annual Report of the Bureau of Animal Industry of the United States Department of Agriculture has just been published. It is an illustrated cloth-bound volume of 502 pages containing special articles and information of both popular and scientific interest. This report is issued as a Congressional publication, and a limited number of copies are assigned to each Senator, Representative, and Delegate in Congress for distribution among his constituents. The book is on sale to the public by the Superintendent of Documents, Government Printing Office, Washington, D. C. Among the articles of medical interest contained in the book are three on tuberculosis in animals and its relation to man, by Drs. Melvin, Schroeder, and Mohler and Washburn. The subject of hog cholera is discussed by Drs. Niles and Melvin. Dr. Washburn has an article upon the length of time that typhoid bacilli will live in milk. Drs. Lane and Parks discuss the improved methods for the production of market milk by ordinary dairies. Dr. Melvin describes the 1908 epidemic of foot-and-mouth disease. Some of the articles in the report have been issued separately in pamphlet form and can be obtained in this form on application to the Department of Agriculture.

Proposed Missionary Hospital for the Insane in China.—Dr. John J. Mullowney, a medical missionary at the Methodist Episcopal Hospital mission in Peking, China, at a faculty meeting of the Union Medical School was recently elected to teach nervous and mental diseases. Dr. Mullowney states that there is but one hospital for the insane in China, with a capacity of 180 patients. Dr. Mullowney proposes to found a new modern hospital for the insane in the north of China.

Street Accidents in New York City.—According to the report of the National Highways Protective Society there were 21 persons killed and 101 injured during March in the streets. These figures do not include minor accidents not reported by the police or hospitals. Of the 21 persons killed 8 were children.

Automobile Smoke Nuisance.—The chairman of the Nuisance Committee of the National Protective Highways Society held a conference recently with Health Commissioner Lederle to discuss the automobile smoke nuisance in New York City. Dr. Lederle said he had been waiting for some action by the Aldermen, but if no assurance was forthcoming from them the Board of Health would institute proceedings looking to a termination of the nuisance. It is intended to try to make Section 181

of the Sanitary Code applicable to the case. This section says regarding the smoke nuisance: "No person shall cause or allow dense smoke to be discharged from any building, vessel, stationary, or locomotive engine."

Rabies Scare in New York City.—Excitement has been caused in the Elmhurst section of Greater New York by a case of rabies which developed in a dog. The animal before being killed bit ten other dogs, four children, and one man. Last summer the Board of Health agents killed in Manhattan 217 dogs, in Brooklyn 170, in Queens 256, in the Bronx 140, and in Richmond 250.

Smallpox Notes.—It was recently reported that there were in Bay City twenty-five cases of smallpox in eighteen families. The condition is considered to be well under control. During a recent vaccination crusade in Birmingham, Ala., 40,000 persons were vaccinated. The Holland-American Line Steamship *Nieuw Amsterdam* was held at quarantine in New York Harbor recently owing to a case of variola being found on board, and 150 of her passengers were sent to the Government Isolation Hospital on Hoffman Island.

New York Milk Supply.—At a meeting of the Board of Health of New York City held recently the following resolution was adopted: "It is the sense of this board that milk used for drinking purposes should be either properly pasteurized or boiled unless it is what is technically known as 'certified, guaranteed, or inspected milk.'"

American Society of Sanitary and Moral Prophylaxis.—A meeting of this society will be held at 8.30 P.M. on Thursday, April 14, at the New York Academy of Medicine. The paper of the evening, "The Social Evil in New York City, with Reference to Law Enforcement," will be read by Mrs. William H. Baldwin, Jr. Among those who will take part in the discussion are the Rev. Dr. Charles H. Parkhurst, Mr. James B. Reynolds, Prof. Seligman, and Mr. Frank Moss.

The Sixth International Congress of Esperantists will meet in Washington, D. C., during the third and fourth weeks of August, 1910. It is expected that Dr. Zamenhof, the oculist of Warsaw and the founder of the Esperanto language, will be in attendance.

The Sixteenth International Medical Congress.—The General Secretary of the Sixteenth International Medical Congress, which was held at Budapest from August 24 to September 4, 1909, has announced that the members of that assembly will receive their copies of the general report during the course of the month of April. In accordance with the terms of the Congress Regulations, every member thereof will receive a copy of the general volume as well as of that of the section in which he was inscribed. Besides these publications, there will be a copy of the work on the Protection of Child-life in Hungary, kindly presented to each Congressist by the Royal Hungarian Minister of the Interior.

The Third International Congress of Physiotherapeutics was opened at the Sarbonne, in Paris, on March 29, by President Fallieres.

Obituary Notes.—Dr. JOHN P. C. FOSTER of New Haven, Conn., died at his home, April 1, 1910, aged 63 years. He was a graduate of Yale College in 1869 and of the Yale Medical School in 1875, and later was post surgeon at New Haven for the United States Marine Hospital Service. Dr. Foster was very active in antituberculosis work in both State and national societies. In 1908 he was vice-president of the National Society for the Study and Prevention of Tuberculosis after having been a director for four years. He was one of the incorporators of the New Haven County Antituberculosis Association and chairman of the executive committee. Last year he was appointed by Governor Weeks of Connecticut a member of the tuberculosis commission of the State and was elected its chairman. He was a member of the New Haven County Medical Society, the Connecticut State Medical Society, and the National Climatological Society. In recognition of his services in antituberculosis work Yale University conferred upon him the honorary degree of Master of Arts in 1909.

Dr. GEORGE A. EVANS of Brooklyn died at his home, March 31, 1910, aged 65 years. He was a graduate of the Bellevue Hospital Medical College in 1873, and was a member of the Brooklyn Pathological Society, the Medical Society of the County of Kings, and the Medical Society of the State of New York.

Dr. OSCAR COLEMAN DE WOLF of Chester Center, Mass., died at his home, March 28, 1910, aged 74 years. He was a graduate of the Berkshire Medical College in 1857, and shortly after graduation was made demonstrator of anatomy in the college. After the Civil War, through which Dr. De Wolf served as a surgeon to the First and Second Massachusetts Cavalry, he settled in Northampton. Later he moved to Chicago, and in 1877 was appointed Commissioner of Health to that city, a position which he held for fourteen years. From 1891 to 1903 Dr. De Wolf practised in London, England, having previously been made an honorary member of the British Association for the Advancement of Science. In 1903 he returned to his native home of Chester Center, where he died.

Dr. ISAAC H. DIX of Pratt, Kan., died in Salena, Kan., March 21, 1910, aged 73 years. He was a graduate of the Cleveland Homeopathic Medical College in 1869, and a member of the Pratt County Medical Society and the Kansas Medical Society.

Correspondence.

A PROTEST AGAINST NASAL DOUCHING FOR THE PREVENTION OF COLDS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In your issue of April 2, a letter of Dr. Beverley Robinson appeared which makes some justifiable strictures upon the recommendation of the nasal douche as a harmless procedure in the hands of untrained persons (mothers, etc.). These comments are the more justified and necessary because these symposia are held before the largest audiences of women ever assembled for such beneficent purpose, and especially because the douche was not advised for the treatment of catarrh (which would be only a violation of ethics), but for the prevention of catarrh (which I regard as a violation of the principles of sanitation). I confess that though I was present and was shocked and astonished by the advice to apply a nasal douche of normal salt solution "just as regularly as the tooth brush is used," I did not rise in protest. Twice I was on the point of doing so, but I remembered that "discretion is the better part of valor." First, I did not deem it proper to have this lay audience of impressionable women listen to the differing of the doctors, and then I thought of the futility of a protest by a mere general practitioner against a practice so nonchalantly advocated by eminent specialists, whom I myself know and esteem personally and professionally. To place into the hands of an untrained woman such means of injuring the delicate epithelium of the nasal cavity, especially the tender cylindrical epithelium covering part of the turbinated bones, and of infecting an accidentally abraded point by unsterilized water or nozzle, and of

driving water into the Eustachian tube, which is not only possible but probable in untrained hands, would, despite the careful instructions given by the speakers, appear unwise, to say the least. Despite the statement of the eminent laryngologist that otitis media is rarely caused by the nasal douche, I should regard this as a dangerous probability, if I may be permitted an opinion deduced from actual observation. In the early eighties I happened to be physician for eye, ear, and nose diseases in two of our dispensaries, in which I had abundant opportunity of learning whereof I write. I remember that while I was teaching this specialty in the first postgraduate school started in this city, a physician was attacked by a most intense otitis after using a nasal douche, as I had taught him to use it with a weak Dobell's solution, *i.e.* secundum artem.

I enter this earnest protest against "douching of the nasal cavity just as the teeth are brushed" with, I trust, becoming modesty, and with the hope that the result will be similar to that achieved on a previous occasion (*New York Medical Journal*, Jan. 5, 1884), when I had the temerity to oppose, single handed, the dictum of the highest authority in obstetrics, that "every puerpera must be regarded as having passed through a capital operation and, therefore, must receive a vaginal douche of a three per cent. carbolic acid solution several times daily." The pages of your journal and its editorials have recorded this struggle against great odds, for just as in the recent symposium all the speakers followed the lead of the first and principal speaker, so in that memorable discussion in the Academy of Medicine on Jan. 31, 1884, the views of the leading authority were approved by no less than five specialists. The only opponent was the president of the Academy, the late Fordyce Barker, and to his honor, be it said, in closing the discussion Dr. Gaillard Thomas himself bravely said "the arguments which have been used against vaginal injections after normal labor have had great weight with me. You may ask why this change of opinion. I answer, that I strive to mend the faults of yesterday with the wisdom of to-day."

It may be of interest to your readers to mention an incident which demonstrated the genial spirit and professional worth of Fordyce Barker, when I state that he called on me—then a stranger in a strange city—to express his sympathy and to commend my courage in venturing to oppose the dangerous teaching of a high authority. It is the "irony of history" that the gentleman who teaches the nasal douche as an accompaniment to the tooth brush, was present shortly after this discussion at a dinner given by Dr. Barker to Professor Winckel at the Union Club, to which I had the honor of being invited as an advocate of the to me unknown teachings of Winckel. The practitioners of that time witnessed a revolution in postpartum management which was as radical as it was sudden, viz., to keep the finger and instruments out of the vagina. The doctor of more recent period has found this a universal doctrine. And I would that the doctor of today would beware of meddling with the delicate mucous membrane of the nose as he refrains from meddling with the less, far less delicate healthy mucous lining of the vagina. I do not lose sight of the fact that the vagina of the normal puerpera is almost always more or less abraded, no more do I forget that a nose which is daily having a douche cup or nozzle more or less unsterilized poked into it by a mother or still more ignorant nursemaid, may at any time become abraded and infected. *Nil nocere* was taught by the Nestor of Medicine—Hippocrates, and this warning has been sounded by Cantani and all good clinicians, including our own Jacobi in one of his memorable addresses. If modern medicine stands for anything positive, it stands for strict abstention from interference with nature in disease. This abstention is more important still in health. In my propaganda for free cleansing baths I have been made humorously conscious of this dictum by protests against too frequent bathing, voiced on two different occasions by eminent dermatologists who claimed injurious results from too frequent resort to soap and water! If the tough skin is regarded as so vulnerable by men who "know it not wisely but too well," how much more liable to damage must be the delicate mucous membrane of the nose. Compare these structures under the microscope—the one with its pavement-like corneal covering—the other with its waving, tender cilia—and no argument would be needed to defend the latter against insults, mechanical, thermic, or bacterial.

I have written this in no spirit of criticism, but from a sense of duty; it will not, and is not intended to reach the (hitherto happily) untutored women who heard the symposium on the cause and prevention of colds, but this protest may serve to remind some of my colleagues to instruct their clients against the pernicious practice of prophylactic nasal douching. With the exception of this special symposium I heartily approve of this method of instructing the lay public in the "causes and prevention of disease." Not only is it an evidence of an awakening on the part of the public, but it illustrates that the medical profession has so broadened in spirit that it is no longer regarded as unethical to address lay people from a medical platform, as it was in my earlier life. The conduct and management of these meetings are especially creditable to the chair(wo)man, whose tact and grace were conspicuous throughout.

Simon Baruch, M.D.
51 West Seventieth Street.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

SPECIAL DIPLOMAS AND R.C.P.—TROPICAL MEDICINE—PERICARDITIS—ATYPICAL PNEUMONIA—HOSPITAL REPORTS—OBITUARY.

London, March 18, 1910.

The spread of specialization has long been a sore point with general practitioners, and even in the consultant ranks there are many who deprecate it. But it continues to grow, and those engaged in the several specialties are no longer afraid to defend their position and practice. Since public health was recognized as a distinct branch by the issue of diplomas as additional qualifications, other branches have demanded equal treatment. The Royal College of Physicians is one of the bodies issuing such a document, but refused an application to do as much for tropical medicine, although as a compromise it agreed to attach a certificate to the diplomas of candidates showing adequate knowledge of the subject. The "mad doctors" rather too often insist on the ignorance of the general practitioners of mental disease and the latter retort that their accusers think everyone insane except themselves. The specialists in question have induced the college to consider their desire for a "diploma in psychiatry" to be granted after the general license to practice has been obtained—to be, in fact, a sort of additional or special diploma, similar to that in public health, which they dub the medical younger brother Jacob, who supplanted the elder Esau of psychiatry. The college held an "extraordinary comitia" on the 3d inst. to discuss the matter. The specialists were in full force and urged the claims of psychiatry from various points of view; I think their weakest was the assertion that the junior staffs of asylums needed it to overcome their indifference to the study of the highest scientific side of their work. It is generally held that these gentlemen are well paid and have plenty of time for study, and it is certain that laboratories have been provided for many asylums and large sums of money voted for the study of the pathology of insanity and for scholarships in connection with it. I am inclined to think that the seniors in their zeal for psychiatry cast an unjust slur on the juniors. It might be retorted that the seniors made their own reputations as juniors. A more reasonable statement put forward was that sometimes appointments to the superintendency of asylums had been given to doctors who were not specially skilled in psychiatry. But the blame of such a thing should be laid on the shoulders of those who do it, and are we to admit that an examination would remedy such objections as these? The multiplication of diplomas and of consequent examinations is more than an inconvenience or even a nuisance; it inflicts many an injustice, and while most people demand the reduction of the number of qualifying bodies it is scarcely prudent to provide them with the means of increasing their fees. If only a proof of extra study is wanted, why not institute a class of honors, as at the universities?

The chief objection to the proposal was admirably put by Dr. Norman Moore, who maintained that the license of the college guaranteed that the holder had the knowledge necessary to begin practice and was competent to enlarge his knowledge in any direction. If more psychiatry was required it should be got by adding to the curriculum—not by depriving their licentiates of one way of getting their living. Their way ought not to be barred in any direction by special diplomas, which would lead the public to think them unfit to practice any specialty.

The comitia, after further discussion, agreed to appoint a committee to report to the college.

Dr. C. W. Daniels of the London Tropical School is giving a course of lectures to merchants and per-

sons proposing to go to the tropics. This course follows up that of Professor Simpson, which I reported to you a fortnight ago. The main object of Dr. Daniels is to show those going to the tropics for the first time that those regions are not so bad as they have been painted. Taken all 'round, he found life there more pleasant. There was, he admitted, more ill-health, but that was not necessary. The mortality has been enormously reduced by a proper mode of life and simple precautions, *e.g.* Jamaica, once with a terrible mortality, has become a health resort. In India the death rate of Europeans has fallen from 69 per 1,000 in 1858 to 16 among our troops. The golden rule for those going to the tropics was moderation in all things. A man who had contracted malaria might recover perfectly if he lived properly. The lecturer gave demonstrations of how malaria was acquired, its development in the blood corpuseles, the transmission by mosquitos, and so on. He then told the story of prevention and how on some plantations the cases had fallen from hundreds a year to about a score.

Pericarditis has occupied two evenings of the Medical Section of the Royal Society of Medicine. It was introduced by Dr. S. West, who considered at some length the question of paracentesis. In rheumatism the effusion usually produced no urgent symptoms, and as soon as absorption began it was rapid, so operation was not called for. Signs of adhesion were not left even after large effusions. Paracentesis was not a difficult operation. When necessitated an exploration with a small needle should first be made. He had never had any accident. The exploratory puncture might be made at any site indicated by signs. He had, for instance, tapped at the base on the left side and even to the right. Where the choice was free the safest place, he thought, was the fifth or sixth intercostal space outside the left nipple line, but well within the area of dullness, for here, owing to the displacement of the heart upwards and the distension of the pericardial sac outwards, was the widest space between the heart and the seat of puncture. All the fluid possible should be taken. Reaccumulation was not common, but if it did occur puncture could be repeated. In some recorded cases the operation had been performed many times.

Dr. Lees observed that the amount of fluid in rheumatic pericarditis was less than commonly supposed and might be absent. Clearly the cardiac dilatation was due to the causes of the pericarditis.

Dr. Ewart said that in future when cardiac effusion was diagnosed we must try to find out to what extent of cardiac dilatation was also present.

Sir John Broadbent said that effusion was more frequent and less dangerous in adults than in children. Extreme cardiac dilatation, with pericardial adhesions, was common in rheumatism, but effusion was comparatively rare. Diagnosis based on rapid increase of the area of dullness was therefore liable to deceive.

Dr. Herringham had seen the heart punctured in two cases through a diagnosis of effusion. In neither case it did harm.

Dr. Pasteur hoped the orthodiagraph would be more used. If pericarditis inhibited movement of the diaphragm that would explain some physical signs at the left base in effusion.

Dr. Porter Parkinson said the differential diagnosis between effusion and dilatation was always difficult, sometimes impossible. In such cases he suggested a surgeon should be called in to cut down slowly, feeling his way and finding out the actual conditions before opening the pericardium.

Dr. C. Ogle had seen in a case of distended pericardium the external jugulars pulseless and permanently distended, and thought this immobility, so distinct from the pulsation common in dilated heart, might be due to an obstruction by pressure to the entry of blood into the heart.

Dr. Ironside Bruce showed *x*-ray photographs in which the pericardial outline was sharp, and Mr. Lister remarked that small quantities of pericardial effusion could be diagnosed by these rays.

Dr. Poynton said large effusion was rare in children. He had never known puncture necessary in a rheumatic case.

Dr. Alex. Morison said twelve cases out of forty-four of pericarditis with adhesion had no endocardial lesion, but were due to extension of inflammation from neighboring tissues. The chief clinical interest was in the diagnosis. He deprecated active interference in non-purulent cases and a limited effusion. If exploration became necessary, he preferred removal of a bit of cartilage and cautious incision to puncture with a needle. He mentioned a case in which such an operation had shown that needling would probably have been disastrous.

Atypical pneumonia was the subject of a paper by Sir John Broadbent at the Medical Society of London on the 28th ult. He found that in adults the cases were mostly associated with influenza. The onset was insidious and the diagnosis difficult, as the pyrexia might be intermittent and the physical signs delayed. The pyrexia might continue for weeks without definite crisis, and there would then be progressive wasting. In some cases empyema or malignant endocarditis might develop; in others, after a long period of septicemia, recovery took place without further complications. In children symptoms suggesting cerebrospinal meningitis, especially in cases beginning at the apex, might give rise to difficulty; so a case of protracted lobular pneumonia might be mistaken for tuberculosis. In contrast to this typhoid, which in children often ran an atypical course, might be masked by bronchopneumonia complicating it.

Dr. Reginald Miller followed with a paper on protracted pyrexia in pneumonia in children. He said in 217 hospital cases 55 (25.3 per cent.) showed fever for more than ten days, and this high percentage, he thought, might be due to the fact that the longer it lasted the more likely was the child to be sent to the hospital. The primary cases were 126, those secondary to bronchitis 91. There was not much difference in the proportion of protracted cases between the two groups; primary, 26.19 per cent; secondary, 24.17 per cent. The mortality of protracted cases was increased threefold, being 30.9 per cent., as against only 9.87 per cent. in the unprotracted.

Dr. Camac Wilkinson said tuberculin in adults would settle the diagnosis of doubtful cases. Dr. Theodore Williams did not consider that reaction to tuberculin proved tuberculosis. Dr. S. West held that reaction proved the patient to be tuberculous, but not that the inflammation from which he suffered at the time was of that nature.

Many charities are holding their annual meetings and most of them appealing for more funds. Yesterday University College Hospital had to report a falling off in legacies and to confess that the new hospital costs £10,000 a year more to maintain than the one it displaced. An appeal for £11,000 is being urgently made.

Yesterday, too, was the meeting of the Ventnor Hospital for Consumption, and Lord Roseberry, presiding, repeated a little grumble he made last year, that the King's Fund contributes nothing, although half the patients are sent from London.

The Lord Mayor presided at the Royal Hospital for Diseases of the Chest at the ninety-sixth annual meeting. This is the oldest hospital in Europe for consumption, etc. Last year the in-patients numbered 718, the out 25,254. The expenditure was £6.586. The invested income is only about £200, so a large sum has to be looked for from subscriptions.

Brigade-Surgeon E. J. Boulton, late A.M.S., who has died, first served in the Navy and was awarded the medal for the Baltic expedition, 1855. He joined the Army Medical Service in 1860, served in the Zulu war, 1879, was in the engagement at Gingindhlovn and the relief of Ekowe, receiving medal and clasp. He retired in 1866.

Dr. Cecil Edgar Fish of the Vale of Cluyd Sanatorium died on the 7th inst. He was a Cambridge graduate in arts and medicine, 1889-1894, and took the double London qualifications in 1893.

Dr. William Haig Brodie, a retired M.O.H. in Sussex, where he held other appointments, has also died. He was D.P.H., 1891, and F.R.C.S., Eng., 1895, but graduated in Edinburgh as early as 1881.

Progress of Medical Science.

Boston Medical and Surgical Journal, March 24, 1910.

The Present Status of Vaccine Therapy.—W. Tileston speaks of the value of prophylaxis with the vaccine therapy, and then discusses its use in localized infections. He says of vaccines that they will not and could not be expected to cure all cases, for they depend for their effect on a responsive power on the part of the patient. If this is lacking, no benefit can result. Moreover, the vaccine, if it is to be of use, must contain the organism which is causing the disease process. The practice of injecting dead

bacteria of all sorts and frequently a mixture of various bacteria in all sorts of conditions with the hope that by some lucky chance the right organism might be hit upon, cannot too strongly be deprecated, for it is calculated to cast discredit on vaccine methods. To sum up the present situation, in certain localized infections, particularly those due to the staphylococcus and to the tubercle bacillus, vaccine therapy has clearly proved its worth and stands on firm ground. In general infections it has not thus far shown results which are distinctly better than those obtained with other forms of treatment. There can be no doubt that there is going to be improvement in the methods of preparing vaccines and in the principles governing their administration. Vaccine therapy is still young and we may expect much improvement in the future. The field of immunity is very fertile and is being assiduously cultivated.

Local Anesthesia (Neumann) in Ear Surgery.—After commenting on the Schleich method of infiltration anesthesia, J. J. Hurley refers to a paper by Heidenhain which furnished the immediate stimulus for Neumann's work. The latter found it possible to operate on the frontal sinus by the subperiosteal injection of solutions of cocaine and adrenalin, the fluid being absorbed through the bone canals and lymph spaces, anesthetizing at one and the same time the soft parts, bone, and mucosa. Contraindications are two: First, the existence of a subperiosteal abscess, and, second, very neurotic persons, because of the psychial effect of consciousness and not because the anesthesia is insufficient. The paper details the methods of injection and follows up the gradual improvements in aural practice obtained by it in view of increasing experience. The present status of the plan is thus summarized. Neumann's anesthesia fulfills all the requirements of Heidenhein, and stands forth as one of the greatest advances of modern otology. It has no design on the ether or chloroform market, and desires to be on only the most friendly terms with both relatives. In mastoid work, when general narcosis is contraindicated, it needs no defense. It seeks to limit the radical exenteration to those cases in which there is a strong presumption of mastoid or brain involvement. It promises to do away with the chiseling out of a healthy mastoid to arrive at a chronic ear, and it claims the intratympanal field as its own.

New York Medical Journal, March 26, 1910.

Some Dermatological "Manias" and "Phobias."—W. S. Gottheil refers among others to the question of syphilis, saying that while we have no absolute criterion as to its cure, the disease is being cured every day. He is of the opinion that it is becoming milder either from a change in the virulence of the spirochete strain or from a gradual change of soil or from improvement in treatment, especially of the secondary infections, which are responsible for the ill effects ascribed directly to the malady. It is when the patient contemplates marriage that syphilomania develops in its severest form. When a patient has had three years of adequate treatment and has passed an additional year without treatment and without symptoms, he may in the author's judgment safely contract marriage. He regards infection from public women as comparatively infrequent, considering the amount of specific disease among them. The modern fear of lepra is without foundation. Fortunately, the public is coming to entertain more sensible ideas on this subject. The lepra infection under the conditions occurring in this country is very feeble. The danger to others is very small. Leprosy is probably not hereditary, though, of course, children living with leprous parents are especially exposed to the contagion. Advanced cases, of course, belong in hospitals, but it is needless to incarcerate cases early and make of them a public charge. In addition to the phobias mentioned, there are various other personal peculiarities, such as subjective bromidrosis, etc., which appear in practice from time to time. In such cases the psychiatrist may find that the symptom is merely part of the beginning of deeper seated and more serious pathological changes.

Typhoid Carriers.—R. C. Rosenberger summarizes much of the recent literature on this subject. The greater number of observers now believe that not only the gallbladder, but in addition the urinary bladder and intestines are the habitat of the bacillus for which the bile appears to be a particularly favorable medium, especially after admixture of protein matter as a result of inflammatory changes during the disease. Carriers may be acute, chronic, or intermittent. The bacillus may be absent from the excreta for a month or two and then reappear. All of this information requires the existence of rigid sanitation in connection with each case. A suspected carrier should have monthly examinations made for six months. When found positive, isolation should result, but this is hardly possible in a city or community while perfectly feasible in an asylum or institution. Great care must be employed in making the necessary tests. In favor of the inactive sera the following reasons are advanced: First, in some active sera are substances which exert an anticomplementary action in the control tube without antigen, so that the rule of using in this tube double the dose of serum to be tested cannot be applied. These substances are destroyed in heating to 56° C. In this way we get a pure fixation reaction, and not a summation of anticomplementary action. Second, inactivating destroys human complement, and we know more nearly the exact dose of complement present in the test. In comparing active and inactive serum, I have seen weak reactions with the active serum which were strong with the same serum inactivated. Here the weak reaction seemed to be due to the presence of human complement. In such a complicated test it would seem advisable to obtain each factor in as pure a state as possible. Inactivating the human serum gives us the antibody in this condition. The advantage of the Noguchi principle is the accurate dosage of all the other factors. Inactivating, which adds but little to the work involved, gives us a constant method of dosage of human serum, and its uses render the method as accurate as it is possible to attain when we are dealing with such unstable substances as products of vital processes.

Operation for the Cure of Hammer Toe.—R. E. Soule describes the following operation: After the usual preparation of the foot for operation and after the Esmarch bandage has been applied, a skin incision, one and one-quarter inches long, is made at the outer aspect of the plantar surface of the toe, the center of which incision is at the flexed joint. The skin flaps are dissected laterally, sufficiently to expose the underlying structures. The incision is continued through the subcutaneous structures, being careful to expose the digital branch of the artery and the nerve and to prevent their injury while continuing the dissection down to the joint. The sheath containing the flexor tendons is now dissected free from the joint and held aside sufficiently to allow of the removal of the articulating joint surfaces with the chisel, observing due care to have sufficient flat surface at right angles to the shafts of the contiguous bones as a result of the arthrodesis. No bone suture is necessary. The subcutaneous structures are now allowed to fall back in place and are held by a few fine buried catgut sutures. The skin is closed with interrupted chronic gut and dressings applied. A plaster-of-Paris bandage, fixing the toes in hyperextension, making the flexor tendons tense, thus holding the bony surfaces of the phalanges operated on in close apposition and in a straight line is finally applied. After ten days the plaster-of-Paris is split and the dressings are removed sufficiently to expose the field of operation. Then the dressings are restored and maintained in the original position for six weeks. The patient is allowed up on crutches after the first dressing. The author says that the advantages of this operation over that performed on the dorsal surface of the foot are: (1) No sensitive scar is left to chafe in the shoe. (2) There is less chance of interrupted healing of wound, due to the pressure on skin wound necessary to keep the toe extended. (3) The securing of the aid of the shortened flexor tendons taken advantage of in forcing the end to end contact of the bones. (4) Bony contact is maintained throughout healing by the position of the overextension of the toes.

Journal of the American Medical Association, March 26, 1910.

Surgery in Neurasthenics.—Stuart McGuire emphasizes the importance of refusing to operate on a neurasthenic patient unless the symptoms are clearly due to organic disease, and also the necessity, if an operation is undertaken, with either latent or developed neurasthenia, of protecting the nervous system from psychic and physical shock. This will require not only proper preliminary preparation but also careful and often long postoperative and posthospital treatment. The surgeon must remember that his aim is to cure not merely to cut, and if neuroses exist he must remember that if they exist alone, operation will be liable to do harm, while if they exist with organic disease, operation may do good, but great care must be taken not to aggravate the nervous symptoms. This is especially true of patients who have previously been subjects of other operations. Two separate preliminary examinations should be made of every surgical patient; the first for diagnosis to determine the condition to be corrected, the second for prognosis, to determine the safety of the operation and the chances of a complete cure. Several specialists may be required to aid in this, as sur-

geons are not always qualified to do all the special work that is required. The preparation of the patient should be both physical and psychic, and in the past too much attention has been paid to the first and not enough to the second. Not all patients are in good nervous and physical condition and we are too apt to underrate the important effects, psychic and otherwise, of local operations, on the patient's health. Hence a longer stay in the hospital should be insisted on in many cases and when patients return to their homes they should be placed under the oversight of their family physician rather than left with simple verbal or written instructions to be carried out by themselves. McGuire thinks that, with the rapidly increasing amount of surgery being done, there should be an educational movement started for the study of the many peculiar factors involved. Physicians should take part in this and the subjects should include the question of a proper dietary, best method of bowel regulation, and treatment of bladder irritation, the hours of sleep, the amount of exercise permissible, and hundreds of other questions relating to occupations, habits, bodily hygiene, etc. When surgeons, he says, appreciate the influence of neurasthenia on the result of an operation, and when the family physician is educated in the details of posthospital treatment and given legitimate work with proper compensation, then and not till then will there be harmony in the profession and the greatest good accomplished to the greater number of patients.

Fat and Its Uses.—G. M. Niles describes the part played by fat in the human organism under its material, esthetic, and psychic aspects. As compared with protein, fat is often unappreciated or misunderstood and unduly blamed for sins or delinquencies of other body foods. From 15 to 20 per cent. of each healthy body is composed of fat, and its chief sources are the starches and sugars, though certain fats are directly utilized. The weight of present opinion is in favor of the view that fats are completely decomposed in the intestine, and that the fatty acids formed are absorbed, either as soaps or in a solution brought about by the bile. As a source of energy for the development of heat, fat may be described as quickly available, but not so lasting as some other substances. By its concentrated fuel power it saves other tissues, especially the albuminous ones, from overoxidation, and is valuable as a reserve force. Moreover, by its presence the protein is better enabled to do its work in tissue building, and as a storage of energy for emergencies it is of great importance. The last material use of fat is to serve as a protection of the body from injury and cold. It forms an outer cushion for the frame. From an esthetic standpoint, the physiological and orderly distribution of fat in the connective tissue makes all the difference between beauty and ugliness. In considering the psychic rôle of fat, we should specially bear in mind, Niles says, its reserve function in relation to active vital processes. A liberal deposition of fat is one of Nature's wise precautions to enable us to bear some of the trials of life. It has been known from earliest antiquity that fat people are more contented and optimistic than lean ones, and the supply of fat may be compared to the ample bank account of a busy and provident man. Niles says that he believes he is correct in asserting that a physiological reserve of fat, by its very presence, exerts a quieting and reassuring influence on the vital forces most concerned in constructive metabolism, while its lack leads to a physical discontent and unrest which sooner or later reacts on the disposition, developing into that pessimism and temperamental discontent so often seen in lean people.

Vaccination.—J. F. Schamberg's conclusions are as follows: "1. Vaccination, when properly and adequately employed, protects one against smallpox. Even those intimately exposed to the disease, as physicians and nurses in smallpox hospitals, may be rendered completely immune against smallpox by vaccination and revaccination. 2. Vaccination protects against smallpox in the same manner that one attack of the smallpox protects against a second attack. Vaccination has the special advantage in that the immunity which it confers against smallpox may be renewed when it becomes impaired or exhausted. 3. Vaccination, in order to confer protection, must be genuine; the mere production of a "sore arm" is of itself no proof that the subject has been successfully vaccinated. The vaccination must run a definite course before a protective substance is left in the body. 4. Smallpox may develop in vaccinated persons if they have permitted years to elapse without being revaccinated. 5. Vaccination and revaccination universally applied are capable of exterminating smallpox as an epidemic disease. The experience of Germany during the past thirty-five years proves this. 6. In isolated instances, individuals in a generally well-vaccinated community may develop smallpox because their protection is imperfect as a result of the use of an inert virus or because of some other fault of technic. These cases, however, will never appreciably influence the prevalence of the disease in such a community. 7. Smallpox was an ever-present and terrible pestilence in the days before vaccination. In most civilized centers it is to-day a relatively rare disease. This change has been effected almost exclusively by vaccination. Epidemics of smallpox prevail from time to time when the spark of infection is introduced into the community and a sufficient amount of unvaccinated combustible material exists to lead to a general conflagration. In countries where vaccination is neglected, as in Persia, Asiatic Russia, etc., etc., smallpox is still a death-dealing scourge. 8. The foes of vaccination commonly refer to the infrequency of smallpox at the present day and to the remote liability of contracting the disease. They forget that the relative security which we now enjoy is caused by vaccination. This security can be made absolute or it can be largely destroyed according as vaccination and revaccination are generally employed or generally neglected. 9. The dangers connected with vaccination have been greatly exaggerated by the opponents of this measure. Vaccination causes an abrasion of the skin, and in rare instances this wound, like other wounds, may become infected, especially when neglected or maltreated. With the selection of a proper virus and care of the vaccination site during and after vaccination, the risk in any individual instance is an entirely negligible quantity.

Aural, Nasal, and Throat Symptoms in Diabetes.—O. J. Stein says changes occurring in the mucous cavities of the head and neck in diabetes are by no means uncommon. In the mouth, evidences of perverted nutrition are frequently found. The secretions become distinctly acid and act on the necks of the teeth, exposing the deeper and more sensitive parts to the ever-present infection in the mouth, hence spongy and bleeding gums and aching teeth are symptoms of importance in diabetes, the existence of which is often recognized by dentists from the mouth symptoms. Aphthous stomatitis, thrush, a large red tongue sometimes with black fur in the middle, hyperemia of the mucosa, which often presents a glazed appearance and feels dry, are frequent symptoms. If acetone is present in quantity its odor is imparted to the breath, and the patient himself may be aware of the sweetish taste. Sialorrhea has been observed in some individuals with pancreatic disease. In the throat there is a dryness which is not to be confounded with pharyngitis atrophica. In the dry pharyngitis of diabetes the mucous membrane is usually red and glazed in appearance. This symptom is considered important in connection with others in the diagnosis of diabetes. Tuberculous appearing ulcers appear occasionally, but they heal readily, and therefore have not been considered by Freudenthal as tuberculous. Externally a reddening of the nose has been observed in diabetes but as to intranasal symptoms nothing characteristic has been noted. Stein, however, thinks that there are many cases of intranasal irritation that might show a relationship to diabetes. The manifold variety of ear symptoms is surprising to the casual observer. A common symptom is furuncles in the external ear, and otitis externa diffusa chronica may be present, especially the desquamative type. Eczema auris is not uncommon and may be very extensive. In all such cases, Stein says, he makes a urine examination for diabetes. Gangrene may rarely occur. Suppurative ear disease is a serious complication in diabetes, but not necessarily alarming. Some authorities hold the opinion that a primary mastoiditis may occur. An otitis media that appears suddenly without apparent cause should lead to an investigation for diabetes. In Stein's observation, these cases are more painless than usual and the mastoid is always involved. Both ears may be affected. He says that suppurative otitis media and suppurative labyrinthitis are commonly associated in diabetes, and brain complications have been many times observed. We should be alert in all diabetics with otitic involvement for symptoms of panotitis. Lastly, he mentions neuritis of the acusticus which, according to Benninghaus, is most frequently caused by diabetes.

Syphilis of the Liver.—W. F. Cheney gives the history of a case in which the diagnosis pointed strongly to tuberculosis, both in the history, the physical findings, and the temperature curve. The tuberculin reaction, however, was negative and there was conclusive evidence of syphilitic infection. In favor of this as a cause of the condition, and of the case being one of late occurring congenital syphilis, was the fact of the frequence of liver symptoms such as existed in this case and the agreement of the clinical features with those of liver syphilis, as well as the positive reaction of the mother to the Wassermann test. The usual

congenital stigmata such as Hutchinson's teeth, interstitial keratitis or its scars, deafness, bone deformities, and constitutional defects usual in such cases, were absent and the double pleuritic effusion which existed is not accounted for except by a coincident gummatous lesion in both pulmonary bases, but there was no proof of this. He calls it, therefore, only probably, late congenital syphilis.

The Lancet, March 12 and 19, 1910.

The Clinical Significance of Gastric Hypersecretion and Its Connection with Latent Disease of the Appendix.—W. Soltau Fenwick says that the disorder known as "hypersecretion" is distinguished from all other functional perversions of the stomach by the fact that a secretion of gastric juice occurs in the intervals as well as during the periods of digestion and, therefore, is practically continuous. In conclusion he says: (1) Hypersecretion of gastric juice invariably depends upon an organic lesion, which usually takes the form of a chronic ulcer of the stomach or duodenum, calculus in the gall-bladder, or latent disease of the appendix, although it is probable that future investigations will prove that pancreatic calculus, tubercle of the cecum, and carcinoma of the appendix are also capable of producing it. Of the last named, one case has already come under his observation. This disorder of secretion is merely the physiological expression of a reflex irritation of the gastric glands, and is therefore not entitled to be regarded as a disease. (2) The continuous flow of hyperacid gastric juice, whatever be its cause, always excites severe inflammation of the stomach, and is very liable to be followed by ulceration of that viscus or the duodenum. This secondary ulceration is at first superficial in character and may not be demonstrable on examination of the exterior of the stomach. Minute hemorrhagic erosions, capable of producing alarming hematemesis and melena, are usually associated with, and caused by, this abnormality of the gastric secretion. (3) Latent disease of the appendix as a result of former acute inflammation is accompanied by a peculiar form of digestive disturbance. In this condition subacidity of the gastric juice with an absence of free hydrochloric acid is the rule. (4) With the exception of hemorrhage, all the symptoms that are regarded as pathognomonic of duodenal ulcer are in reality due to the gastric hypersecretion that always accompanies this lesion. It follows, therefore, that a severe example of hypersecretion may as a rule be safely diagnosed as a case of duodenal ulcer. (5) Contrary to the usual belief, carcinoma of the pylorus is sometimes accompanied by extremely well marked hypersecretion. In such cases the morbid growth develops with extreme rapidity and violent hemorrhages, due possibly to digestion of the tumor, are exceptionally frequent.

Some of the Commoner Forms of Chronic Rheumatism (Fibrositis) and Their Treatment.—Arthur P. Luff says that in the great majority of the so-called cases of chronic rheumatism, the essential pathological change is an inflammatory hyperplasia of the white fibrous tissue in various parts of the body, to which the term "fibrositis" has been very aptly applied. Local fibrositis may result from several causes of which the following are the commonest: Cold, damp, and wet; extremes of heat and cold; local injuries; absorption of irritating toxins from the alimentary tract; tonsillitis and pharyngitis; influenza; febricula. Among the various forms he mentions muscular rheumatism, an affection which is always a fibrositis; lumbago which is a typical form of fibrositis; Dupuytren's contraction, a localized fibrositis caused by postural use of the hand; fibrositis of the plantar fascia; pads upon the finger joints constituting a chronic form of localized fibrositis; and chronic villous synovitis, in fact, not a form of fibrositis, but referred to because the treatment is similar to that of other forms of chronic rheumatic conditions. In the treatment of the different forms of fibrositis salicylates are of little curative value. Aspirin is of decided use in relieving the pain. Iodide of potassium is a most valuable drug in the treatment of fibrositis. In properly selected cases fibrolysin (combination of thiosinamine and sodium salicylate) is a very useful drug to employ. It is possible that if the direct stinging with bees is of any efficacy in the treatment of rheumatism, it is simply due to the action of formic acid as a counterirritant. In the early stages of an acute fibrositis hot fomentations are useful. Afterwards one of the best external applications is a mixture of equal parts of chlorid hydrate, camphor, and menthol. Diaphoresis is especially beneficial at the onset of the attack, and heat is of the greatest use, dilating the peripheral vessels, lowering blood pressure, causing diaphoresis, and relieving pain. Massage is most useful in the later stages. No special dieting is required. Porous linen underwear should be worn.

The Treatment of Vomiting.—J. Snowman says that every case of vomiting will fall into one of three groups which may be distinguished as local, toxic, and reflex. In the treatment of vomiting the first point to determine is whether it is an incidental symptom of an acute illness or whether it is a cardinal feature of some chronic disease. In the treatment of acute illnesses the management of the dietetic treatment should be by less drastic measures than virtual starvation; the aim should be to make a strict milk diet easily tolerated. The ordinary available measures for the treatment of vomiting are very numerous; but nausea may be allayed occasionally by sips of hot water or by sucking fragments of ice. Bismuth is an excellent drug for use when the vomiting results from gastric irritation, but in other circumstances little is to be expected from it. Creosote, iodine, and carbolic acid may be grouped together as a series of drugs which allay vomiting when suitably employed. Aconite must be given in large doses; it then numbs the reflex centers and acts as a powerful sedative to the peripheral nerves in the gastric mucous membrane. It is one of the best of drugs suggested for the vomiting of pregnancy. One-third of a grain of cocaine will occasionally put a sudden stop to vomiting, and is one of the most effective remedies available for sea sickness. Hydrocyanic acid is another drug with a reputation in gastric vomiting. Opium is our most valuable remedy for vomiting, however, especially in those cases which are persistent and exhausting. It should be given hypodermically.

Note on the Crepitation Heard in the Third Left Intercostal Space in Some Cases of Mitral Stenosis.—C. W. Cunnington says that in a large proportion of cases of mitral stenosis crepitations are heard in the third left space. The area over which they appear is scarcely larger than a half-penny, placed over the third space close to the sternal margin. It may run down to the fourth or up to the second space. The crepitations disappear when the breath is held. They are heard only on inspiration, and are more frequent in women, but this form of valvular trouble is more frequent in women, anyway. They may be present on a given day and absent on another, and are more liable to be present when the heart is distended. They have been found when the compensation is perfect. These sounds are not due to accompanying tuberculosis, which is rare in this form of cardiac trouble. They are evanescent, do not spread, and are strictly limited in position. One is compelled to believe they are due to the heart condition. In mitral stenosis the left auricle is distended and there is from time to time some pulmonary congestion of a passive nature due to obstruction at the mitral valve. These sounds are heard over the site of the left auricle, and it is probable that they arise in a small edge of lung tissue pressed on by the dilated auricle or appendix. Treatment designed to relieve the auricular distention causes them to disappear.

Chorioepithelioma of the Testis.—The patient of O. C. Cruner was a man of twenty-five years, with enlarged left testis, which he had had for five months. The swelling occupied mainly the epididymis. The cord was not thickened and there were no adhesions between the swelling and skin. The growth was about one inch in diameter, was excessively vascular, and occupied the middle of the testis, which apparently formed a thin layer all around it. Syphilis and tuberculosis were excluded and castration was performed. Recovery was without incident. The rest of the paper is taken up with the results of microscopical investigation. The cells of the living parts of the tumor were remarkably polymorphous. Some were spindle shaped, others tailed at one end, others polygonal, others quite round, and others like the cells of spheroidal-celled carcinoma. There were also marked variations in size, the first-mentioned shape being small and the last mentioned very large. The character of the cells strongly recalled that of decidua malignum. Their close examination revealed a similarity on the one hand to sarcoma cells and on the other to the cells of a spheroidal-celled carcinoma, so that the tumor might be called a sarco-carcinoma.

The Treatment of Labor in Contracted Pelves with Special Reference to the Justifiability of Pubiotomy.—G. F. Blacker considers four classes of pelvis. In the first are placed those with a conjugate diameter of 2 2/5 inches or less in which it is impossible to deliver with any degree of safety to the mother either a living or dead child through the natural passages. The second class includes those pelves with a diameter from 2 2/5 up to 3 inches, in which a living child cannot be delivered, but in which there will be no undue difficulty in delivering a dead child. A third class has a diameter from 3 to 3 3/5 inches, and is most important of all. In such instances premature labor is often performed. The author discusses especially pubiotomy

and detailed studies show that the risks after it are less than with symphysiotomy so far as concerns immediate maternal mortality, yet the possible sequelæ of the operation are both numerous and serious. Hemorrhage as a rule is not excessive. The most important and serious injuries are tears of the vagina and vulva. Manual dilatation of the vulva and vagina before operation will lessen the frequency of this accident. Injuries of the bladder are not uncommon, and lead to infiltration of the tissues by the urine or to vesicovaginal fistulæ. Infection of the wound is the rule rather than the exception and occurs in at least half the cases, the morbidity varying from 40 to 60 per cent. Septic phlebitis is not uncommon. Remote sequelæ are not of so much importance. The union of the fragments is often fibrous, yet interference with locomotion is quite uncommon. Prolapse of the genitals and incontinence of the urine is not uncommon. The author offers the following as the right solution of the problem: In any case in which it is considered inadvisable to perform cesarean section or in which this operation is rejected by the patient and in which the induction of premature labor has been followed by the birth of a still-born child on one or more occasions, the patient may be allowed to go to full term and, if necessary, pubiotomy may then be performed. In many cases of this nature spontaneous delivery might occur, a result which is attended with a minimum of risk to both mother and child. While cesarean section is ordinarily safe, yet pregnancy does occur from time to time in which abdominal section would not be safe, and the woman might prefer pubiotomy to the destruction of her living child. If the patient is in labor when seen and the head fails to engage at the superior strait or is arrested at the brim, then if moderate traction with the high forceps fails, in place of the forcible delivery of the head through the brim, which entails a fetal mortality of 40 per cent. or a higher one with version, a cesarean section should be performed, while if the case be considered unsuitable for this, pubiotomy may be substituted for craniotomy of the living child. Pubiotomy should be undertaken only if it is certain that the child has not been in any way imperiled and in view of the various complications which may follow, it is not an operation for private practice, but should be undertaken only in hospital.

British Medical Journal, March 10, 1910.

Causes and Treatment of Functional Dyspepsia.—David Drummond says that while it is a matter of scientific interest to diagnose accurately the special form of indigestion with which one has to deal, it is of greater practical importance to discover the cause and to point the direction in which relief may be obtained. The investigations of the secretory activity of the stomach, followed by the prescription of an appropriate diet and acid or antiacid remedies, are valuable in many cases for giving relief, but are only too often insufficient for a cure. The great majority of cases of functional dyspepsia are due to obvious causes, errors of diet, bolting of food, dental deficiency and imperfect mastication, irregularity of meals, chronic bacterial intoxication, or they may be secondary to Bright's disease, phthisis, or other chronic debilitating disease, but a few of the causes are apt to be elusive. The subjects of excessive eating or drinking are apt to be reticent and much may depend upon the ability of the physician to secure their confidence and to learn their personal habits. The patient may be indiscrete in the quality of his diet as well as in the quantity. In the matter of special diet there was a great temptation for the physician to skate on the thin ice of quackery and to insist upon the most minute details. It was well within the mark to state that some of the most distinguished physicians had lowered both themselves and the profession by undue exactitude in the matter of dietetic details. It was most undesirable to encourage any patient to dwell anxiously on the details of diet. In ordinary cases it was well to keep along broad lines of information and advice. There is a class of patients in whom mental disturbance produced dyspepsia. These were to be distinguished from those commonly known as dyspeptic neurotics. It is common for both the doctor and the patient to attribute depression to the dyspepsia, when the dyspepsia is really induced by the depressed state of mind brought about by other conditions. If the environment or life circumstance that is responsible for the depression can be removed the dyspepsia is soon cured. If the environment cannot be changed, the patient may be encouraged to take a different attitude toward the disturbing circumstance, or a brighter view of life. One of the most useful therapeutic agents in stomach cases is rest in bed. This measure is often effective whether the excessive exertion has been physical or mental. A number of neurasthenic cases will only be benefited by rest and isolation from home influences.

Reflex Pain in Diseases of the Abdominal Viscera.—After reviewing the anatomical and physiological factors which enter into a consideration of this subject, A. Ernest Maylard calls attention to the fact that if some powerful and exaggerated stimulus arises from an organ, not only are the cells specifically connected with the sympathetic in the cord greatly excited, but also those neighboring ones associated with the sensory nerves; hence it comes about that pain is often felt in the area of the abdominal parietes over the region of the affected organ. Not only may the cells in the immediate continuity be excited, but other cells more remote, and the distribution of the pain may become more diffuse and distant. His chief reason for thinking that in bowel disease we have to deal with really a splanchnic pain is that one usually fails to obtain any evidence of a cutaneous or muscle hyperalgesia. Nature seems to make an exception in her method of dealing with the bowel when implicated in obstructive conditions as compared with her protective measures in certain diseases of other parts. It matters not where the viscus is situated within the abdomen nor where the lesion is located in the viscus, the initial acute seizure is most frequently felt in the midline, although variations will exist regarding the particular spot in this line. The explanation of the fact that in nearly every instance the pain is referred to the middle line is explained on the basis that the cells in the cord which receive the afferent fibers of the sensory nerves contained in the lower six intercostals are abnormally irritated. Without attempting to differentiate clinically between lesions causing pain in the same spot, he gives a sort of classified list of the diseases which may be expected to cause reflex pain in certain definite areas. 1. Perforation of a gastric or duodenal ulcer, rupture of the gall-bladder, acute hemorrhagic pancreatitis, cause acute pain to be felt in the epigastrium. 2. Perforation of the appendix vermiformis or of the small intestine, ruptures, strangulations and obstructions from various causes, embolism or thrombosis of the mesenteric vessels, etc., cause acute pain to be felt in the region of the umbilicus. 3. Rupture in tubal affections, including extrauterine pregnancy, cause acute pain to be felt in the hypogastrium. While diseases of the abdominal viscera may give rise to reflex pain located in one or other of the anatomical regions into which the abdomen is artificially divided, all reflex pains experienced in these particular regions do not necessarily signify diseases of the abdominal viscera.

The Effect of Abdominal Compression in a Case of Very Rapid Heart.—This case is reported by W. Gordon. The patient was a man, 68 years old, who was thrown down by a large motor car which backed onto him. The attacks of "paroxysmal tachycardia" seemed clearly consequent on his accident, as well as his flatulent indigestion. Ten days after the accident the pulse rate was 180. At no time was there dyspnea, cardiac dilatation or murmurs, distension of veins, or edema, except in a thrombosed leg. At this time he noticed that during full inspiration the feeble, rapid pulse became absolutely obliterated. Then a stout flannel binder was tightly applied over the abdomen. From this time on the pulse returned to an ordinary rate, stronger and not intermitting. The effect of the binder can best be explained by its effect on the splanchnic circulation.

A Red Line on the Gums.—G. Arbour Stephens has had the privilege of examining about 900 men employed in works where lead ores are handled, and was particularly struck with the fact that a large percentage of their gums showed a distinctly red line. This red line was due, in his opinion, to an enlargement of the papillæ at the edge of the gum. The atmosphere in which these men worked was probably charged with particles of an irritating nature, and this was the source of irritation. The conclusion that one naturally arrives at from such facts is that the so-called lead line is no proof of lead in the system, but that it appears in workers whose gums have been irritated by particles other than lead.

Calcium Lactate on the Nose and Throat.—Fernandez describes for the first time in Cuba the advantages of the lactate of calcium as a prophylactic measure to prevent hemorrhages in the operations on the nose and throat. He reviews the history of the drug, since it was first described by Wright and declares himself to be convinced that the only way this drug acts is by directly increasing the coagulability of the blood. He has employed it very extensively as a preventive and in no case has seen his hopes unfulfilled. He uses large doses. He has also employed it in the treatment of nasal hemorrhages with excellent results and has seen it employed in pulmonary hemorrhages with satisfactory results. In postoperative hemorrhages the effect is marvelous and almost instantaneous.—*Chrónica Médico-Quirurgica de la Habana.*

Book Reviews.

Arthritis Deformans: Comprising Rheumatoid Arthritis, Osteoarthritis, and Spondylitis Deformans. By R. Llewellyn Jones, M.B., Lond.; Fellow and Member of Council of the British Balneological and Climatological Society; formerly Medical Officer Royal Mineral Water Hospital, Bath. With 38 full-page plates. New York: William Wood & Company, 1909.

To a difficult task the author brings a wide clinical experience and an extensive knowledge of the writings of others. The subject has always been a baffling one, and, in spite of the attention it has received in recent years, it is still full of mystery. This book, while containing some new material, rests its claim for attention mostly on its complete exposition of the facts that have hitherto been set forth, together with its author's interpretation of them. The references at the end of each chapter are numerous and enlightening, and place within the reach of the reader a ready access to a wide bibliography. To one, therefore, who wishes to take up the study of this class of cases, the work will be invaluable. The author considers his subject under two main divisions: rheumatoid arthritis and osteoarthritis, including under the first those cases which Goldthwait and others have considered under the separate heading of infectious arthritis. There have been many attempts to classify these diseases, but until we know more of their essential nature, probably none will be generally received. The book is divided into five sections. The first contains an introductory and historical chapter, and another on classification; the second is devoted to rheumatoid arthritis; and the third to osteoarthritis. The fourth section deals with spondylitis deformans, which the author views as presenting four types: the von Bechterew type, rhizomelic spondylosis, osteoarthritis, and rheumatoid arthritis. The fifth section takes up arthritis deformans in children. Each section except the last contains its appropriate chapters on etiology, morbid anatomy, diagnosis, treatment, etc. Although, as in most works on this subject, the histological pathology has not received the attention it deserves, from a clinical standpoint and as a reference handbook the book is most commendable.

Infectious Diseases. A Practical Text Book. By Claud Buchanan Ker, M.D. Ed., F.R.C.P. Ed.; Medical Superintendent City Hospital, Edinburgh, and Lecturer on Infectious Diseases to the University of Edinburgh. London: Henry Froude, Oxford University Press, 1909.

This latest addition to the series of the Oxford Medical Publications is by a man who, from his official position as superintendent of the Edinburgh City Hospital, which admits to its wards all forms of infectious diseases, is well qualified to write upon the subject. The book, which is of over 550 large pages, covers in a thorough manner the clinical aspect of not only the contagious diseases of childhood, but of typhoid, typhus, smallpox, relapsing fever, erysipelas, and epidemic meningitis, as well. The subjects of bacteriology and pathology are barely touched upon, the entire efforts of the author having been directed to the discussion of diagnosis, prognosis, and treatment, as these questions have been brought up to him in his own experience. Space is not given to the various theories of treatment, only those methods with which the author has had personal experience being given at any length. Where, however, the work of others has been adopted, full credit and honest criticism are given. The work is illustrated with many most excellent photographs and not a few products of the new art of color photography. The latter, though possibly slightly more vivid than nature, at least illustrate the points desired in a forcible manner. The book is well printed and well bound. The book is, taken all in all, a most masterly discussion of the clinical aspect of the infectious diseases, and makes a most valuable addition to their medical book shelf.

Röntgenatlas der Lungentuberculose. Von Dr. Otto Ziegler, Dirigierender Arzt der Heilstätte Heidehaus bei Hannover, und Dr. Paul Krause, I. Assistentarzt an der Heilstätte Heidehaus bei Hannover. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1910.

This volume consists of eleven pages of text, discussing the use of the *x*-ray in the diagnosis of tuberculous disease of the lungs, describing the limitation and the possibilities of the method, referring to the care in interpretation of the shadows and their significance, and urging that the *x*-ray is of value only when associated with the ordinary method of examination; and of a series of *x*-ray photographs, which make up the main body of the book. These latter are exceptionally fine examples of the result of the röntgenologist's art. Each shows strikingly some phase of the tuberculous disease of the lungs, and in the series of sixty-one full-page plates practically every stage of the condition is exemplified. Particularly striking are the series of plates which demonstrate the frequency with which tuberculosis originates in the glands of the hilus and spreads thence through the parenchyma of the organ. Opposite each plate is given a short abstract of the history of the patient, whose chest is exhibited, the physical signs, and in those cases which ended fatally the autopsy protocol. Following this is a brief description and explanation of the picture itself. The book impresses one with the tremendous strides which have been made in recent years in the *x*-ray examination of the lungs. It teaches its lesson forcibly and clearly, and can be recommended as a most valuable addition to the library of röntgenologist and student of tuberculosis as well.

Diseases of Infants and Children. By Henry Dwight Chapin, A.M., M.D.; Professor of Diseases of Children, New York Post-Graduate Medical School and Hospital; Supervising Physician of the Children's Department, New York Post-Graduate Hospital; Attending Physician to the Willard Parker and Riverside Hospitals; Consulting Physician to the Randall's Island Hospital, and to St. Agnes' Hospital, White Plains, and Godfrey Roger Pisek, M.D.; Professor of Diseases of Children, University of Vermont; Adjunct Professor of Diseases of Children, and Attending Physician to the New York Post-Graduate Medical School and Hospital; Attending Physician to the Darrach Home for Children. With 179 illustrations and 11 colored plates. New York: William Wood and Company, 1909.

In writing this book, which is intended for the medical student, the authors have attempted to sail the difficult course between the Scylla of the compend and the Charybdis of the verbose system of pediatrics. Their aim has been to give the essential facts which the student must learn in order to be competent to treat sick children. In order to accomplish this, but little space is devoted to the theory of disease, or the why and wherefore of treatment. The student is told that if certain conditions exist he shall do thus; and, if others are present, he shall do so. The result is a book which, though not such as a pediatrist would find interesting as consecutive reading, accomplishes the purpose for which it is intended, to give the student the necessary knowledge in a brief form, and accomplishes it well. The book will teach the student the elements of the treatment of sick children, but will probably not teach him to think for himself, or to take any especial interest in the subject of pediatrics. The use of tables and graphic representations for easy reference is made with especial frequence, which makes the book useful to one wishing to learn the gist of a subject in the smallest possible time. The work of the publishers is to be commended. The type is large and clear, the paper good, and the illustrations, except possibly for a tendency to too great vividness in the colored pictures, are excellent. The book can well be recommended to the student who wishes his knowledge served to him in a clear, concise form.

Handbook of Obstetrics. By R. Cadwallader, A.M., M.D., Assistant in Obstetrics, University of California Medical Department, San Francisco, Cal. Philadelphia: F. A. Davis Company, 1908.

This volume is an effort to put into a small volume, which will fit into a coat pocket, the essentials of obstetrics. It, however, differs from most pocket obstetrics in that the author has not contented himself with describing the three stages of labor, but, in the small space allowed him, has touched upon embryology, physiology, pathology, sociology, and even philosophy, and on every possible occasion has taken the opportunity to express his personal opinion upon whatever subject happened to be under discussion. This rambling method of expressing personal opinion seems somewhat out of place in a handbook of obstetrics, as, for example, where, in speaking of abortion, after listing the possible sequelæ, the author says: "It is a crime seldom mentioned by Protestant ministers, who seem too wrapped up in contemplation of glories to come to look aside and give the warning advice their congregation needs and who often sin through ignorance." Such a statement is undoubtedly quite true, but belongs more to a society of moral prophylaxis than to a handbook of obstetrics. Where the author confines himself to the subject of obstetrics, he seems to know what he is talking about, and to express himself fairly well, though at times in a somewhat awkward diction. The illustrations are more remarkable for their quantity than their quality.

Society Reports

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held February 28, 1910.

THE PRESIDENT, DR. JOHN E. WEEKS IN THE CHAIR.

Resolutions.—Dr. E. ELIOT HARRIS, chairman, committee on Legislation, offered resolutions which were seconded and passed, opposing Senate Bill No. 278 and Assembly Bill No. 385, conferring upon the Board of Regents of the University of the State of New York the power of supervision of experiments on living animals. This proposed law was unnecessary as the present law which limited animal experimentation to incorporated institutions was sufficient for all practical purposes. A second resolution was in favor of the bill appropriating $583,000 for buildings and other constructive work in Letchworth village, Rockland County, New York.

Medical Practice Laws: A Review of the Legal Restriction of Medical Practice and of Certain Conditions Existing in New York.—Dr. FLOYD M. CRANDALL read this paper (see page 611).

MR. CHAMPE S. ANDREWS said there should be established a Medical Unity Bill, permanently established, under which should come every sort of physician under one standard; then each could practice any kind of "pathy" or "ism" which their common sense dictated. The question, however, now confronting them was, how much preliminary education should be required before a man should be allowed to practice upon his fellow. This brought to his mind one thought; competition formed the basis of elimination of men in all the walks of life, but he thought it was a pity that competition should come in when either physicians or lawyers were considered. There were a great number of men in the profession of law creating competition which made it extremely difficult for most of them to earn a decent living, and the same condition was true in the medical profession. He thought that the least paid man to-day for the work that he did was the doctor, and next to the doctor the lawyer. Men should be eliminated before they came out in the struggle for the almighty dollar, and he wished that there was some system by which men intending to study law and medicine could be eliminated so that those who were left could have enough to live on, with enough money to go around. The demanded preliminary education favored this and worked for the better protection of public health.

Some Remarks on Deafmutism, with a Demonstration of Methods of Treatment.—Dr. EDWARD W. SCRIPTURE said that by deafmutism they should understand a condition of deafness, either total or partial, which was followed by failure to learn to speak or by loss of speech already learned. The inability to speak was the result of the deafness, and not of any defect in the speech mechanism. Congenital deafmutism was attributed mainly to heredity and consanguinity; also to alcoholism, syphilis, differences in the ages of the parents, and to the diseases of pregnancy. Acquired deafmutism was due chiefly to meningitis. It also frequently followed scarlet fever. Other diseases, like measles, diphtheria, typhoid fever, mumps, influenza, etc., sometimes produced it. Mental awakening was the first step in the training. The mind of the deaf mute was often in a backward condition because he did not fit with his surroundings. The exercises included mimetic movements, as well as various games; in this way the child's attention, observation, imitation and initiative construction were developed. The speech development proceeded along lines that he illustrated in an abbreviated form with a group of four deaf mutes. Three of these were born deaf; the other became partially deaf at the age of three years; through the lack of the use of the vocal organs he had lost what speech he had; he had attended a school for deafmutes where the sign language was used. Breathing through the nose and mouth were first taught. The low position of the tongue was necessary for proper speech, and this was taught by showing the position and using the mirror, and by a breath exercise. Tongue gymnastics were next used to limber up and train the muscles which had never received proper development. The tongue training was introduced preparatory to the use of various consonant sounds. The vibration of the vocal cords was taught by feeling; the pupil placed his hand on the teacher's chest and also on his own. He thus learned to make a tone. The physiological alphabet consisted of a set of diagrams giving the typical positions of the tongue and lips for the chief sounds of language. Combinations of consonants and vowels were read at sight, and through these combinations words and sentences were developed. Lip reading of words and sentences was taught by having the patient watch the teacher's lips while she distinctly enunciated some word. When the deafness was acquired after the person had learned to speak, the teaching of lip reading should begin at once. Two boys were presented; they became deaf at the ages of 13 and eight respectively; they were now 17 and 12; they readily understood nearly everything that was said to them and were able to talk fluently. The unnatural character of the voice of the congenitally deaf mutes was the one drawback; still it was better to be able to understand well and to speak fairly well, than not to be able to do either. In closing Dr. Scripture showed a curious case of sensory aphasia coming on at the age of seven years after scarlet fever. The man's hearing was perfect but he had lost all understanding for the words he heard. His intellectual condition was excellent. He did not go to school and never learned to read or write. Apparently he had motor aphasia. Some questions he understood if he could see the lips of the speaker; he had thus of his own accord begun to learn lip reading. It was Dr. L. Scripture's belief that this patient had no motor aphasia and that he should be taught lip reading just as if he were a deaf mute.

Chronic Catarrhal Otitis Media and Otosclerosis: Etiology, Pathology, and Prognosis.—Dr. W. SOHIER BRYANT said that the etiology and pathology of chronic otitis media and otosclerosis were best considered under two headings, catarrhal and trophotoxic. The catarrhal group included the cases caused by disturbances of the mucous membrane of the upper air tract which affected the middle ear in two different ways, by local inflammation of the middle ear cavity, with or without exudation, and by disturbances of the ventilation and drainage of the middle ear through the tuba auditiva which caused anemia or congestion and accumulation of exudate or excreted material. The tropho-toxic group included the cases caused by trophic and toxic disturbances which affected the mucous membrane and subjacent ligaments and bone of the middle ear leading to defect of the middle ear sound-conducting mechanism by hypertrophy and atrophy of these tissues, and by ankylosis of the mechanism. The starting point of the trophic and toxic changes in the ear was either general, local in the ear itself, or was found in the nasopharynx, in the sympathetic nerves supplying the upper air tract, or in unbalanced internal secretions. The pathological changes, hypertrophic or atrophic, produced by either variety of causes, were practically the same. The changes were hypertrophy of the mucous membrane and the mucoperiosteum, the formation of bands and adhesions, and fibrous hyperplasia of the drum membrane. The hypertrophic affections of the middle ear interfered with the sound-transmitting function of the middle ear. In the hypertrophic cases, the thickening

became changed to atrophy and thinning, with loss of elasticity; later on there was a deposition of lime salts and ankylosis with consequent rigidity. The tropho-toxic changes affecting chronic catarrhal otitis media and otosclerosis were similar to the hypertrophic and atrophic changes of the catarrhal variety. There was also a rarefying vascular osteitis. The prognosis in chronic catarrhal otitis media, when no treatment was given, indicated a gradually increasing impairment of hearing with an increase of the tinnitus, and finally a total loss of hearing. In the tropho-toxic group the prognosis was less favorable; there was as a rule more rapid loss of hearing with remissions and loud varying tinnitus, with final total deafness. The prognosis was bad in the cases where there was bony occlusion of the labyrinthine windows. In conclusion Dr. Bryant said that, in a broad statement, the following was true: Except in two classes of cases, *i. e.* (1) those cases so far advanced that the deafness necessitated using a loud voice at a foot or two distant from the patient, and (2) the extremely rare cases of the toxic group, in which the etiological factor could not be definitely determined, the hearing in cases of chronic catarrhal oritis media and otosclerosis could be satisfactorily improved by carefully following the indications.

The Treatment of Chronic Catarrhal Otitis Media and Otosclerosis.—Dr. Edmund Prince Fowler said that the present methods of treating chronic catarrh of the middle ear were not satisfactory, and there were many reasons. Prophylaxis was usually neglected because the onset of the disease might be insidious and patients neglected treatment. Great numbers of acute cases tended to chronicity from their very inception, and adhesive processes might develop after a few exacerbations or relapses. Comparatively few patients could spare the time or money necessary for treatment. Means should be devised which would enable patients to obtain at home treatment to supplement that gained at the hands of the surgeon. Contributing factors to chronicity received but a cursory examination. The main symptoms they were called upon to relieve were tinnitus and impaired hearing. If the noises were high pitched, continuous and but little influenced by treatment, it was probable that the labyrinth was coincidently affected. The degree of deafness was likewise dependent on the amount of obstruction to sound waves in the middle ear mechanism, and on the concurrent labyrinth changes. To improve the deafness for spoken words was their chief aim. In otosclerosis patients frequently hear better in noisy places. For the great variety of dry catarrhs any treatment was of transient or little avail if they did not diligently see to it that, besides the special, the general well-being of the patient was improved. In exudative catarrhs, inflations of air into the middle ear were especially efficacious, but in chronic catarrhal processes the results from inflations alone were very uncertain. Nevertheless, some form of inflation was indicated, and he used Politzerization and catheterization depending upon the permeability of the tube, and in strength depending upon this and on the tension and strength of the membrana tympani, and on the force necessary to accomplish results. In using the Politzer bag, in cases difficult to inflate, it was all important to bring the nasopharynx air-pressure to the maximum at the moment the tubal muscles tended to dilate the orifice of the tube, as otherwise the air pressure would prevent a satisfactory deglutition, or coming late would expend much of its force into the pharynx, mouth, and esophagus. Strictures of the Eustachian tube, if not organic, might be more or less benefited by air inflations, but in those failing the bougie must be resorted to. As a rule, connective tissue strictures were not permanently benefitted by dilatation. Electrolysis might be used in connection with the Eustachian bougie. Pneumatic massage of the middle ear by way of the external auditory canal was of real value when combined with the other methods. Artificial supports to the relaxed drum membrane were beneficial. Operative measures in the middle ear at present were not much in vogue. Of the utmost importance in catarrhal otitis was the treatment of pathological conditions in the nose and nasopharynx. Properly executed nasal douching would greatly benefit many nasophrayngeal diseases, and thus also the otitis. Dr. Fowler closed his paper with a brief description of his improved nasal douch and his automatic middle ear inflator. Middle ear splints he used because they furnished a means of limiting movement of the drum and ossicles, a greatly desired action.

Nonsuppurative Affections of the Internal Ear.—Dr. John McCoy divided his subject into three parts, the anatomy, the physiology, and the pathology of the internal ear. After considering the anatomy of the cochlea, the semicircular canals and the vestibule, he said that the function of the cochlear portion of the auditory nerve was for the purpose of receiving and distinguishing noises and tones, and that this was essentially the organ of hearing. The vestibule and semicircular canals had to do with equilibrium. The symptom of irritation of the cochlear nerve was tinnitus. The symptom of destruction of this nerve was deafness. The symptom of irritation of the vestibular nerve was nystagmus and disturbed equilibrium. The symptom of destruction of this nerve was loss of excitability. When speaking of diseased conditions of the internal ear one was apt to think first of Ménière's disease. Ménière's case was that of a young girl who was suddenly attacked with loud noises followed by deafness and also accompanied with marked dizziness, vomiting, and nystagmus, and it was found that this resulted from hemorrhage into the cochlear and vestibular portions of the internal ear. The auditory nerve was more affected by drugs than any other nerve of special sense, and a neuritis of this nerve frequently followed the administration of quinine, salicylic acid, morphine, alcohol, and tobacco. The neuritis might be due also to certain infectious diseases. The following pathological changes were produced in the internal ear: hyperemia, hemorrhage, or a change in the ganglion cells. The function of the auditory nerve was more often arrested by general diseases and chemical changes in the blood during infectious diseases than the optic, gustatory, olfactory, or sensory nerves. The changes in the nerve taking place after certain infectious diseases were edema of the center or along the course of the nerve, or ecchymosis, hemorrhage, inflammation and destruction of the connective tissue, with the formation of new tissue at the nerve terminals. Parotitis and spinal meningitis had a great tendency to involve the auditory nerve. A number of cases of complete deafness had been reported following mumps, the reason for which had never been well demonstrated, but this was probably due to a metastasis along the course of the auditory nerve, such as existed sometimes in the breasts, testes, or kidneys. In cerebrospinal meningitis the nerve center had been found in a condition of atrophy and fatty degeneration; the intracranial course of the nerve had been found bathed in pus. The cochlea and vestibule had been found filled with pus, and the cochlea and vestibule had been found in various stages of inflammation and new tissue and bone formation. In such diseases as measles and scarlet fever there was formed a thrombophlebitis and arteritis which produced a destruction of the nerve elements. The internal auditory artery, if suddenly involved by an embolus, resulted in a sudden onset of the symptoms of irritation and destruction of the cochlear and vestibular nerves. The internal ear was affected reflexly from the pneumogastric nerve and its branches. It was also affected by traumatism; in old age by apathy, senile degeneration, and chronic endarteritis.

Dr. Lester Mead Hubby said that tenotomy of the tensor tympani tendon was rarely of advantage. Cases with extreme retraction, together with Ménière's syndrome, had been benefited by this procedure. There were four forms of nystagmus etiologically considered, namely, spontaneous, rotational, caloric, and compressive. A better name for the first would be, in his opinion, autonystagmus. It had an irritant basis just as much as the other forms and should, therefore, not be called spontaneous. The subject of deafmutism was too much neglected by the profession. He called attenton to three methods of treatment, the oral, the manual, and the mixed method.

Dr. John D. Wright called attention to the importance of the right place, the right training, and the right time in the treatment of these deafmutes and he reported a couple of interesting cases.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held February 15, 1910.

Dr. C. N. B. Camac in the Chair.

Chronic Hemolytic Jaundice.—Dr. Lewis A. Conner said that this subject of long standing jaundice had had a good deal of new light thrown upon it during the past three or four years in the discovery that certain cases of chronic jaundice had their origin, not in any disturbance in the liver itself, or in any gross obstruction to the larger bile passages, but apparently in the blood itself, in an abnormal tendency to hemolysis, and it was upon hemolysis in connection with chronic jaundice that he and Dr. Roper wished to speak. Three adult cases were reported briefly, one in which the condition of chronic hemolytic jaundice had existed for twenty-two years, one in which it had existed for eighteen years, and one for about five years. In two of these cases operations had been performed under the mistaken idea that they were cases of cholelithiasis. There were two types of chronic hemolytic jaundice, one, the congenital type, which was originally described by Minkowski, with a definite tendency to run in families; the other, the acquired form which developed in late childhood or in adults. In chronic hemolytic jaundice there were certain distinguishing and characteristic features separating this form of jaundice from that caused by mechanical obstruction to the output of bile from the liver. In the first place the jaundice was not of a very intense grade and was subject to marked fluctuations. Sometimes there might be no jaundice at all; at other times there might be exacerbations of the jaundice. No matter how deep the jaundice was there never was any bile pigment (bilirubin) in the urine, but there was a great abundance of urobilin. This was quite a characteristic feature, the absence of bilirubin from the urine, and the presence of much urobilin. In the second place there were no evidences of any deficiency of bile in the intestines. On the contrary, the stools were often bright yellow or greenish and contained not only stercobilin in abundance but bilirubin itself. There was in fact a polycholia. Another feature which distinguished chronic hemolytic jaundice from most of the chronic forms of jaundice which were due to obstruction was that the spleen was very much enlarged, a splenomegaly; it also differed from the obstructive forms of jaundice in that there was an absence of all the ordinary evidences of the toxic action of the bile. Itching was absent; bradycardia, which was so common in the other types, was not present; there was no emaciation; there were none of the cerebral disturbances which went with the obstructive forms. Again, in chronic hemolytic jaundice there was a pronounced difference in the behavior of the blood. In chronic obstructive jaundice the blood cells were more resistant to hemolytic agents than the normal blood, whereas in the hemolytic type the red cells were much more fragile than the normal cells; the hemolysis was due to changes in the red cells and not to any increased hemolytic action in the serum or plasma. Another point he wished to emphasize was that this class of cases of chronic jaundice was often associated with pain which simulated the pain of cholelithiasis and was not benefited by operation. Such cases must be recognized and attention paid to them.

Dr. Joseph Carles Roper described the method of Hamberger for determining the fragility of the red cells. He also presented charts to show the action of normal corpuscles against salt solutions, against sera, and also one showing Widal's permanent granulation stain. The blood of the cases of chronic jaundice showed well marked fragility of the red cells, as compared with normal blood. The sera showed no hemolytic power and its tonicity was normal. Stained by Widal's method the blood of these patients showed many "sick" cells.

Dr. C. N. B. Camac asked Dr. Conner if fever and local tenderness were present and if the development of the jaundice had any relation to the enlargement of the spleen. Was enlargement of the spleen a constant feature? Was it chronic? What were the gastrointestinal disturbances?

Dr. Conner replied that fever was usually lacking, although occasionally in the exacerbations there might be a little fever for a few days. In some of the more severe cases they ran a slight grade of temperature, and sometimes it might be quite high. Generally these patients were not what one could call invalids. They were simply jaundiced people. Tenderness was present only in those occasional crises when the liver was somewhat swollen. There might be some tenderness there and occasionally tenderness over the spleen. Gastrointestinal symptoms were not uncommon. As yet they had not arrived at any satisfactory explanation as to why the increased hemolysis should be characterized by such a degree of jaundice. Widal had discussed its pathogenesis very fully and was inclined to consider the possibility that the bilirubin might be formed directly from the hemoglobin of the blood without the intervention of the liver—*i.e.* that it was a true hemotogenous jaundice.

The Incidence and Signification of Smooth Atrophy of the Base of the Tongue.—Dr. Douglas Symmers read this paper. In analyzing the records in 623 autopsies he found that the presence of acquired syphilis had been determined in 75 cases, the diagnosis having been based upon the occurrence of characteristic secondary lesions in the skin and mucous membranes, the presence of atrophic pigmented scars, gummata in various localities, and interstitial visceral inflammations, especially in the liver in the condition known as hepar lobatum, and in chronic interstitial orchitis, upon syphilitic orchitis, or upon various combinations of the above lesions, or upon parasyphilitic diseases, such as tabes dorsalis. Of the 75 cases of syphilis thus encountered, smooth atrophy at the base of the tongue occurred 64 times (85 per cent.). In 55 cases the atrophy was complete, and in nine partial. In the great majority of cases the base of the tongue was perfectly smooth or nearly so, scarring having been met with in a few instances only. In seven of the 75 cases secondary lesions were present. In three instances these lesions were active, and in all the lymphoid follicles at the base of the tongue were hyperplastic, while in the remaining four cases the secondary lesions were well advanced in the process of healing. Of these latent secondary lesions the base of the tongue was moderately atrophied in three cases, while in the remaining case the lymphoid follicles were hyperplastic. In four of the 75 cases of syphilis

parasyphilitic lesions were present, and of these the tongue was completely atrophied in two. In 64 of the 75 cases chronic syphilitic lesions were present, and of these the base of the tongue was completely atrophied in 52 cases, or 81 per cent. There was partial atrophy in seven cases; in two cases there was no change, and in three the lymphoid follicles were hyperplastic. From what was known of the changes in syphilis in general and partly from the above observations it might safely be assumed that hyperplasia of the lymphoid tissues at the base of the tongue was not an infrequent phenomenon in the active secondary stages of the disease. It appeared to be evident that these changes were often followed in course of time by atrophy and connective tissue replacement, the latter process sooner or later advancing so as to include certain numbers of the serous glands and muscle bundles in the deeper portions of the base of the tongue, ultimate contraction eventuating in the condition known as smooth atrophy. There seemed to be no histological evidence in support of the view advanced by Lewin and Heller that smooth atrophy was the result of the healing of ulcerating gummata; rather it was a simple replacement fibrosis occurring most often in late acquired syphilis, it was true, but, nevertheless, quite independently of regional gummata. In this respect it presented much that was common to the syphilitic process as observed in other tissues. In his experience it appeared that genuine smooth atrophy of the base of the tongue was the result of syphilis, that statement being based upon the examination of the tongue in a considerable number of both non-syphilitic and syphilitic subjects, where he had yet to find a genuine case of smooth atrophy that was not associated with definite anatomical signs of syphilis in some other part of the body. On the other hand, there were numbers of cases of long standing syphilis which presented no evidence of atrophic, sclerosing changes at the base of the tongue. In fact, the tongue in certain syphilitic individuals might be well preserved or the lymphoid follicles might even be enlarged. Similarly, one often encountered simple smoothness and flatness of the base of the tongue, particularly in elderly, cachetic, or markedly anemic individuals, but the essential feature of smooth atrophy was lacking—that was, the induration due to connective tissue replacement. This suggested that in approaching the diagnosis both from the clinical and the anatomical standpoint the finger should be trained to appreciate the sense of resistance offered by the base of the tongue, and the sense of sight used only as an adjunct to that of touch. At the same time it was to be recalled that two types of smooth atrophy were capable of differentiation by the naked eye, one diffuse and characterized by induration and smoothness, the other patchy or insular in distribution and characterized by the presence of indurated, retracted scars. The former appeared to be far the more frequent type. It was of interest to note that in the microscopical examination of a number of atrophic tongues stained for spirochetes by Levaditi's older method their presence could not be detected.

Aplastic Anemia: Report of a Case with Exhibition of Pathological Specimens.—Dr. Joseph Charles Roper reported the case of an Italian who came to the hospital with the history of having been a little paler than normal for one or two months. Four weeks before admission he had what was believed to be grippe. During the last two weeks he had had hemorrhages from the nose. He had several nose bleeds and each time the blood flowed profusely. He was extremely anemic, the skin and mucous membranes being very pale. The gums were swollen and bled easily. His temperature on admission was 100.6° F. and his pulse 100. The retina showed a number of recent hemorrhages. The interest in this case centered in the blood and in the fact that, while in the hospital, he was twice transfused. Throughout his stay in the hospital his blood showed a persistent leucopenia. The red blood cells varied between 700,000 and 1,500,000, excepting after transfusion. No abnormal cells could be found. The hemoglobin was varied from 15 per cent. to 30 per cent. The hemorrhages persisted until death despite two successful transfusions. At autopsy the bone marrow was found to be markedly fatty. Smears from it showed mostly red cells and lymphocytes and rarely an eosinophile cell. The lymph nodes were enlarged and bright red throughout the body.

The Cammidge Reaction: A Study of Its Value.—Dr. Roper said that by slightly modifying the Cammidge technique, he and Dr. Stillman were able to remove entirely the substance giving rise to the Cammidge crystals. This modification consisted in making all additions in the mortar and mixing by careful rubbing. Perfectly clear filtrates could always be obtained. In two cases in which all the crystals could not be removed because of their great quantity, a compound of glycerinic acid with parabromphynyl hydrazin was obtained with a specific melting point of 245°. Because of this and the fact that the Cammidge technique partly followed the regular procedure for the demonstration of glycerinic acid, they concluded that the reaction arising from glycerinic acid split off from its combination by boiling with hydrochloric acid and was not entirely removed by the lead acetate when not carefully mixed or present in a very large amount. The crystals, therefore, bore no necessary relation to pancreatic function.

Infant Feeding: Methods and Results.—Drs. Greenway and Rosenthal presented this communication. Charts were shown which demonstrated what had been done in the infant feeding classes at the New York Hospital, our-door department, during the summers of 1908 and 1909 There were two charts presented, one showing the control cases and the other the uncontrolled cases. The number of control cases that were breast fed, 84; number of months under observation, 272.5; average gain in weight per month, 1 pound, 15 ounces. Those fed on cow's milk numbered 25; number of months under observation, 70.9; average gain in weight per month, 1 pound, 11 ounces. The number of uncontrolled cases that were breast fed, 26; number of months under observation, 84.3; average gain in weight per month, 15.2 ounces. Those fed on cow's milk numbered 17; number of months under observation, 34.3; average gain in weight per pound, 7.6 ounces. Certain facts were to be deduced from these tables, and one was that the mothers in a greater number of instances nursed their children and that these children got along very well without any supervision on the part of the doctor or district nurse, and if anything was to be done in infant feeding, even with the limited means and facilities at hand, one should look after those babies that were fed on cow's milk.

Disturbances of Respiration: Graphic Studies.—Dr. Lewis A. Conner discussed this subject and illustrated his remarks with lantern slides. He said he had been studying the abnormalities of respiration by means of graphic tracings and he wished to show what he had been trying to do. The technique employed was a fairly definite one. He said one should distinguish sharply between the upper thoracic movement and lower thoracic and diaphragmatic movements. These represented two quite distinct respiratory systems, with separate centers of innervation, whose movements were to some extent independent of each other. He used two pneumographs, one for use over the upper part of the thorax, and the other for use over the epigastrium between the ensiform and the umbilicus. The type of pneumograph used by him and which seemed very satisfactory was the ordinary simple spiral spring pneumograph. Tracings taken from the upper thorax and the

epigastric region in various pathological conditions were then projected upon the screen.

Report of Standing Committee.—This committee was appointed to investigate the "Symptom Complex," as reported by Dr. Nathan E. Brill at the January meeting in his communication on "Pseudo-Typhoid Fever, a Clinical Study." At this meeting further reports were made on Dr. Brill's communication and several cases were reported. All of these were seen by several members of the committee. This committee was composed of Dr. John A. Fordyce, chairman; Dr. S. Lustgarten, Dr. W. Gilman Thompson, Dr. Warren Coleman, Dr. Theodore C. Janeway, Dr. Morris Manges, and Dr. E. Libman.

An Analysis of Twenty Cases Belonging to the Unclassified Group of Affections Clinically Resembling Typhoid Fever.—Dr. H. F. L. Ziegel said that so far as he knew Dr. N. E. Brill was the only observer who, for ten years or more, had made a systematic and careful study, together with agglutination reactions and blood cultures, of the group of affections which clinically more or less resembled typhoid fever, but etiologically and pathologically appeared to constitute at least one distinct entity. As a pupil of Dr. Brill's while an interne, he became greatly interested in these studies. The discussion, or rather argument, which followed Dr. Brill's discourse at the January meeting of this section seemed to hinge upon a mere difference in viewpoint, the participants having failed to define beforehand the terms they were using. Though applied to one of the most protean of diseases, even the term typhoid fever had limits of elasticity. Usually the practical clinician demanded the presence of the cardinal signs, namely, more or less prolonged temperature elevation, true roseola, the palpable spleen, etc., since cases with one or more of these signs absent which could be bacteriologically proved to be typhoid fever were rare, *e. g.* nonfebrile typhoid fever. Again, from a bacteriological side, there was demanded either a positive Widal reaction or a positive blood culture. Now, if in a very large number of cases, such as Dr. Brill had reported, the true roseola was regularly absent and the Widal reaction and blood culture were reguarly negative, they were certainly justified in concluding that the great majority of these cases, to say the least, were not typhoid fever. The negative evidence might, therefore, be very valuable. Stimulated by Dr. Brill's work, Dr. Siegel undertook at the Beth Israel Hospital to collect and study the near-typhoid cases which had been treated in the hospital during the past two and a half years. The following was the result of his analysis of twenty cases which he had studied: The onset was sudden in sixteen of the cases, gradual in four. The average duration of the symptoms before admission was 6.8 days. The common symptoms were chilliness, headache, prostration, anorexia, and constipation; the less common symptoms were abdominal pain in four cases, epistaxis in three cases, diarrhea in two cases, and vomiting in one case. As to the febrile period, estimated from the anamnestic inception to complete defervescence, the longest was twenty days, the shortest was eight days, and the average was 12.2 days. As to the time of actually observed temperature elevation in the hospital, the longest was ten days, the shortest was three days, and the average was 5.3 days. The fall in the temperature was very rapid in nearly all the cases, reaching normal in from twelve to twenty-four hours, and then never rising above normal. The spleen was palpably enlarged in seventeen of the cases. As to the skin eruption, in eight of the cases there was a diffuse maculopapular eruption on the chest and extremities, as well as on the abdomen; in four of these cases there were suspicious roseolæ in addition; in three of these cases there were suspicious roseolæ only, and in only one of the cases was the eruption judged to be truly roseolar. The Widal reaction was performed in every case and was regularly negative; in six of the cases it was negative three times, in two of the cases four times, and in one of the cases five times. In the four cases in which blood cultures were made, they were all negative. Leucocyte counts were made in all of the cases and showed practically normal counts in 75 per cent. of the cases, and a well-marked leucopenia in 25 per cent. of the cases. There were no complications. There were no cases with abdominal distension. There were no recrudescences, relapses, or fatalities.

Dr. Warren Coleman reported that since the last meeting four cases, similar to those described by Dr. Brill, had entered Bellevue Hospital, two of them into his service. Dr. Brill had seen the patients and had agreed in the diagnosis. All of the patients had come from the same family—father, mother, daughter, and a relative living with them. This fact was contrary to Dr. Brill's experience that the disease did not appear to possess epidemic characters. Three of the patients had very mild attacks, the fourth was very ill. None of the patients presented symptoms materially different from the description given by Dr. Brill. However, the patient who was severely ill gave marked evidences of meningismus, stiffness of the neck, Kernig's sign, and muscular twitching. Sixty c.c. of clear spinal fluid were obtained, under pressure. Four blood cultures had been taken from this patient, and bacteriological examinations of the spinal fluid, of the stools, and of the urine had been made with negative results. Daily tests of the serum against several strains of the typhoid bacillus, of the intermediates, and of the colon bacillus had been carried out, also with negative results. Similar, but less frequent, examinations had been made in the second case, all of which had likewise proved negative. Dr. Coleman felt, however, that these various examinations had not been sufficiently complete, especially the serum tests, to make it possible to draw any conclusions respecting the nature of the infection, and stated that this was simply a report of progress.

Stated Meeting, Held March 15, 1910.

Dr. C. N. B. Camac in the Chair.

Paralysis of Extraocular Muscles in Exophthalmic Goiter.—Dr. Linsey R. Williams presented this patient, a German, fifty-five years old, a machinist. A sister had a goiter. In July, 1909, he began to see double, and then his eyes became prominent. In November he had to stop work because of the condition of his eyes. He grew very nervous and irritable and lost weight. There was slight cardiac hypertrophy, irregular action, and a systolic apical murmur. There was a tremor of the head at times. The thyroid was slightly enlarged. The exophthalmos was marked. There was a retraction of both orbicularis palpebrarum muscles, causing a widening of the palpebral fissure. The eyelids did not follow the eye movements downward. There was a paralysis of the superior rectus and oblique muscles, and a paresis of the external rectus on the right side; on the left side there was a paralysis of the superior rectus and oblique and inferior oblique muscles and a paresis of the external rectus muscle. Möbius' sign, due to fatty infiltration and insufficiency of the internal rectus, was present. In this case the diagnosis of exophthalmic goiter seemed plausible, although all the cardiac symptoms were not present.

Nephritis; Edema and Uremia for Eight Months; Recovery.—Dr. Theodore C. Janeway presented this patient. Her father died of kidney disease, and a sister died of tuberculosis. She had measles and mumps when a child. Her habits were good. One year be-

fore her admission she had attacks of nausea and vomiting once or twice a month. Six months before admission her ankles and legs became edematous, and four months before admission a double Edebohl's operation was performed. After this she had increasing headaches, dyspnea, palpitation and oppression, pallor, edema of eyelids, ascites, and failure of vision. She came into the hospital because of vomiting, headaches, and edema of the eyelids. One week before her admission she had a convulsion. The physical examination showed a woman well nourished, pale, with considerable edema of the face and eyelids, legs, thighs, and of the abdominal walls. The pupils were normal. There were moist râles in both lungs. She had an acute retinitis, a neuritis of the optic nerve, as well as edema of the retina. The abdomen was aspirated several times. She was given hot packs, a fluid diet, chloral, and glonoin. For the relief of her headaches, morphine had to be given, which relieved her. To-day she looked the picture of health, although there was still a small amount of albumin in the urine, and she urinated quite frequently. The case was of interest because the edema and uremia, lasting eight months, were followed by complete recovery.

The Treatment of Typhoid Fever with Vaccines.—Dr. Austin W. Hollis made this report. A review of the literature showed that the treatment was still in the experimental stage, with doses ranging from 1,000,000 to 300,000,000 dead typhoid bacilli, and no uniformity as to the repetition of the dose. In the cases reported the dose was given subcutaneously in the region of the buttocks, every second or third day, each dose being either ten or fifty million dead bacilli During the summer and fall they had 37 cases of typhoid fever; 21 cases were treated by the older methods of hydrotherapy, either by the tub bath or sponging; 11 were treated with vaccine without hydrotherapy; the remaining five were too short a time under treatment to make any comparisons. The diet in general was of the high caloric variety. No drugs were employed, but strychnine and whisky were used as stimulants in the severe cases. The bowels were moved by enemata. The patients who were treated by vaccination received no baths other than a daily warm soap and water sponge. In a very few cases 250,000,000 bacilli were employed, but no different clinical or laboratory effect could be noticed between the smaller and larger doses. No case ended by crisis. The agglutinins were markedly stimulated by the vaccines. The average day of admission from the beginning of the first symptom was 11.3 and 13.8; of defervescence 36.7 and 34.3 for the vaccination and hydrotherapy cases respectively. The temperatures ranged high in both series. Hemorrhages were seen with equal frequency, although not so severe in the vaccination cases. Relapses were noted with more frequency in the vaccinated cases, 30 per cent. as compared with 10 per cent. The cases receiving the vaccine were in no way selected. No death occurred in the vaccinated cases; four occurred in the other series, one from hemorrhage, one from toxemia, one from perforation, and one from pulmonary thrombosis with necrosis of the whole left upper lobe of the lung. Headache, gastrointestinal symptoms, and toxemia were far less frequent in the vaccinated cases; the absence of discomfort seemed striking, while convalescence was more rapid. Dr. Hollis said that it would be absurd to assume any positive value from vaccine therapy in typhoid fever in such a small series of cases, yet from theory alone he predicted a brilliant future for typhoid vaccine as a protective as well as a therapeutic agent.

Serumtherapy in Purpura Hæmorrhagica.—Dr. F. Morris Class said that, in view of the increasing interest in serum therapy, and because it had been advocated mainly in hemophilia, it seemed justifiable to report a case. The patient was an adult woman who entered St. Luke's Hospital May 11, 1908, and who was in the service of Dr. Theodore C. Janeway. Her chief complaint was pain in the region of the bladder, and hemorrhages under the skin. Ten years ago she had profuse bleeding from the gums, which were spongy and purple. Later petechial spots appeared on the body. At times she had had "bruises" on the body, for which she could not account. Three days before her admission the wrist of the right side became swollen, painful, and a hemorrhagic spot appeared over the head of the ulna. She had chilly sensations, fever, and crops of petechial spots on various parts. The pain disappeared in thirty-six hours, except for some burning and aching in the bladder region. This had persisted until the present and was not influenced by urination. The urine looked to the patient as though it contained blood. The patient was prostrated and acutely ill. The lower part of the abdomen was protruberant and tender to pressure. The bladder was enormously distended. Both kidneys were tender. Other organs appeared to be normal. There were hemorrhagic spots on the skin varying in size from petechiæ to the diameter of a centimeter or more, and covered a large part of the chest and abdomen. About the elbows, wrists, and ankles were diffuse hemorrhagic areas, 8-10 cm. in diameter. Small hemorrhagic patches were on other parts of the body. The eye grounds showed no hemorrhages. On admission her temperature was 101.3°, pulse 104, and respiration 24. The red cells numbered 3,468,000; the hemoglobin was 75 per cent.; the white cells numbered 5,500; the polymorphonuclears were 64 per cent., and lymphocytes 36 per cent. Hyaline and granular casts and blood were found in the urine. The patient was given an amount equal to 5,000 units of antidiphtheritic serum and calcium lactate. On May 17 (six days later) it was noted that the old hemorrhages were disappearing and no new ones were seen. She was given 6,400 units of the same serum and the calcium lactate was stopped. On May 25 the urine and stools were negative for blood, the improvement was steady, and convalescence seemed established. On June 30 she was nauseated and vomited. There were several small ecchymotic spots on the legs, the stools were fluid and black and contained blood. The temperature rose to 102.3°. She was given 10 c.c. fresh horse serum subcutaneously. On July 12 the urine and stools appeared normal and the patient seemed wholly to have recovered. Eight months after leaving the hospital she was enjoying perfect health.

Trichinosis:. Demonstration of Trichinæ Occurring in the Blood and Muscle Simultaneously.—Dr. Edward W. Packard reported such a case and demonstrated the blood and muscle findings by means of the lantern.

Obscure Cases of Leukemia.—Dr. Francis C. Wood reported three such cases that he had seen at St. Luke's Hospital which were very interesting from the point of diagnosis. He pointed out some of the difficulties encountered in endeavoring to classify the irregular types of leukemia. The blood was thoroughly studied and he had found a large number of types of what might be called leukemia, but did not correspond to the textbook pictures.

Pneumoperitoneum with a Means of Diagnosis.—Dr. William Herrick said that the physical evidence of pneumoperitoneum was an obliteration of liver dullness.

He had made several observations on dogs and on cadavers. A method of diagnosis he presented consisted in the employment of an ordinary wash bottle in which a partial vacuum had been made. A needle with a blunt point and lateral openings was attached by means of rubber tubing to the bottle. When the needle was passed into the peritoneal cavity the presence of gas was demonstrated by the bubbles in the liquid in the bottle. When lead acetate was in the solution the formation of the black sulphide of lead showed the presence of sulphuretted hydrogen, and, therefore, the gas was of intestinal origin. This was the most delicate and absolute sign of free gas in the peritoneal space, but care should be exercised to exclude gas of intestinal origin.

Dr. HENRY W. BERG believed there was a certain amount of danger in the use of such an instrument used for diagnosis on the human being. It was not such a difficult matter to differentiate free gas in the peritoneal cavity or tympanitic distention. If the latter condition was present there would be a disappearance of liver dullness from below upwards; but if there was free gas in the peritoneal cavity as from a perforation, then there would be a disappearance of liver dullness from above downward or a concentric disappearance of liver dullness.

Intravascular Phagocytosis of Red Cells.—Dr. J. G. HOPKINS reported the case of a patient with a severe form of progressive anemia, with persistent and severe diarrhea. The blood findings were illustrated with lantern slides.

Experiments on the Value of Alkali Therapy in Gout.—Dr. HERMAN O. MOSENTHAL made this laboratory report. He said that alkalis are often administered to gouty patients in order to render the blood and urine more alkaline and thus increase the power of these fluids to dissolve uric acid and excrete it. There were many objections to the theory that underlay this method of treatment. In putting the alkalis to a practical test, it had been noted that an acute paroxysm was often precipitated in the gouty sufferer by an administration of alkalis. It had sometimes been claimed that herein lay the principal advantage of this treatment, since during the acute attack much of the retained uric acid was thrown out in the urine.

In determining the effect of sodium bicarbonate on dogs, it appeared that the uric acid excretion was uninfluenced if the nitrogen metabolism were on a low plane. When, however, meat was added to the diet in considerable amounts the bicarbonate of soda resulted in a marked diminution in the output of uric acid. There was no compensatory rise in the after period. The metabolism in the latter instance was comparable to that in a gouty patient. In both cases there was a large amount of uric acid present in the system. The bicarbonate of soda diminished its excretion and made a greater demand on the uricolytic powers of the organism. The pathological processes of metabolism in gout were not equal to these conditions, with the result that uric acid accumulated in the system and finally gave rise to an acute paroxysm.

Pain.—Spalding divides the causes of pain into, first, chemical, which may be either internal or external, as lead poisoning and the effects of an acid; second, mechanical, including friction, pressure, traumatism, bending and stretching.—*Memphis Medical Monthly.*

Havana Slaughter Houses.—Ruiz Casabé reviews the slaughter houses of Havana and describes the barbarous, almost primitive methods employed in two of the three principal slaughter houses. In all but one of them there is complete absence of not only sanitary requirements, but of proper humanitary methods as well.—*Crónica-Medico-Quirurgica de la Habana.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

MEDICAL EXAMINING BOARD OF NORTH DAKOTA.

January, 1910.

ANATOMY.

1. Name the divisions of the ear and the contents of the tympanum.
2. Describe the male urethra.
3. What nerves form the brachial plexus?
4. Name all the muscles moving the arm.
5. Describe the elbow joint.
6. Describe the popliteal space; gave its boundaries and contents.
7. Describe the axillary artery.
8. With what bones does the fibula articulate?

HISTOLOGY.

1. Give the distribution and structure of nonstriated muscle.
2. Describe the lining of the stomach.
3. Give the histology of the gall-bladder and ducts.
4. Name and describe the different kinds of epithelium.
5. Give the histology of a medium-sized artery.

PHYSIOLOGY.

1. Describe the function of the heart.
2. Define: (*a*) proteids; (*b*) carbohydrates, and name an example of each.
3. Describe the process of digestion of an egg sandwich.
4. Describe carefully normal urine.
5. What structures possess the function of: (*a*) elimination; (*b*) secretion?

MATERIA MEDICA.

1. What is meant by incompatibility? Distinguish between chemical and physiological incompatibility.
2. Define diuretic and diaphoretic, and name three drugs belonging to each class.
3. What is an anthelmintic. Give names of three.
4. Give physiological action of strophanthus, the dose of the tincture, and indications for its use.
5. Give dose of the following drugs: (1) morphine sulphate; (2) atropine sulphate; (3) apomorphine hydrochlorate; (4) Dover's powder; (5) phenacetin; (6) tincture of opium; (7) oleum tiglii; (8) oleum terebinthinæ; (9) pilocarpine nitrate.

CHEMISTRY AND TOXICOLOGY.

1. Describe a chemical test for detection of organic impurities in drinking water.
2. Give formula and explain difference between corrosive mercuric chloride and mild mercurous chloride of the pharmacopœia.
3. Give a chemical test for hydrochloric acid in stomach contents.
4. Describe methyl and ethyl alcohol.
5. $AgNO_3 + NaCl = ?$
6. What is an antidote for poisoning by corrosive sublimate?
7. Give symptoms and treatment of arsenical poisoning.
8. Differentiate between alcoholic and opium coma.

PATHOLOGY.

1. (*a*) What are the causes of fever? (*b*) What are the effects of fever?
2. (*a*) Mention all the pathological conditions which may produce hemoptysis. (*b*) The same of hematemesis.
3. Give the pathology of tubercle.
4. Explain the propagation of tapeworm.
5. Mention the different varieties of goiter and give their pathological differences.

PRACTICE.

1. How diagnose typhoid fever?
2. Give differential diagnosis between smallpox and chickenpox.
3. Discuss the treatment of pulmonary tuberculosis among the poor.
4. Give treatment for the two most common of the valvular heart lesions.
5. Give treatment for the different pleural effusions.
6. Discuss prognoses in cerebral embolism and cerebral hemorrhage.
7. Write a short article on epilepsy.
8. Discuss intestinal neurosis.

9. How would you manage a case of nervous prostration in a very poor family?
10. What are the comparative urinary findings in the first stages of chronic parenchymatous and chronic interstitial nephritis?

NERVOUS DISEASES.

1. Give diagnosis and treatment of infantile paralysis.
2. Diagnosis of cerebral tumor.
3. Name five reflexes and manner of detecting them.
4. Diagnosis and treatment of chorea.
5. Diagnosis and treatment of tuberculous meningitis.

OBSTETRICS.

1. Diagnosis of pregnancy at three months; at six months, and number of days in which it terminates at full term.
2. Name and describe the various head presentations.
3. How would you proceed in a case of placenta previa?
4. What are the dangers of prolapsus of the cord, and how would you treat it?
5. Give the causes for asphyxiation of the infant, and your method of overcoming it.
6. How treat a case of puerperal sepsis?

DISEASES OF WOMEN AND CHILDREN.

1. Give cause, symptoms, diagnosis, prognosis, and pathology of pyosalpinx.
2. Mention some of the causes of sterility in women, and outline treatment.
3. Differentiate between tubal pregnancy, pyosalpinx, ovarian cyst, and appendicitis.
4. Describe the uterus and its changes during pregnancy.
5. Give causes and treatment of rectovaginal fistula.
6. Describe and give cause for "Hutchinson's teeth."
7. In what class of subjects are the cells sensitized to diphtheria antitoxin, making its administration almost sure to cause sudden death?
8. Give symptoms, diagnosis, and treatment of intussusception in a boy twelve years of age.
9. Give symptoms, pathology, and treatment of Pott's disease of the spine.
10. How do you make a positive diagnosis of diphtheria?

SURGERY.

1. Give diagnosis, prognosis, and treatment of fracture at the neck of femur.
2. Give indications for trachelorrhaphy. Describe the operation.
3. Give causes and treatment of retention of urine.
4. How do you treat punctured wounds?
5. How do you select and administer a general anesthetic?
6. Give diagnosis and treatment of strangulated inguinal hernia.
7. Give diagnosis and surgical treatment of gall-stones; describe the operation in detail.
8. Give diagnosis and treatment of the different dislocations of the shoulder.
9. What is a Colles fracture? How do you dress it?

EYE AND EAR.

1. Cause, symptoms, and treatment of ophthalmia neonatorum.
2. Causes, symptoms, and treatment of iritis.
3. Causes, symptoms, and treatment of glaucoma.
4. Treatment of blepharitis marginalis.
5. Define astigmatism, myopia, hypermetropia, diplopia, and chalazion.
6. Treatment of acute otitis media.
7. Symptoms and treatment of acute mastoiditis.
8. How do you remove foreign bodies from the ear?
9. How relieve pain in furunculosis of the auditory canal?
10. Describe fully effect of nasopharyngeal adenoids upon the ear and its function.

MEDICAL JURISPRUDENCE.

1. What is a malingerer, and how would you set about to discover whether a patient were feigning sickness or not?
2. Within what period after the treatment complained of can a patient maintain an action for malpractice against a physician or surgeon in this State?
3. (*a*) Does the law of this State fix a schedule of fees limiting charges of physicians and surgeons either for traveling to attend patients professionally, or for professional services rendered, and if so, what is it? (*b*) What, if any, preference is given by the statutes of this State to physicians and surgeons in the matter of collection of their fees for professional services rendered their patients?
4. Does the law of this State fix any definite minimum period of gestation in civil or criminal matters in the courts of the State involving the determination of paternity, and if so, what is it?
5. A duly licensed physician and surgeon in this State is called upon by a female who complains of symptoms which indicate ovarian trouble. The doctor diagnoses the case as one of infected cyst of the ovary, and advises that an immediate operation is necessary. The patient consents, and the doctor operates and finds the trouble to be that diagnosed. He successfully removes the cyst, but in doing so accidentally incised the intestine. While he undertook to repair the unnecessary incision in the intestines, he nevertheless failed, and the woman died. Is he liable to action for malpractice, and if so, why?
6. Has the State Board of Medical Examiners power, under the laws of this State, to reinstate a physician and surgeon in good standing and reissue a license to him to practise medicine and surgery in the State, after their former license to him has been revoked for the commission of a felony of which he has been convicted in this State?

PREVENTIVE MEDICINE.

1. If treating a case of typhoid in the country, give your instructions in full to family regarding the prevention of spread of the disease.
2. Name all the ways you know in which tuberculosis may be communicated, and what would be your method of preventing the same?
3. Give your method of fumigating for smallpox.
4. Describe the different methods of obtaining a pure water supply for a prairie town of 2,500.
5. Name all the diseases you know of that need quarantine and length of time required in each case.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

MEDICAL EXAMINING BOARD OF NORTH DAKOTA.

January, 1910.

ANATOMY.

1. External ear, middle ear, or tympanum; and internal ear or labyrinth. For contents of tympanum see Cunningham's "Anatomy" (1909), page 748; or Gray's "Anatomy" (1908), page 1160.
2. See Cunningham's "Anatomy" (1909), page 1177; or Gray's "Anatomy" (1908), page 1450.
3. The anterior divisions of the fifth, sixth, seventh, and eighth cervical, and the first dorsal nerve.
4. See Cunningham's "Anatomy" (1909), page 331; or Gray's "Anatomy" (1908), page 308.
5. See Cunningham's "Anatomy" (1909), page 279; or Gray's "Anatomy" (1908), page 310.
6. See Gray's "Anatomy" (1908), page 707.
7. See Cunningham's "Anatomy" (1909), page 827; or Gray's "Anatomy" (1908), page 649.
8. Tibia and astragalus.

HISTOLOGY.

1. In *nonstriated muscle* "the individual fibers are short, narrow, and spindle-shaped. Each is usually 25 to 200 microns in length, and 5 to 70 microns in breadth. No sarcolemma is present, and striations are absent. In each fiber there is but one nucleus, which is long, slender, darkly staining, and centrally located. This is not seen in all cross-sections, but when present shows as a small, dark dot. These fibers vary in length from 25 to 200 microns, ordinarily; in diameter they average about 5 microns. The fibers are arranged in bundles, but instead of forming masses like muscles the bundles are arranged into layers, which extend circularly and longitudinally in the hollow viscera. Capillaries exist between the fibers. The *nerves* are chiefly of the *sympathetic* variety. *Distribution:* Involuntary muscles are found in the alimentary tract from the middle third of the esophagus to the anus, in the ducts of glands, in the trachea and bronchial tubes, the internal urinary and genital systems, circulatory (except the heart) and lymphatic systems, and the capsules of some organs."—(From *Radasch's Compend.*)
2. See Cunningham's "Anatomy" (1909), page 1059; or Gray's "Anatomy" (1908), page 1283.
3. See Cunningham's "Anatomy" (1909), page 1119; or Gray's "Anatomy" (1908), page 1352.
4. KINDS OF EPITHELIUM. (1) *Pavement* or *Squamous:*

A single layer of flat, nucleated cells, cemented together at their edges. (2) *Stratified:* In layers of cells that are unlike in form. (3) *Columnar:* Tall, cylindrical cells arranged in a single layer. (4) *Cuboidal:* Similar to columnar, but the cells are shorter. (5) *Ciliated:* Columnar cells with hair-like processes (cilia) on their free surface. (6) *Goblet:* Cylindrical cells distended with mucin. (7) *Transitional:* When the cells are neither arranged in a single layer like squamous, nor yet in many superimposed layers like stratified, but in two or three layers.

5. See Cunningham's "Anatomy" (1909), page 781; or Gray's "Anatomy" (1908), page 587.

PHYSIOLOGY.

1. The function of the heart is to propel the blood through the blood-vessels. The *cardiac cycle* includes all the changes which occur between the commencement of one heart-beat and the commencement of the next; it consists of the alternate contractions (or systole) and relaxations (or diastole) of the auricles and ventricles of the heart. The contraction of the two auricles takes place simultaneously and is followed by the simultaneous contraction of the two ventricles; then follows a period during which the whole heart is in a state of diastole. The cycle then begins again with the auricular systole.

2. (*a*) *Proteids* are highly complex compounds of unknown constitution, whose molecule contains carbon, hydrogen, oxygen, nitrogen, and sulphur, and sometimes other elements, and occurring in nearly all parts of the body. *Example:* Albumin.

(*b*) *Carbohydrates* are compounds consisting of carbon, hydrogen, and oxygen, the last two being in the proportion to form water; most of the simple carbohydrates are aldehydes or ketones. *Example:* Sugar.

3. The *egg* consists of: Proteid and fat. *Bread* consists of carbohydrate, proteids, and fat. *Butter* consists of fat and proteids. Of these, the *proteids* are digested in the stomach by the pepsin of the gastric juice, and in the small intestine by the trypsin of the pancreatic juice. The *carbohydrates* are digested (slightly) by the ptyalin of the saliva and mainly in the small intestine by the amylopsin of the pancreatic juice. The *fat* is digested in the small intestine by the steapsin of the pancreatic juice.

4. *Normal urine* is a yellowish fluid secreted by the kidneys to the amount of about 1200-1500 c.c. daily; specific gravity, about 1015 to 1025; acid reaction (due to acid sodium phosphate); it has a characteristic odor and a salty taste. Its normal constituents are: Water, urea, uric acid, urates, hippuric acid, kreatin, kreatinin, xanthin, hypoxanthin; sulphates, chlorides, and phosphates of sodium and potassium; phosphates of magnesium and calcium; nitrogen, and carbon dioxide.

5. (*a*) *Structures of elimination:* Lungs, kidneys, intestines, skin. (*b*) *Structures of secretion:* Serous and synovial membranes; mucous membranes (glands in mouth, stomach, and intestines); salivary glands and pancreas; liver; mammary glands; lacrimal glands; kidneys; skin; testes.

MATERIA MEDICA.

1. By *incompatibility* is understood the simultaneous administration or combination of substances not suitable for such combination. *Physiological incompatibility* occurs when two remedies are thus administered which offset each other's physiological action, so that they are inert. *Chemical incompatibility* occurs when remedies which are mixed together undergo chemical decomposition or explosion.

2. *Diuretics* are agents which promote the secretion of urine. Examples: water, alcohol, potassium acetate.

Diaphoretics are agents which promote the secretion of sweat and increase the activity of the skin. Examples: alcohol, Dover's powder, Turkish bath.

3. *Anthelmintics* are agents which kill or expel worms. Examples: Oleoresina aspidii, gr. xxx; Pelletièrine tannate, gr. x; santonin, gr. j; pumpkin (pepo) seeds, ℥j.

4. *Strophanthus* causes stiffness of limbs and loss of voluntary movement; it paralyzes the muscles; it stimulates the heart, prolongs diastole, increases the force of the cardiac contractions, lowers and regulates cardiac rhythm, and raises blood pressure; it is a diuretic. The dose of the tincture is ♏viij. It is used like digitalis in mitral diseases, aortic stenosis, tricuspid diseases, cardiac dilatation, exophthalmic goiter, chronic alcoholism, nephritis, palpitation of the heart.

5. *Dose* of: (1) Morphine sulphate, is gr. ¼. (2) Atropine sulphate, gr. 1/160. (3) Apomorphine hydrochloride, gr. 1/10. (4) Dover's powder, gr. vijss. (5) Phenacetin, gr. vijss. (6) Tincture of opium, ♏viij. (7) Oleum tiglii, ♏j. (8) Oleum terebinthinæ rectificatum, ♏xv. (9) Pilocarpine nitrate, gr. 1/5.

CHEMISTRY AND TOXICOLOGY.

1. Organic matter in drinking water can ordinarily be detected by the addition of solution of potassium permanganate, which becomes rapidly discolored in the presence of the former.

2. *Corrosive mercuric chloride*, $HgCl_2$. Corrosive sublimate is heavy, white, and crystalline; it has a strong, acrid, styptic taste, and is soluble in water, in alcohol, and in ether; it is decomposed by exposure to light.

Mild mercurous chloride, Hg_2Cl_2, calomel, is a heavy, white powder, amorphous, tasteless, and odorless; it is insoluble in cold water and in alcohol, and very slightly soluble in boiling water; when exposed to the light it becomes discolored (first yellow, then gray) and partially decomposed; it sublimes without fusing.

3. *Test for free hydrochloric acid in the gastric juice:* The best is probably the Dimethylamido-azobenzol test; the reagent is used in 0.5 per cent. alcoholic solution, of which one or two drops are added to a like amount of the filtered gastric juice. If free HCl is present, the yellow solution turns red.

4. *Methyl alcohol* is a colorless liquid having an ethereal and alcoholic odor and a sharp, burning taste; burns with a pale flame, giving less heat than that of ethylic alcohol; mixes with water, alcohol, and ether in all proportions; is a good solvent of resinous substances, and also dissolves sulphur, phosphorus, potash, and soda.

Ethyl alcohol is a thin, colorless, transparent liquid having a spirituous odor and a sharp, burning taste. It mixes with water in all proportions, the union being attended by elevation in temperature and contraction in volume (after cooling to the original temperature). It also attracts moisture from the air to such a degree that absolute alcohol only remains such for a very short time after its preparation.

5. $AgNO_3 + NaCl = AgCl + NaNO_3$.

6. White of egg in moderate quantity, followed by an emetic.

7. The *symptoms of acute arsenical poisoning:* "In acute cases the symptoms usually begin in from 20 to 45 minutes. Nausea and faintness. Violent, burning pain in the stomach, which becomes more and more intense, and increases on pressure. Persisting and distressing vomiting of matters, sometimes brown or gray, or streaked with blood, or green. Purging. More or less severe cramps in the lower extremities."—(Witthaus' *Essentials of Chemistry.*) The chemical antidote is freshly prepared ferric hydroxide. The ferric hydroxide changes the arsenic into ferrous arsenate, which is nonpoisonous.

8. In *opium coma:* The pupils are contracted, the respiration is slow and full, the skin warmer than in alcohol poisoning, the face suffused, and the pulse slow and full. In *alcohol coma:* The pupils are not contracted, the respiration approaches the normal, the skin is cool and sometimes moist, the face may be pallid, and the pulse is rapid.

PATHOLOGY.

1. (*a*) *Causes of fever:* Disturbance of the heat-regulating centers, either directly or by toxic substances circulating in the blood. These latter may come from bacteria, or may he due to disordered metabolism, or to chemical or mechanical injury of the tissues.

(*b*) *Effects of fever:* Loss of appetite, thirst, emaciation, disturbance of function, the alkalinity of the blood is lessened; degenerative changes such as cloudy swelling, fatty degeneration, and coagulation necrosis may occur in the tissues, particularly in the heart, liver, kidneys, and muscles.

2. (*a*) *The causes of Hemoptysis:* Traumatism; certain organic diseases of the lung, especially tuberculosis, lobar pneumonia, bronchiectasis, gangrene, infarct, and cancer. Passive congestion, the result of heart disease, especially mitral lesions; rupture of aortic aneurysm; diseases profoundly affecting the blood, such as purpura, hemophilia, scurvy, and leukemia; ulcers, traumatic, syphilitic, or malignant of the trachea or larynx; and vicarious menstruation (very rare).

(*b*) *The causes of Hematemesis:* Traumatism; gastric ulcer; gastric cancer; venous engorgement of the stomach following cirrhosis of the liver, primary splenomegaly, or chronic heart disease; acute gastritis; blood dyscrasia, as in scurvy, purpura, severe infections, and grave anemias; rupture of aneurysm; swallowing of blood from nose, mouth, or throat; vicarious menstruation; hysteria.—(From Stevens' *Proctice.*)

3. See French's "Practice" (1907), page 342; or Osler's "Practice" (1909), page 295.

4. The cycle of the adult tapeworm is as follows: "From each individual segment, which is possessed of a complete reproductive system, great numbers of eggs are discharged. The latter are expelled from the intestine with the feces, and some of them may eventually enter the digestive tract of swine or cattle through the food or water. In the intestine the embryos become liberated from the eggs, and they then make their way in large numbers to the muscular tissue, brain, liver, and other parts, where they come to rest and develop as bladder worms. The living animal shows nothing in its appearance to indicate the presence of the parasite, excepting when the cyst can be seen in the under side of the tongue or between the tongue and the lower jaw. If now the animal is slaughtered and the meat eaten raw or imperfectly cooked, the cysticercus is freed from its enveloping capsule and proceeds to develop into an adult tapeworm, and the cycle is complete."—(From Harrington's *Hygiene.*)

5. See French's "Practice" (1907), pages 546 and 548; or Osler's "Practice" (1909), pages 763 and 765.

PRACTICE.

1. See French's "Practice" (1907), page 101; or Osler's "Practice" (1909), page 93.

2. (1) Very young children are attacked with varicella, whereas variola usually shows itself in adults. (2) Vaccinated children readily take varicella; not so variola, even in the modified form. (3) Children who have had varicella may contract variola, even soon afterwards; or the two diseases may coexist. (4) Varicella is noninoculable, whereas variola is notoriously so. (5) The eruption of varicella appears in 24 hours; that of variola not till the third day. (6) The febrile symptoms continue after the eruption appears in varicella; those of variola subside. (7) In varicella the spots come out in excessive crops; this is never seen in variola. (8) The spots in varicella are unilocular, and collapse on being punctured; the spots in variola are multilocular, and do not collapse on being punctured. (9) In varicella the eruption is very irregular, and appears over the body generally; in variola it appears in groups of threes and fives, and is always seen on the limbs. (10) The papule in varicella is soft, and disappears on stretching the skin; in variola it is hard and shotty, and does not disappear on stretching the skin.—(From J. W. Moore's work on *Variola and Varicella.*)

3. See French's "Practice" (1907), page 391; or Osler's "Practice" (1909), page 352.

4. See French's "Practice" (1907), page 592; or Osler's "Practice" (1909), page 816.

5. See French's "Practice" (1907), page 699; or Osler's "Practice" (1909), page 653.

6. See French's "Practice" (1907), pages 1076, 1079, and 1082; or Osler's "Practice" (1909), pages 976 and 978.

7. See French's "Practice" (1907), page 1125; or Osler's "Practice" (1909), page 1058.

8. INTESTINAL NEUROSIS includes any disturbance of the motor, sensory, or secretory functions of the intestine, provided such disturbance is of nervous causation. (1) *Motor* includes: Paralysis of the intestines, disorders of defecation, constipation, intestinal obstruction, increased peristalsis, spasm, colic, tenesmus. (2) *Sensory* includes: Pain, colic, enteralgia. (3) *Secretory* includes: Nervous diarrhea, mucous colitis. For details of these see Index to French's or Osler's "Practice."

9. See French's "Practice" (1907), page 1153; or Osler's "Practice" (1909), page 1092.

10. In *chronic parenchymatous nephritis:* The urine is slightly diminished, turbid, has abundance of albumin, generally some blood, abundance of sediment, blood corpuscles, casts (especially fatty), diminished urea.

In *chronic interstitial nephritis:* The urine is increased in quantity, pale, clear, of low specific gravity, little or no albumin, scanty sediment, few casts, diminished urea.

NERVOUS DISEASES.

1. See French's "Practice" (1907), page 1084; or Osler's "Practice" (1909), page 916.

2. See French's "Practice" (1907), page 1104; or Osler's "Practice" (1909), page 991.

FIVE REFLEXES.	MODE OF EXCITATION.	NATURE OF RESULT.
Knee jerk.....	By striking patellar tendon with edge of hand or with percussion hammer, while leg hangs loosely over other leg.	A single upward jerk of the leg and foot, slight or distinct.
Ankle clonus.....	With knee extended or very slightly flexed, by pressing quickly and firmly against anterior part of sole of foot (so as to stretch calf-muscles) and then keeping up the pressure.	A series of clonic contractions at the ankle-joint, continuing as long as the pressure is maintained, and instantly ceasing when it is relaxed.
Plantar reflex.....	Tickling sole of foot.	Movements of toes; of these and foot; or of these and leg.
Gluteal reflex.....	Irritation of skin of buttock.	Contraction of glutei.
Cremasteric reflex.	Irritation of skin of upper and inner part of thigh.	Drawing up of testicle.

4. See French's "Practice" (1907), page 1120; or Osler's "Practice" (1909), page 1051.

5. See French's "Practice" (1907), page 350; or Osler's "Practice" (1909), pages 302 and 926.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), page 190; or Hirst's "Obstetrics" (1909), page 204.

2. See Williams' "Obstetrics" (1909), page 206; or Hirst's "Obstetrics" (1909), page 395.

3. See Williams' "Obstetrics" (1909), page 815; or Hirst's "Obstetrics" (1909), page 577.

4. See Williams' "Obstetrics" (1909), page 843; or Hirst's "Obstetrics" (1909), page 626.

5. See Williams' "Obstetrics" (1909), pages 844 and 846; or Hirst's "Obstetrics" (1909), page 939.

6. See Williams' "Obstetrics" (1909), page 883; or Hirst's "Obstetrics" (1909), page 737.

DISEASES OF WOMEN AND CHILDREN.

1. See Rose and Carless' "Surgery" (1908), page 1288.

2. The *most common causes of sterility in woman* are: Gonorrhea, absence or errors in development of any part of the genital tract, malformations of genitals, fistulæ, lacerations, obesity, alcoholism, pelvic inflammation, dyspareunia, inflammation of uterus, tubes, or ovaries, elongated cervix. *Treatment* consists in removing the cause, if possible; curettage has been recommended; in the presence of developmental errors little or nothing can be done; atresia of cervix can be treated by dilatation; if the uterus is misplaced it must be replaced.

3. In *extrauterine pregnancy,* there will be signs of early pregnancy, hypogastric or inguinal pains, probable history of a previous sterility, probable expulsion of decidual membrane or shreds, softening of the cervix, enlargement of the uterus, presence of a distended tube, contractions of the wall of the gestation sac; if rupture occurs, there will be sudden, excruciating pains over the lower abdomen and on the affected side, shock, collapse, and symptoms of internal hemorrhage. In *appendicitis,* there are no signs of pregnancy; there are sudden pain and tenderness in the right iliac fossa, rigidity of right rectus muscle, fever, nausea, vomiting, constipation, no history of menstrual irregularities. In *pyosalpinx* the tubes are inflamed usually secondary to inflammation of uterus or to infection (either gonorrheal or puerperal), backache, pain in lower abdomen, history of menstrual irregularity, leucorrhea, tube is enlarged and tender. In *ovarian cyst,* no signs of pregnancy, the tumor may grow to enormous size, fluctuation generally distinct, emaciation, not painful, facies ovariana.

4. In the nulliparous adult the uterus is about three inches long, about two inches wide at the upper part, and about one inch thick. The uterus lies between the rectum behind and the bladder in front; it is below the abdominal cavity and above the vagina. Its position is one of slight anteflexion, with its long axis at right angles to the long axis of the vagina. The anterior surface of its body rests on the bladder, and the cervix points backward toward the coccyx. The uterus is not fixed, but moves freely within certain limits. It is held in place by ligaments—broad ligaments, round ligaments, vesicouterine and rectouterine. *During pregnancy* the uterus increases in *size* (from 3 to 12 inches in length; from 1½ to 9 inches in breadth), in

weight (from about one ounce to two pounds, not including its contents). The cavity is enlarged over 500 times. All the tissues, muscles, ligaments, arteries, veins, lymphatics, and nerves become tremendously hypertrophied. The uterus also changes its position; at first it drops, later it gradually rises, till just before labor (when it again drops).

5. Rectovaginal Fistula. *Causes:* Protracted labor, ulceration due to pessaries or foreign bodies, carcinoma, syphilis or tuberculosis, pelvic abscess; it may be congenital. *Treatment:* A plastic operation is necessary. The edges of the fistula are denuded and then approximated with sutures, the same as for vesicovaginal fistula.

6. See French's "Practice" (1907), page 424; or Osler's "Practice" (1909), page 271.

7. See Osler's "Practice" (1909), page 205.

8. See French's "Practice" (1907), page 804; or Osler's "Practice" (1909), page 525.

9. See Rose and Carless' "Surgery" (1908), page 718; or Da Costa's "Surgery" (1908), page 748.

10. By finding the Klebs-Loeffler bacilli.

SURGERY.

1. See Rose and Carless' "Surgery" (1908), page 535; or Da Costa's "Surgery" (1908), page 512.

2. Trachelorrhaphy. *Indications:* Laceration of cervix uteri; particularly when followed by subinvolution of uterus, by eversion and hypertrophy of cervix, by infection, by Nabothian-cysts, by menorrhagia, leucorrhea, backache, and reflex nervous disturbances.

Operation: "The patient is anesthetized and placed in the lithotomy position, and the cervix well exposed by a speculum. The vagina is thoroughly disinfected by douching and swabbing, and dilatation and curetting are then carried out when necessary. After this the anterior lip of the cervix is seized with a volsella, and the reversible tenacula forceps introduced exactly in the middle line and the points separated. The volsella is then removed. By means of scalpel and forceps two flaps are now dissected off the exposed surface, taking care to leave a narrow strip of mucous membrane in the middle line, which will form the lining for the new cervical canal when the lips are approximated. While the surfaces are being vivified there is usually free oozing; this is useful, as it serves to deplete the cervix and diminish its volume. In many cases before operation the bulky, everted lips look as if they could not come together, yet, after depletion brought about by dissection, they can be approximated with ease. When the flaps have been dissected off, the tenacula forceps are removed, the lips of the cervix are allowed to fall together, and the forceps are then reapplied in such a way as to hold them in apposition. Care must be taken to secure the cervix in the middle line. A curved needle is used to introduce the sutures; the best material is silkworm gut, and, if secured by means of shot and coil, their subsequent removal is greatly facilitated. Three or four sutures should be placed on each side, and those nearest the middle line should be about one centimeter apart. The tenacula forceps are now removed and a sound is passed into the uterus, to make sure that the cervical canal is free. The parts are then carefully dried, and the vagina lightly packed with iodoform gauze."

3. See Rose and Carless' "Surgery" (1908), pages 1202 and 1244; or Da Costa's "Surgery" (1908), page 1125.

4. See Rose and Carless' "Surgery" (1908), page 238; or Da Costa's "Surgery" (1908), page 252.

5. See Rose and Carless' "Surgery" (1908), pages 1321 and 1324; or Da Costa's "Surgery" (1908), page 1025.

6. See Rose and Carless' "Surgery" (1908), pages 1100 and 1103; or Da Costa's "Surgery" (1908), page 992.

7. See Rose and Carless' "Surgery" (1908), pages 1058 and 1061; or Da Costa's "Surgery" (1908), pages 891 and 894.

8. See Rose and Carless' "Surgery" (1908), page 619; or Da Costa's "Surgery" (1908), page 587.

9. See Rose and Carless' "Surgery" (1908), pages 521 and 525; or Da Costa's "Surgery" (1908), pages 505 and 508.

EYE AND EAR.

1. Ophthalmia neonatorum. *Causes:* The gonococcus or some other pyogenic microorganism; the secretions of the mother contain the infecting agent, and transmission may occur directly during parturition, or indirectly by the fingers of physician or nurse, cloths, instruments, etc. *Symptoms:* Swollen eyelids, with copious purulent discharge; ulceration of the cornea may ensue. *Prophylaxis:* Whenever there is the possiblity of infection, or in every case, wash the eyelids of the newborn child with clean warm water, and drop on the cornea of each eye one drop of a 1 per cent. solution of nitrate of silver, immediately after birth. *Treatment:* Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of 2 per cent. solution of nitrate of silver must also be dropped onto the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt.

2. Iritis. *Causes:* Syphilis, rheumatism, gonorrhea, gout, diabetes, leprosy, scrofula, tuberculosis, injury, transmission from the other eye. *Symptoms:* Pain, photophobia, small pupil, ciliary congestion, discoloration of iris, exudate in anterior chamber. *Treatment:* Casual, abstraction of blood from temples, atropine, diaphoresis, shielding the eye from light.

3. Glaucoma. *Causes:* Increase of contents of eye, hypersecretion, retention, old age, gout, rheumatism, nephritis. *Symptoms:* Visual disturbances, increased ocular tension, hazy and anesthetic cornea, sluggish and dilated pupil, shallow anterior chamber, ciliary neuralgia, cupping of optic disc, blindness.

Treatment consists first in the local instillation of miotics, such as eserin or pilocarpin, to contract the pupil, and massage of the eyeball. Mydriatics are distinctly contraindicated. The operative treatment includes paracentesis, iridectomy, sclerotomy, and incision of the ligamentum pectinatum.

4. *Treatment of blepharitis marginalis:* Remove cause, if possible; remove scales, and keep edges of lids clean and fresh, warm water or weak boric acid solution, or bichloride of mercury 1:5,000; massage; silver nitrate (2 per cent.) on ulcers; epilation of distorted cilia; treat conjunctival or corneal disease.

5. *Astigmatism* is a condition in which, owng to a greater curvature of the eye in one meridian than in others, the refractive power of the eye varies.

Myopia is a condition in which the anteroposterior axis of the eye is abnormally long, and parallel rays are focused in front of the retina.

Hypermetropia is a condition in which the anteroposterior axis of the eye is abnormally short, and parallel rays are focused behind the retina.

Diplopia is a condition in which an object seen appears double.

Chalazion is a tumor in the eyelids, due to obstruction of the duct in a Meibomian gland.

6. *Treatment of acute otitis media:* "The treatment depends upon the symptoms, which are exceedingly variable. When the symptoms are those of middle ear-ache without great exudation, the treatment consists in the inflation of the Eustachian tube, alkaline spray to the post-nasal space, two to three drops of 8 per cent. solution of cocaine, dropped into the ear, and afterwards hermetically sealing the canal with small pledgets of cotton or inserting into the ear a few drops of the following, which will bring immediate results:

℞	Chloralis camphorat.,	5 parts.
	Glycerini,	30 "
	Ol. amygdalæ dulcis,	10 "

As soon as the pain has disappeared the hyperemia and swelling of the Eustachian tube is quickly reduced by spraying the post-nasal space with alkaline solution, followed by the application of argentum nitrate eight grains to the ounce. The treatment of the external auditory canal and tympanum consists in dropping three to four drops of solution of zinc sulphate, eight grains to the ounce, into the ear and hermetically sealing with collodion. This is repeated twice daily until all symptoms have passed away. If the pain and effusion into the ear is great, dry hot applications, paracentesis, purging, antipyretics, and rest in bed are indicated. The disease runs its course in from three to ten days."

7. Acute Mastoiditis. *Symptoms:* Tenderness, pain, swelling and redness over the mastoid; bulging of the superior and posterior parts of the auditory canal; temperature variable, from normal up to about 104° F. *Treatment:* Hot water, or cold water, or ice; leeches, purgatives; light diet; acetanilid, incision, or mastoid operation.

8. *Foreign bodies may be removed from ear:* (1) Insects, by warm water or chloroform oil; (2) by syringing carefully; (3) wax may be removed by disintegrating it with hydrogen dioxide, followed by warm water irrigation.

9. Leeches; hot applications of hops or salt; cleaning with hydrogen peroxide; morphine; evacuate pus.

10. "The presence of adenoid tissue in the vault of the pharynx affects the ear in two ways. If the mass is large by direct pressure upon the Eustachian orifice the supply of air in the tympanic cavity may be disturbed. . . . Any slight increase in the volume of the mass will close the lumen of the tube, after which the intratympanic air

is gradually absorbed by the blood which circulates through vessels in the walls of the cavity. With each act of swallowing, at which time the tube opens momentarily, the air is aspirated into the nasopharynx, the tube closing so quickly that the passage of air into the tympanum does not take place. In this manner a passive congestion of the mucous membrane of the middle ear is produced, a condition which constitutes practically the first stage of an inflammation, and, if long continued, results in permanent tissue changes. . . . The more important manner in which adenoid growths affect the organ of hearing is by the obstruction to the venous return current from the tympanum and labyrinth. The pharyngeal tonsil, in virtue of its presence, may exert sufficient pressure to partially obstruct the venous flow from the tympanic cavity. Any condition which affects, for a considerable period, the circulation within the middle ear will also cause a disturbance of the labyrinthine circulation from an alteration in the tension of the fluid contained. Such changes in the labyrinth render it particularly susceptible to inflammation, either as the result of infecton or of mechanical irritation, the most fruitful source of the latter being the crowding inward of the ossicular chain by atmospheric pressure, when the tension of air within the tympanum is reduced. . . . There may also be a diminution of bone conduction and a hyperesthetic condition of the auditory nerve." (From Dench's *Diseases of the Ear.*)

MEDICAL JURISPRUDENCE.

1. A *malingerer* is one who pretents to be ill when he is not. To aid in the discovery: Try to ascertain if there is any motive in such claim to be ill; make frequent and thorough examinations; the examiner should be well read and expert; instruments of precision and ancsthetics should be used if necessary; malingerers are apt to overdo their part.

2. As a rule, there is no statute of limitations fixing time within which an action for malpractice must be brought; but generally no such action will lie after a physician has brought suit for his fee.

3. (*a*) No. (*b*) None.

4. No.

5. If carelessness or negligence is proved, he is liable; but the matter will rest with the jury, and the verdict will depend largely on the "doctor on the other side," and the evidence of his "professional brethren."

6. No.

PREVENTIVE MEDICINE.

1. See French's "Practice" (1907), page 107; or Osler's "Practice" (1909), page 96.

2. See French's "Practice" (1907), pages 335 and 390; or Osler's "Practice" (1909), pages 287 and 351.

3. Fumigation should be by formaldehyde or sulphur. The best means of fumigating by formaldehyde gas are the following:

(1) By Trillat's apparatus, which "allows the solution of formalin to flow in a fine stream through a copper coil heated to redness by a flame beneath, and the gas and vapor passing directly into the room. The apparatus may be operated outside of a room, and the amount of gas liberated depends directly upon the strength and quantity of the solution evaporated.

(2) In Schering's method the solid paraform is heated in a receptacle over an alcohol lamp, and is especially valuable in disinfecting small rooms, closets, etc.

(3) The cheapest and most common form develops the gas directly by the oxidation of methyl alcohol, the vapors of the latter passing over or through tubes or coils of heated metal. The amount is uncertain and results indefinite." (Gould and Pyle's *Cyclopedia of Medicine and Surgery.*)

Formaldehyde gas is formed by the oxidation of methyl alcohol. The action is quicker and more certain if the temperature of the room is from 95° F. up to about 110° F.

4. *Water supply* from: (1) *Rain water* collected immediately as it falls as rain, dew, snow, etc. (2) *Surface water* collected in ponds, lakes, streams, etc., and in free contact with air. (3) *Ground water, or subsoil water*, derived from the rain water of the district, but which percolates through the subsoil, and so is not directly exposed to the atmosphere. (4) *Deep or artesian water*, which is separated from the ground water by one or more impermeable layers.

5. *Quarantinable diseases:* Cholera, yellow fever, smallpox, plague, typhus, leprosy, diphtheria, scarlet fever, measles, mumps, chicken pox, erysipelas. For *length of time*, see index to these diseases in French's or Osler's "Practice."

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of April 2, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	657	195
Diptheria	428	44
Measles	1,770	30
Scarlet Fever	726	30
Smallpox	—	—
Varicella	170	—
Typhoid Fever	35	6
Whooping Cough	27	9
Cerebrospinal Meningitis	7	3
Malarial Fever	—	—
Totals	3,820	317

The indication for the use of chloroform in obstetric practice will be greatly limited in the future, when its toxic effects upon the vital organs are better understood.—Stowe in *Surgery, Gynecology, and Obstetries.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 1, 1909:

PLACE	DATE	CASES	DEATH
CHOLERA			
Ceylon, Colombo	Feb. 13–19	5	..
India, Bombay	Feb. 16–22	..	2
Philippine Islands, Manila	Jan. 23–Feb. 12.	14	14
Provinces—			
Bataan	Jan. 23–Feb. 12.	60	46
Bohol	Jan. 23–Feb. 12.	12	8
Cebu	Jan. 30–Feb. 4.	35	25
Cavite	Jan. 23–Feb. 12.	101	83
(Jan. 1–Feb. 12, 50 cases from a coasting vessel.)			
Misamis	Jan. 23–Feb. 12.	29	22
Pampanga	Jan. 23–Feb. 12.	25	19
PLAGUE			
Brazil, Bahia	Jan. 30–Feb. 11.	5	3
Santos	Feb. 2	Present	..
Chile, Iquique	Feb. 24	Endemic	..
China, Hankow	Feb. 1	Present	..
India, Bombay	Feb. 16–22	..	88
Kurrachee	Feb. 13–19	86	78
Japan, Kobe	Feb. 20–26	1	..
Peru, Callao	Feb. 2–7	2	..
Lima	Feb. 11–25	1	..
(In lazaretto from s. s. Ammon.)			
Mollendo	Feb. 11–25	6	2
Pisco	Feb. 19	1	..
(From s. s. Ammon.)			
Siam, Bangkok	Dec. 20–Jan. 22.	6	5
Turkey in Asia, Jiddah	Mar. 2–6	12	12
SMALLPOX			
Abyssinia, Adis Ababa	Feb. 19	Epidemic	..
Austria, Bohemia	Feb. 20–26	1	..
Galicia	Feb. 20–26	8	..
Brazil, Bahia	Jan. 30–Feb. 11.	45	29
Pernambuco	Jan. 1–15	..	44
Rio de Janeiro	Feb. 11–27	2	..
Canada, Ontario—Port Arthur	Mar. 11–19	5	..
Ceylon, Colombo	Feb. 6–12	5	..
China, Amoy	Feb. 6–12	..	1
Canton	Jan. 21–Feb. 23.	55	9
Hankow	Feb. 12	Present	..
Hongkong	Jan. 30–Feb. 19.	7	2
Shanghai	Feb. 9–27	2	9
(Deaths among natives.)			
Egypt, Cairo	Feb. 27–Mar. 4..	..	1
Germany, general	Mar. 6–12	6	..
Bremen	Feb. 27–Mar. 5..	1	..
Great Britain, London	Jan. 31–Mar. 5..	1	..
Newcastle-on-Tyne	Jan. 31–Mar. 5..	..	1
Greece, Athens	Feb. 20–26	..	2
Italy, general	Feb. 28–Mar. 6..	9	..
Naples	Feb. 28–Mar. 6..	23	4
India, Bombay	Feb. 16–22	..	34
Madras	Feb. 12–18	..	1
Kurrachee	Feb. 13–19	2	..
Japan, Formosa	Feb. 13–19	7	2
Java, Batavia	Feb. 6–12	1	..
Korea, Ilmyokyo	Feb. 26	Present	..
Mexico, Aguascalientes	Mar. 6–12	..	3
Guadalajara	Mar. 5–11	..	1
Philippine Islands, Manila	Jan. 23–Feb. 12.	7	..
Portugal, Lisbon	Feb. 26–Mar. 5..	27	..
Russia, Libau	Feb. 29–Mar. 6..	6	..
Odessa	Feb. 20–Mar. 5..	1	..
Riga	Feb. 28–Mar. 5..	66	14
St. Petersburg	Feb. 20–26	50	14
Warsaw	Jan. 9–22	..	42
Siberia, Vladivostok	Jan. 28–Feb. 5..	3	..
Singapore, Straits Settlements	Feb. 6–12	..	2
Spain, Barcelona	Mar. 1–7	..	1
Vigo	Feb. 27–Mar. 5..	Present in vicinity	
Turkey in Asia, Trebizond	Mar. 5	Present	..

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Original Articles.

THE ESSENTIALS OF THE PHYSIOLOGY AND PATHOLOGY OF DIGESTION*

BY ISAAC LEVIN, M.D.,

NEW YORK.

EVERY organized living being constantly loses substance and, consequently, needs some addition from the outside, in order to continue its life functions. A plant, through the aid of the chlorophyl (green) parts, is able to form its food synthetically from inorganic substances, water and air, from the latter of which it receives oxygen and carbon in the form of carbon dioxide. An animal, on the other hand, is unable to maintain its life on this simple material, is unable to build complex substances from it, and must receive for its food organic matter, which it splits up into less complicated molecules before it can assimilate it.

While the food of the different species of animals is varied to a very great extent, all these foodstuffs, on final analysis, are found to consist mainly of one of the three cardinal substances, protein, carbohydrates, or fats. Of these three the protein is the most important article of food. During its life functions, an organism creates a certain amount of energy which is lost either in the work of the different organs or in heat which the warm-blooded animals give off into their surroundings; and, on the other hand, it wastes a certain amout of body tissue which must be rebuilt. While both energy and heat can be created at the expense of the carbohydrates and fats taken in as food, only the protein contains all the substances required for the building up of tissue. Therefore, an organism fed only on fats and carbohydrates constantly loses the protein part of its body cells and ultimately perishes from protein starvation. On the other hand, it has been proven experimentally that an organism may exist on protein food alone, but such an exclusively protein diet would not be economical for the organism, since it takes a great deal more work to split off the part necessary for the production of energy from the protein molecule than from the molecule of carbohydrates. Fat again seems to be best adapted for the creation of heat. We see then that all the three cardinal ingredients of food—protein, carbohydrates, and fats—are required to maintain life.

In monocellular organisms, or even within the alimentary canal of a multicellular, primitive organism, every cell is endowed with ameboid properties, capable of devouring food particles, the subsequent changes of which take place within the cell. In the higher animal organism, the food has to be prepared in a certain way before the body cells can assimilate and utilize it. These changes are effected by means of special juices secreted by the different digestive organs. The active principles of all these juices are the so-called ferments or enzymes. These latter substances are of great importance not only in digestion, but in a great many other vital functions of organisms, and it may, therefore, not be out of place in this connection to give them some attention.

Enzymes are chemical substances, the action of which is different from the usual chemical reactions. By their mere presence a very complex chemical substance may split up into two or more simple molecules, and at the end of the reaction the enzyme remains unchanged. The process which most frequently takes place under the influence of the enzymes is the splitting up of each molecule with an addition of water—a so-called hydrolytic cleavage. This peculiar action of the enzymes has a close analogy, as was pointed out by Oswald, in the chemical process of catalysis. By catalysis is meant a chemical reaction which is brought about by the mere presence of certain substances—catalysers. These catalysers increase only the velocity of a reaction, which would have taken place without the aid of the catalysers, only a great deal more slowly. Since the catalyser is unchanged in the chemical process which it brings about or hastens, a very small quantity of it is able to influence reactions involving large quantities of other substances.

Of the different chemical properties which the enzymes have in common with catalysers, we have to mention the so-called reversible action. By this is meant the property of the same enzyme to split up a complex molecule into two simpler ones and then again unite the two latter into the original complex molecule. As an example may be mentioned the enzyme, lipase, which acts on neutral fats, converting them into fatty acids and glycerine. It was shown that this enzyme may cause a hydrolysis of a substance analogous to fat ethyl-butyrate into ethyl-alcohol and butyric acid, and at the same time it will cause a synthesis of the two last-named substances into ethyl-butyrate and water, which may be expressed by the following formula:

$$C_3H_7COOC_2H_5 + H_2O \rightarrow C_3H_7COOH + C_2H_5OH$$
$$C_3H_7COOC_2H_5 + H_2O \leftarrow C_3H_7COOH + C_2H_5OH$$

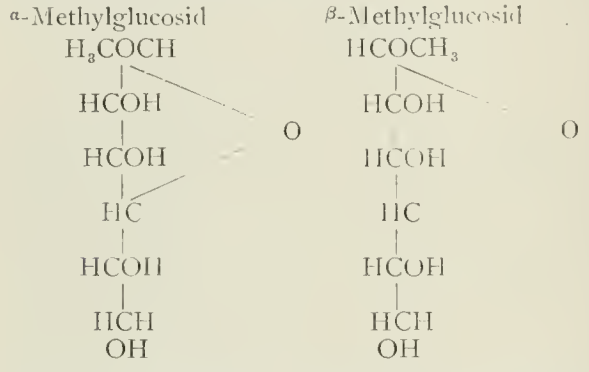
(Ethyl-butyrate) (water) (butyric acid) (ethyl-alcohol)

This property of the enzymes to reversible action is of the greatest importance in biology, as it clearly indicates that the most complex organic synthesis taking place within the cell may be caused by a purely chemical process without the help of some obscure vital property of the organism. Recent investigations have demonstrated that a similar kind of reversible action takes place during the cleavage of the protein molecule, giving rise to synthesis of

*Read by invitation before the Eastern Medical Society of New York on January 14, 1910.

more complex protein substances. It seems feasible then to suppose that the synthesis, which produces as a result protoplasm or living matter, also takes place by the help of certain enzymes. The same conclusion must be reached from the investigation of P. A. Levene, who has shown that in developing egg, *i. e.* in an egg, where new cells are being constantly formed, one can notice the breaking down of the albuminous matter and the appearance of products of the nature of nitrogenous acids, indicating the activity of some enzymes.

Another highly interesting property of the enzyme is its specificity. The majority of the inorganic catalysers, like the weak acids, are capable of assisting in a number of divergent chemical reactions. Enzymes, on the other hand, can exert their influence only on a certain well defined substance. There are given below the chemical composition of two substances, both sugars:



The only difference between the α- and β-methylglucosid lies in the different stereochemical positions of one molecule H_3. By a stereochemical configuration of a molecule is meant the fact that two substances may have exactly the same molecule, consisting of the same number of H, C, O atoms, but these atoms are situated in the molecule in the different relationship to each other. Such two substances having similar molecules, but with different stereochemical configuration are different chemical bodies and are influenced by different enzymes. As for instance α-methylglucosid is split up by invertin and β-methylglucosid by another enzyme—emulsin. This specific affinity of enzymes to a certain substrate indicates clearly that the enzyme is not acting as a catalyser only by its presence, but comes into closer connection with the component. Then when the reaction is completed the enzyme becomes free again. In other words, the action of an enzyme consists first in its anchoring to a specific group of the molecule of the substance and then in the catalytic cleavage of the molecule.

To this relationship between the enzyme and the substrate there is another very interesting analogy in that between toxin and antitoxin. Ehrlich elaborated a theory in explanation of the formation and action of toxins, which, as he showed subsequently, may have a very wide application in the explanation of action of drugs, intracellular assimilation of food, and in many other cellular functions. This so-called "Ehrlich's side chain hypothesis" explains the activities of the cell in a manner very similar to the specific action of enzymes. Each cell, according to this conception, consists of a central group of very complex molecular combinations, which performs the special function of this particular cell and which Ehrlich calls the function-nucleus (*Leistungskern*), and a great number of other groups, "side-chains" (*Seitenketten*), as he calls them. These latter have no importance for the special functions of the cell, but their main activity consists in the assimilation and burning up of food. Assimilation of food means a certain kind of chemical combination between foodstuffs and the protoplasm of the cell, consequently food, in order to be assimilated by the cell, must have a constituent part which is adaptable by the food receiving group—side chain—of the cell. Ehrlich calls the side-chain capable of receiving a certain foodstuff a receptor, and the molecule of the food adaptable to this receptor, haptophore group. And in the same manner as food is taken in, the cell may receive or anchor drugs, poisons, or toxins. In fact, Ehrlich considers the interaction between a cell and a poison or toxin identical with intracellular assimilation of food, and classes the toxins as spoiled, injurious foodstuffs. The difference, on the other hand, between the action of food and toxins on cell consists in the following: The food receptors, after having anchored the food, act on it as an enzyme, split it up and soon become free to receive another molecule of food. On the other hand, the receptors are not trained, or, rather, constructed to deal with toxins, consequently the latter either kill the cell through its toxophore group of molecules, or else remain permanently anchored to the receptor. The cell then loses this receptor for its own use, and, as is the case with every loss of a part of an organism, the cell begins to regenerate its receptors. Now, it is a general rule in pathology, that when a process of regeneration occurs, there takes place very frequently an over-compensation. In this case, then, more receptors are formed than the cell can hold; some of them are, so to say, excreted by the cell into the blood, where they circulate. These receptors circulating in the blood constitute the antitoxin. Toxin, in order to reach a cell, has to enter the blood, but there it immediately meets the free receptors, the antitoxin, combines with it and consequently become inoccuous to the cell and to the organism. We have a most remarkable proof of Ehrlich's assertion that the action of food, drugs, poisons, or toxins is identical in the fact that any of these substances introduced directly into the blood may give rise to the formation of antibodies, or may act as an antigen, *i. e.* a creator of antibodies. It has been mentioned before that a receptor, in order to perform its function, has to anchor a certain substance and then act on it as an enzyme. Certain receptors cannot perform this function unaided; they have to be prepared or activated by an additional substance, a condition which, as we shall see later, obtains also in a certain digestive enzyme —prosecretin. Such an activating substance is called amboceptor. As this name implies, this substance has two haptophore groups, one to anchor the cell, the other, the specific poison or food. The necessity of such an addition we find in the so-called cytolytic poisons, and, as a very interesting example of it, may be mentioned snake-venom. On introduction of this poison, the red blood corpuscles become dissolved. Now, this does not occur in every animal species; but in those animals where the reaction does not take place, it may be produced by an addition of lecithin, a substance which in itself is not capable of dissolving the erythrocytes. Lecithin is consequently in this case an amboceptor to the venom receptor of the red blood corpuscles; and if in the blood of another animal the reaction takes

place without the addition of lecithin, we must assume that the erythrocyte contains within itself lecithin in a form capable of acting as a complement. It is exceedingly instructive to learn how Ehrlich has demonstrated in his latest investigations that the action of drugs in curing disease is also identical to the assimilation of food. Trypanosomiasis means a class of diseases caused by penetration of animal parasites—trypanosomes—into the blood of animals and man. A trypanosome disease familiar to all is the so-called "sleeping sickness" occurring in Africa. It has been found lately that trypanosomiasis may be cured by certain arsenical preparations, atoxyl, arsazetin, etc. Not all cases, however, are cured. In some the disease relapses several times, and ultimately kills the animal or man. The same disease may be produced experimentally in rats or mice. Ehrlich has shown that in cases where these inoculated animals were cured with arsenicals, the parasites were killed by the drug. In those cases where relapses occur after treatment and the mice die, the trypanosomes not only remain alive, but acquire an immunity against the arsenicals. This phenomenon Ehrlich explains in the following way: When an arsenical is introduced into the blood of a patient or rat, it may either be anchored by the receptors of the body cells, and the parasite remains alive and ultimately kills the host, or the avidity of the receptors of the trypanosome to the drug is greater than the avidity of the cell receptor; then the arsenic is anchored by the trypanosome, kills it, and the patient recovers. Consequently, the result will be in every case a differential between the avidity of the two kinds of receptors to the arsenic. According to this conception, then, a trypanosome which becomes immune against arsenicals does not change qualitatively any of its constituent parts and still retains its receptor capable of anchoring arsenicals—chemoreceptor, as Ehrlich calls it—but its avidity to the drug becomes diminished. That this is so was brilliantly proven by Ehrlich in the following way: When a mouse is inoculated with immune trypanosomes and then treated with arsenic, the parasite remains alive and kills the mouse, but if the same immune parasite is placed in a test-tube and then arsenic added, the drug kills the parasite. Consequently the immune parasite retains its arsenical receptor, the avidity of which to arsenic is simply lessened, but in the test-tube, where the arsenic does not meet any other receptors, it ultimately anchors and kills the trypanosomes.

We have seen above that enzymes may split up complex organic molecules and also synthetically build up the complicated molecules from simpler ones. In the process of digestion of an animal organism, food is first split up into similar molecules, these are taken in by the different cells of the body, with the help of the food receptors, and there either split up further, in order to create the energy and heat necessary for the maintenance of the life and functions of the cells, or else synthetically built up into constituent parts of the body of the cell. Ehrlich's hypothesis offers us a certain conception of the intracellular assimilation of food. By digestion proper is meant the changes that foodstuff undergoes as it passes along the digestive tract before it is absorbed and taken up by the cells. This transformation is produced in a different way from the intracellular assimilation of food, inasmuch as the enzymes do not remain within the cells of the digestive organs but are secreted into the digestive canals, where they meet and act upon the food. I shall relate briefly the mode of their action.

The taking of food into the mouth is followed by the pouring out of saliva, which is produced by the different salivary glands. The use of this admixture of food with saliva is mainly mechanical. The saliva moistens the food and thus aids its mastication by the teeth, and also through the help of its mucin lubricates all the passages and facilitates the process of swallowing and the passage of the food bolus into the stomach. At the same time the food meets here the first digestive enzyme ptyalin, which transforms insoluble starch into dextrin and maltose. The secretion of saliva is caused by a reflex action of the gustatory nerves, and Pawlow has shown in his beautiful experiments on dogs with a salivary fistula how remarkably this reflex is adapted to the needs of digestion. He has demonstrated that, on administration of meat to a dog, the saliva which is secreted is derived mainly from the submaxillary gland, is thick and viscid, containing a relatively large amount of mucin. If, on the other hand, dry, powdered biscuit is introduced, the resulting secretion is thin and watery, and is obtained from both sets of glands. The introduction of stones into the animal's mouth evokes no secretion at all. The animal can get rid of the stones by movements of the tongue without any preliminary moistening. The introduction of sand into the animal's mouth is, however, followed by a copious secretion of a thin, watery saliva, which serves the purpose of washing the sand from the surface of the mouth and enabling the substance to be rejected by the animal. The same secretion of saliva may be evoked by merely showing the dog food, indicating that the cerebral cortex also takes part in these secretory reflexes. After the food has been reduced by movements of the jaw, cheeks, and tongue to a state of fine pulp, it is collected by movements of the tongue into a bolus. This bolus is then rapidly thrust by movements of the tongue muscles back into the upper part of the esophagus, its passage over the region of the pharynx is effected rapidly, so as to interfere as little as possible with the respiratory movements. Then from the upper part of the esophagus the bolus passes rapidly into the lower end and through the cardiac orifice into the stomach by means of a peristaltic contraction. These continual movements of the bolus play an essential part in the digestive act, and by their aid the food is intimately mixed with the digestive juices and gradually passes on from one segment of the digestive canal to another.

Upon entering the stomach, the food passes into the fundus and accumulates there to form one mass. The stomach remains passive for some time after the beginning of a meal, and it is not until twenty or thirty minutes later that the first movements of the stomach begin to appear, and, though the secretion of gastric juice begins while the food is yet in the mouth, it takes at least half an hour before that juice penetrates the whole mass of food, arrests the action of ptyalin, and converts the food into a soft mass—chyme. While these changes are going on in the fundus, in the pyloric end of the stomach there begin waves of contraction towards the pylorus. The effect of these waves is to force the food, which has been digested by the gastric juice and detached from the surface of the mass of food, toward the pylorus. The pylorus remaining closed,

the food cannot escape and therefore is turned back and again mixed with the gastric juice until at the arrival of one of these waves of contraction the pylorus opens and a part of the food is sent into the first part of the duodenum. The movements of the stomach can best be studied by Cannon's method; that is, by direct observation of the movements in a living animal, by means of *x*-rays. In order to make the shape of the stomach visible, the food is mixed with a quantity of bismuth subnitrate.

Gastric juice is secreted by the wall of the stomach, and the study of its character and mode of action presented great difficulties, since it was impossible to obtain it without the admixture of food and saliva, until here again the genius of Pawlow devised the necessary methods. His first experiment consisted in forming on the same animal a gastric and esophageal fistula. These animals can be fed either through the lower end of the cut esophagus, or directly through the stomach. They can also be fed through the mouth, but the food then falls out through the esophageal fistula without reaching the stomach. Such sham feeding produces a copious discharge through the gastric fistula of juice, free from admixture of food. By this method cannot be determined, however, the changes in the character of the juice produced by the digestion of food. To accomplish this Pawlow devised another operation. A small diverticulum, representing about one-tenth of the whole stomach, is made at the cardiac or pyloric end, in direct muscular and nervous continuity with the rest of the stomach, but shut off from the main part of the stomach by a partition consisting of mucous membrane only. Pawlow has shown that in a dog prepared in this way, the juices secreted by either of the two stomachs are identical, qualitatively and quantitatively.

What are then the conditions which determine the secretion of the gastric juice? The action of the sham meal indicates clearly that gastric secretion can be induced by a nervous reflex similar to the one acting on the salivary secretion, and Pawlow has shown that this reflex is conducted through the vagi. But, on the other hand, when meat is introduced directly into the stomach of a dog with a diverticulum, there also appears in the small stomach a secretion of gastric juice. Consequently, while the main amount of the gastric juice is secreted by the aid of a reflex nervous mechanism described above, a certain portion of the juice is secreted through the mere presence of the food in the stomach. Recent experiments of Edkins have shown conclusively that the secretion of this part of the juice is not caused by a nervous reflex, but by a complex mechanism, which, as we shall see later, was first described by Starling for intestinal digestion. Edkins showed that an intravenous injection of a decoction made by boiling pyloric mucous membrane in water produced a flow of gastric juice. He concluded, then, that the first products of digestion act on the pyloric mucous membrane, and produce in this membrane a substance which is absorbed into the blood streams, and carried to all the glands of the stomach, where it acts as a specific excitant of their secretory activity. Such a substance Starling calls a gastric secretin, or gastric hormone (from the Greek *ορμάω* arouse or excite). Such chemical messengers or hormones, *i.e.* chemical agents exciting certain specific activities, Starling considered of great importance in functions of the organism.

The gastric juice contains the first proteolytic enzyme to act on food, namely, pepsin. This enzyme forms an unstable compound with hydrochloric acid. In this acid combination pepsin acts on the proteins of the food, but its action is rather weak, and it converts the proteins only to its first products of hydrolysis, namely, albumoses and peptones, while, as we will see later, the other proteolytic enzymes convert the proteins into much simpler molecules. This is one of the reasons why the majority of physiologists held that the stomach plays an insignificant part in the digestion. A recent joint investigation of P. A. Levene, Manson, and the writer indicated clearly that while the gastric digestion may not assist in sending to the organism the substances needed for the production of heat and energy, it contributes greatly in the process of protein assimilation and repair of the protoplasm. The stomach also apparently contains another enzyme, lipase, which splits up fat in glycerin and fatty acids. Thus enzyme action on all constituents of food begins in the mouth and stomach.

On entering the duodenum, the first part of the small intestines, the fluid food—chyme—meets the three most important digestive juices, the pancreatic juice, the bile, and the intestinal juice. In order to study the pancreatic juice, Pawlow devised a permanent fistula, which consists in main in suturing the duct with a part of the duodenum to the abdomen. By the aid of this operation can be determined the normal relation of the secretion of pancreatic juice to the process of digestion. It is very interesting to note that, while the greatest quantity of gastric juice is poured out in the first hour after the meal, the maximum flow of pancreatic juice occurs in the third hour, at a time consequently when the largest amount of chyme is passing from the stomach into the duodenum. This remarkably well regulated mechanism of pancreatic secretion was shown by Starling and Baylies to occur in the following way: The cells of the mucous membrane of the intestines produce continually a substance, prosecretin, which has in itself no activity. When hydrochloric acid enters with the chyme into the duodenum, it changes the prosecretin into secretin, a hormone, as described above, which through the circulation enters the pancreas and incites a flow of its juice. The pancreatic juice, alkali in reaction, neutralizes the hydrochloric acid and arrests the formation of secretin until another part of the chyme with hydrochloric acid enters the duodenum. Here, then, is a perfect type of a chemical regulator of secretion of digestive juices, and, as Starling seems to have shown, this method of regulation takes place also in the secretion of pancreatic juice, bile, and intestinal juice to the complete exclusion of all nervous influences.

Pancreatic juice contains three enzymes—Amylopsin, which converts starch into dextrin and maltose, and then the latter into glucose; lipase, which splits up neutral fats into fatty acid and glycerin; and trypsinogen, which under the influence of an enzyme, enterokinase, contained in the intestinal juice, is transformed into the active enzyme trypsin. Pawlow holds that eterokinase acts on trypsinogen also as an enzyme and calls it, therefore, the enzyme of enzymes. Trypsin acts on the proteins of the food more powerfully than pepsin, and splits it up into simpler molecules than albumoses and peptones.

In order to study the characteristics of the intestinal secretion, a so-called Thiry-Vella fistula is formed, an operation which consists in the excision of a loop of the small intestine. This loop retains its connection with its mesentery, and both ends of it are left open and brought into the abdominal wall.

The intestinal juice, as was mentioned above, contains secretin, enterokinase, and besides this another proteolytic enzyme discovered by O. Cohnheim, erepsin, which cannot act on the original (native) protein of the food, but acts on the albumoses and peptones, splitting them up into simpler molecules, and in this way apparently completes the work of pepsin and trypsin. Furthermore, the intestinal juice contains three kinds of enzymes acting on carbohydrates: Maltase, which acts on maltose; invertin, which acts on cane sugar; and lactose, which acts on milk sugar.

Bile is mainly an excretion, representing the channel by which the products of distintegration of hemoglobin are excreted by the organism. As a digestive fluid, bile contains a weak amylolytic ferment, but most important is the part played by the bile in the digestion and absorption of fat. In an investigation of the influence of bile and pancreatic juice on the absorption of fat, the writer has shown that the combination of both juices is necessary for this function, and that neither with the pancreatic juice nor with the bile alone can the absorption be complete.

The digestion proper, *i. e.* splitting up of food molecules, ends in the upper segment of the small intestine. In the lower segments of the small intestine and in the colon there takes place absorption of fluids, and in the colon the function of excretion of remnants of foodstuff.

If we now consider what are the essential factors in normal digestion, we shall notice first that all the organs taking part in this function are finely adjusted for intercorrelation of their functions; for instance, pancreatic secretion does not start before chyme enters the duodenum; second, an organ like the mouth, which takes part, as it were, in the acquisition and selection of food, and which has to act quickly, is controlled by a nervous sensory reflex, while the pancreas, whose function consists merely in correct chemical action on a partly prepared food, is under the influence of a chemical regulator. Third, what is probably of the greatest importance in the economy of the organism, the factors of safety, as Meltzer states it, which we see in the luxurious construction of the digestive organs. For each cardinal ingredient of food, there are two or more enzymes throughout the different parts of the digestive organs, and normal digestion can take place, even if a good part of the digestive organs are inactive.

Let us turn now to the second part of our discussion. It must be clearly understood that by the pathology of digestion is not meant the enumeration of the anatomical changes of the different parts of the digestive tract, nor a description of the clinical pictures of the various diseases, but the study of the abnormal, diseased state of the functions of the digestive organs. These functions may be changed either quantitatively or qualitatively. In the former case the cells of the organism, and, consequently, the organism as a whole, will not receive a sufficient amount of food, and there will ensue a state of inanition or starvation. If the disturbance of the digestive functions is of a qualitative nature, this may lead to absorption from the gastrointestinal tract of the substances not completely digested, or products of abnormal cleavage. On entering into the circulation, these substances may exercise a toxic effect on the organism.

Let us investigate now how each of these conditions may affect the digestive functions of the different segments of the gastrointestinal tract. In all diseases of the mouth and pharynx, the intake of food may be diminished through pain or impairment of muscular action. Furthermore, the secretion of saliva may be either diminished, as in some infectious diseases, like typhoid or pneumonia, in which case the food will not be well prepared for the act of deglutition, or else the secretion of the saliva may be increased in quantity as it occurs in different kinds of stomatitis. Such a condition may impair the digestion through the neutralizing effect of great quantities of alkali saliva on the hydrochloric acid of the stomach. But what is more important, stomatitis is usually associated with an accumulation in the mouth and subsequent transportation into the stomach of numerous bacteria, which may give rise in the stomach to abnormal fermentations, with subsequent toxic effect on the organism.

The diseases of the esophagus all interfere with the deglutition of food, and consequently may cause inanition, but unless the disease itself be incurable, as is the case in carcinoma of the cardia, or in the diverticulum of the esophagus, the danger of starvation is comparatively slight.

Of the diseases of the stomach the only condition which may endanger the organism primarily through inanition is the complete obstruction of the pylorus, when the food cannot enter the duodenum, where the most important digestive changes take place. All the other gastric disturbances may be divided into two main groups. First, the diseases accompanied by increased secretion of gastric juice and hydrochloric acid. These conditions do not impair the digestion in a direct way, but bring on inanition through vomiting and severe pain, which may cause the patient to refuse taking nourishment. Of much greater importance are the conditions where the secretion of gastric juice and hydrochloric acid is completely absent, as in conditions of achylia gastrica, or carcinoma ventriculi. In these conditions the organism does not suffer, mainly through lack of gastric digestion, as the function of the intestines is ample for all purposes of nutrition. Through the lack of the stimulus which is usually given by hydrochloric acid, the pylorus does not open promptly to receive the chyme, and the food stagnates in the stomach. This allows the bacteria, always entering the stomach with the food, to form different products of decomposition, and consequently have a toxic effect on the organism. Under normal conditions it is not only the constant movement of the contents of the stomach that interferes with the activity of the bacteria, but the hydrochloric acid acts on them as a mild antiseptic.

Such a lack of evacuation of the stomach brings about the dilatation of the organ and, consequently, still greater retention of food and its products of decomposition. The same condition naturally takes place when there occurs primarily not a change in the quantity of gastric juice, but a dilatation of the stomach from paresis of its musculature. Pawlow has given an experimental proof of the fact that the disturbances of deglutition and motility of the stomach do not cause an actual inanition. The experiment consisted in cutting both vagi in a dog with

gastric fistula. In such an animal there occurs complete paralysis of deglutition and severe impairment of the motility of the stomach. Pawlow succeeded in keeping such a dog alive for months by feeding through the gastric fistula with the proper kind of food, and by washing the stomach after each feeding.

The diseases of the liver and gall-bladder have no direct influence upon the quantity of food prepared for assimilation. The bile, as we have seen before, exerts its influence only on the digestion and absorption of fat, but we know that not only is it sufficient for an organism to digest only a small fraction of the amount of fat taken in with the food, but even all the fat may be replaced by carbohydrates.

The pancreas is the most powerful digestive organ; still, if all the other digestive organs were normal and the pancreatic secretion should cease, a sufficient amount of food could be digested for the maintenance of the life of the organism.

The part played by the intestine in the digestion of food, independent of the stomach and pancreas, is comparatively small, and the influence of its diseases on the organism consist mainly in the loss of power to neutralize the bacterial and other poisons introduced with the food.

We see, then, from this brief review of the pathological conditions of the digestive organs, that the main danger to the organism lies in intoxication by foodstuffs only partially digested in the gastrointestinal tract, or by products of the metabolism of bacteria always present in every segment of the digestive organs. All these toxic substances on entering into the circulation exercise a deleterious effect upon every organ of the body, skin, circulatory system, even the mind. The most remarkable illustration of the dependence of every organ of the body on the functions of the digestive organs we see in pellagra. The disease is caused by faulty corn, as was conclusively shown by Lombroso. It begins with stomatitis, continues with gastric disturbances, then with skin lesion, and finally ends with depressive insanity.

THE PSYCHOLOGY OF THE CONSUMPTIVE.

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In no chronic organic disease other than of the nervous system, are we told as much about the importance of the psychic control of the patient as a prerequisite of successful treatment as in pulmonary tuberculosis. While administering digitalis to a patient with a failing heart, quinine in malaria, mercury or the iodides in syphilis, etc., we expect cooperation on the part of the patient only so far as is necessary to follow the directions given, coupled with such dietetic observances as may be indicated in the particular case. The psychic state of the patient, his confidence in his physician, as well as in those around him, are of but minor importance. Mercury will, in the vast majority of cases, dissipate the secondary manifestations of syphilis, the iodides the tertiary; salycilates will relieve the pains of rheumatism, and iron will enrich the blood with hemoglobin in simple anemia irrespective whether the patient has "complete and absolute confidence in his physician" or not. In cases of chronic pulmonary tuberculosis the case is different. How often do we meet patients who keep on sinking while under the care of one physician, but for one reason or another are impelled to change their medical adviser, and though the latter does not make any changes in the treatment at all, the patient begins to gain in health and well being. Every one who has many consumptives under treatment meets with such cases quite frequently. Indeed, I have seen many cases of tuberculosis which were going from bad to worse, but after a careful and minute physical examination by some pedantic physician who subjected them to all the procedures of physical diagnosis—detailed inspection, palpation, auscultation, and percussion; then he "gave them the benefit of the most modern diagnostic aids," the *x*-rays, opthalmic or cutaneous tuberculin test; examined the sputum and urine in their presence, etc., but as usual instituted no changes in the treatment beyond giving them same directions in different words than those given by the former physician. Yet this was the beginning of a most remarkable improvement in their condition. They began to gain in weight and strength, their appetite improved, and the cough was ameliorated. Similarly, although we are apt to dismiss the recent fads and fancies of the different kinds of "mind cures," including Eddyism, Emanuelism, and all other innumerable "isms" as occasionally beneficial only in functional or imaginary diseases, yet it is well known that many consumptives beyond doubt have been benefited by this sort of treatment, even of the "absent" variety.

These facts, and many others to be spoken of further on, indicate that in tuberculosis, an organic disease *par excellence*, the psychic state of the patient plays a great rôle in the symptomatology as well as in the treatment. To be sure physicians have recognized the psychic factor at all times. Hippocrates, Galen, Aretæus, and Celsus; later Boerhave, Auenbrugger, and more recently Laennec, Romberg, Trousseau, and others, have called attention to the influence of the mind on the body. But our recent materialistic conception of the life and functions of the human body, our great achievements in the fields of physiology and pathology, have diverted our attention from the psychic forces of the average patient. We carefully study the lesions in the lungs of the consumptive; we are able to determine accurately the extent of invasion of the tubercle bacilli and we form our final judgment on these objective findings, as well as on observations of the pulse, temperature, loss of weight, etc. Very few writers on tuberculosis have taken into consideration the mental or psychic state of the patient, though many mention the importance of perfect discipline and the influence exerted by the physician. That there is a psychological basis for these phenomena will be seen from the following facts.

The attention of physicians has been drawn to the relation of the nervous system to tuberculosis by the large number of consumptive insane especially in asylums. While a considerable proportion may be due to the overcrowding as well as the untidiness and carelessness of the demented, still even in asylums which are not crowded and among insane who suffer from the milder forms of mental derangement and take pretty good care of themselves and their surroundings, the number who succumb to tuberculosis is excessive. Clouston states that two-thirds of the deaths among idiots result from tuberculosis and that this disease is found three times

as frequently as a cause of death among insane as among the sane of the same ages. He adds that the graver, the more prolonged, and more incurable the form of insanity, the higher is the death rate from this cause. As far back as 1863 that author has made a special study of the relation of insanity to tuberculosis and among his conclusions it is of interest to note that there is a form of insanity so distinct in mental symptoms and clinically so characteristic of pulmonary tuberculosis that it may be called "phthisical insanity." He believes that the chief of the constitutional condition is probably a general debasement of the nutrition of the tissues and organs of the body, especially, perhaps, of the lungs. This may mean that certain nervous centers governing nutrition have been weakened in action. Whether tuberculosis is a cause of insanity or the reverse, whether insanity predisposes to tuberculosis has been discussed in medical literature quite extensively though there appears to be no unanimity on the problem. One thing is certain: The recent improvements in the sanitary and hygienic conditions of insane asylums have not materially reduced the mortality from tuberculosis among the inmates. F. Jessen brings conclusive evidence to this effect.

It is also a well-known clinical fact that the number of consumptives who display symptoms of neurasthenia, psychasthenia, and hysteria in their various manifestations is very great. As far back as 1689 this was already observed by Richard Morton. A large proportion of consumptives complain of vertigo, headache, pains along the spine, irritability of temper, insomnia not necessarily due to cough or nightsweats, and fleeting pains in the chest which at times cannot be attributed to circumscribed pleurisy; frequent attacks of tachycardia irrespective of the temperature and occasionally bradycardia are also observed. Then the languor and persistent weariness not relieved by sleep, but, on the contrary, many state that they feel much more weary and tired in the morning on getting out of bed, and that this tired feeling wears off in the afternoon or evening, all of which is quite suggestive of neurasthenia and psychasthenia. There is little wonder that many cases of tuberculosis are treated for neurasthenia until a careful examination of the chest reveals the true state of affairs. Papillon even goes so far as to say that he suspects every victim of neurasthenia to be a subject of latent tuberculosis. Considering that neurasthenia is at present attributed to toxic causes, it is evident that the toxemia of tuberculosis may reasonably be taken as the cause of these symptoms.

Of greater interest to us in this study is the psychic state, the *état d'âme* of the average consumptive who is by no means insane. I refer to the greatest majority of tuberculosis victims of either sex who with the onset of the disease, and often even before we can discern the physical conditions with the means at our command at present, show a remarkable change in their mental traits and character, a disturbance in their emotional life and a striking divergence from their previous habits, customs, affections, and tastes. These changes in the characteristic frame of mind and disposition of the consumptives has been observed throughout the course of the disease, ameliorating as a rule, with every improvement in his condition and aggravating with each exacerbation. What follows is based upon observations on several thousands of consumptives whom I met more or less intimately in my practice, and also on the literature on this subject, especially the studies of Heinzelmann, Engel, Rénon, Daremberg, Naumann, Mircoli, Mathieu, Letulle, Saxe, and others.

The first important psychic trait of a large proportion of consumptives that struck me as peculiar is their selfishness, especially in regard to social sanity. It is well known what sacrifices the poor make in their efforts to raise their children. We meet daily, in our rounds among our patients, with parents who do not hesitate to spend their last penny procuring some milk for their hungry infants without giving a thought to the fact that they ought to have some nourishment for themselves. We have yet to see a sober parent who would take milk, eggs, bread and butter, etc., for breakfast and allow his children to go to school with an empty stomach. The contrary is almost invariably true of the poor. This instinct of the preservation of the offspring, a trait of higher physical and mental organization is, as far as I have observed, attenuated among a large proportion of consumptives, and often entirely lacking among the consumptive poor. I have seen consumptives drinking a quart of milk and eating a couple of eggs in the morning while their anemic and emaciated children had to be satisfied with a roll; I have seen them eat a pound of beefsteak and other costly food while their children went hungry. I have met with consumptives who were members of fraternal and benevolent societies and entitled to sick benefit for a number of weeks and to a certain sum in case of death, sell their policy for a small sum "in order to save themselves by going for a few months to the mountains," as they stated, and thus leave their families in dire distress after they die. In no other chronic disease which has a profound influence on the psychic state of the patient, such as organic heart disease, cancer, etc., even neurasthenia, hysteria, and the sexual neuroses included, can we see such egotism, such selfishness, lack of generosity and charity and ready yielding to the temptation of gratifying the impulse of the moment at the expense of social rightness. They make strenuous efforts to turn everything in their own favor and do not hesitate to take away the last penny from their relatives and friends to go to the Catskills, Adirondacks, or Rockies even after several physicians have told them that they will not be benefited by the sojourn in the mountains. I recall a recent case of a fairly intelligent and self-respecting young man suffering from moderately advanced tuberculosis with laryngeal complications who was told by several physicians that he is not a suitable case for a high altitude. But he knew better. Having exhausted the pockets of all his relatives and friends he applied to a charity society for a ticket to Arizona which, on the advice of the physician, was promptly refused for obvious reasons. He, however, succeeded in persuading a charitably inclined gentleman that his life might be saved by the trip. About one month after he left New York I was reliably informed that this young man was found in a maniacal state walking in the streets of Phœnix and admitted to an insane asylum, but soon discharged and with the assistance of some other well-meaning people shipped to southern California. But about two months later he again appeared before me in New York begging for a railroad ticket to Arizona. He told me that a charity society in Los Angeles had sent him back to New York, but here he can see no relief, while in Arizona he is convinced that he will be cured. This unfortunate succeeded in inducing the gentleman who originally sent him to Arizona to pay for his trans-

portation again to the same region. About three months later I again met him and he again begged for a ticket to Arizona. He told me that he drifted to Colorado where, found starving, he was sent back to New York by a charitable society. He told me that he was not ashamed to ask his original benefactor for another railroad ticket, but unfortunately he was out of town. The only thing he wanted from me was a letter to a certain clergyman, which I refused. He however succeeded in convincing that clergyman that his life could be saved by a ticket to Arizona, where I believe he is now; if he is alive, I shall not be surprised at his reappearance begging for another ticket to Arizona.

I have known another case of tuberculosis whose mental make-up is worthy of note: A widow whose husband died of tuberculosis, and left her with five children penniless. Several months later she also began to show signs of the disease, but of a mild chronic type. She was assisted by a charity society with rent and living expenses. When she was given an order for shoes she inspected all that were offered to her, but did not like any. She offered the difference in price from her own pocket for a pair of shoes with French heels. Had this been accepted, her six children would have had to go without food for a week, because the money was part of what she received for this purpose from the society. In this case feminine vanity was coupled with lack of consideration for her underfed children. Vanity will often make a woman quite extravagant, but will never rob her of the moral consciousness inherent in the mother.

Many authors have attempted to define the peculiar psychology of the consumptive which in some cases reaches an extreme degree. Jessen believes that it consists essentially in a defective equilibrium in the mental and emotional state of the patient. Stimuli which do not disturb the normal and healthy brain are sufficient to derange the central nervous system which is affected by the toxemia of tuberculosis. Their judgment is weak and defective, as is evident from their well-known optimism, with which they deceive themselves about their real condition. Engel believes that the original, innate temperament of the individual becomes strikingly pronounced in the chronic consumptive: The pessimist suffers from marked despondency; the optimist becomes unreasonably hopeful of the outcome, etc. He explains these phenomena by the discordance between the subjective feelings of the patient who is not as disabled as the objective findings of the physician show. The mental make-up of the patient depends greatly on his physical condition, which in tuberculosis is subject to frequent variations; aggravations and improvements coming and going quite unexpectedly. The mental traits *per se* do not change, but such traits as were characteristic during youth, but as a result of education, training, and the vicissitudes of life, have been suppressed, reappear boldly unhindered by conventionalities. Saxe says the same in different words. He thinks the keynote of the mental changes of the consumptive is the gradual loss of will power, of self-control which, so to say, unmasks the man or woman. To this he adds that the ascendence of selfishness plays the most important part in the moulding of the mental traits of the tuberculous. In some patients these two factors are so pronounced that they completely reveal the concealed elements of their character.

I recall many cases in my own experience which illustrate these views. One, a man with criminal tendencies and who had served two terms in prison, was usually very kind and considerate to his mother and sisters. But since he became tuberculosis his character, as shown by his relations with his blood relatives, has completely changed; he, in fact, lost all power of self-control. He can no more treat his mother with the consideration due her, but on the contrary became her deadliest enemy. I read a letter which he addressed to his brother-in-law in which he accuses his mother of the most heinous crimes, and asks his brother-in-law how he can live with a wife of such an advanced age. In the later stage of the disease he became a confirmed slave to the needle, and living with his sister, he wantonly expectorates indiscriminately so that, "in case consumption is really contagious as the doctors say," all his relatives shall be infected. When threatened with forcible removal to a hospital with the aid of the Health Department, he flashes a revolver and states that he has nothing to lose by killing the whole family. Inwardly, however, he is not despairing of his condition, because he keeps on reading about the disease, consulting physicians, and hopes to recover, when he hopes to get even with his enemies. I know another chronic consumptive of excellent appearance and with a most remarkable power of speech, capable of earning his own living if he only consented to accept some easy employment considering that the lesion in his lung is in a quiescent state and his general condition is relatively good. He believes, however, that the world owes him a living, and writes letters to charitably inclined individuals and societies appealing "for his poor old mother," never for himself. He refuses to enter an institution because "his mother needs his care and affection during her old age." But as a matter of fact, he uses her as a tool to excite pity, and while he eats daily two quarts of milk, several eggs, and a pound of meat, he allows his old mother to exist on a starvation diet. These traits of his character manifested themselves only since he began to suffer with the disease.

The selfishness and ingratitude of some consumptives are best displayed in cases in which a married man or woman is affected. The healthy spouse can never prove that he or she does everything possible to save the patient. Unfounded suspicions that her husband wants to get rid of her, or that his wife is already contemplating marriage with some man, are quite common, much more common than among sufferers of other chronic diseases, such as cancer, heart disease, etc. I have made it a point to emphasize to consumptives the dangers of cohabitation, especially among the poor. Here, in addition to the risk of infection through intimate contact, I know that a pregnant or nursing widow has a harder burden, and that tuberculosis in a pregnant woman is very dangerous. But from experience with thousands of wives of consumptives, I find that very few succeed in keeping out of their sick husband's embraces. Many beg that their husbands be taken away to some institution as the only means of keeping them away from them. I have known many cases of consumptives who impregnated their wives a few weeks and even within a few days before they died, in spite of all warnings on the part of the physician and all the resistance on the part of the helpless wife. I know

of cases in sanatoria who were permitted to go to the city for twenty-four hours to visit their families, and who cohabited with their wives, or even impregnated them, during that day, or the case of a woman who became pregnant during such a visit and returned to the sanatorium in that condition. I do not believe that this is always due to heightened sexual desire which some authors attribute to consumptives. I am under the impression that men are more liable to this kind of crime, for such it is, while women are only rarely guilty of it. The consumptive husband wants to make sure that his wife, who in his estimation has not done enough for him, should have a heavier burden to carry after his death.

Dealing with large numbers of consumptives in their own home, and not in institutions where they are restrained, I was struck with their selfishness, egotism, and lack of consideration for those dependent on them, which at times exceeds all bounds. The strange visitor can not see beneath the surface, and the patients usually appeal to charity visitors or dispensary nurses for their wives, children, or parents, as was already mentioned. All this is done with the usual cunning of the beggar, the mendicant, whose traits many poor consumptives who were formerly self-respecting soon acquire. It is evident that among the well-to-do and the rich the egotism can not assume the same forms as among the poor, but is by no means lacking. I know a cultured, well-to-do consumptive whose snobbishness and tactlessness brings him often in trouble. But whenever he is compelled to apologize for some indiscretion he does not fail to mention that he has "only one lung." And he is right, I believe; his excuse is based on a sound foundation. Another manifestation of the selfishness of the consumptive is seen in those cases whose egotism and loss of power of self-restraint exceeds all bounds, and as a result they can not accommodate themselves to institutional discipline. They often leave the sanatorium against the advice of the attending physician; their favorite excuse is that their families are starving and they feel well enough to go back to work. But when they return to the city they usually do not make any serious effort to secure employment even in case they are quite capable to make themselves useful.

The optimism of the consumptive, which has so much been exploited by writers of fiction, is evident from the onset of the disease. As soon as the patient is told that he has a "touch" of the disease, his despair does not last very long, especially now, since so much has been written for the laity about the curability of tuberculosis when taken hold of in time, and that advanced cases are not always hopeless. It is only a profuse hemorrhage that will terrify the average patient. The incipient victim of tuberculosis usually makes an excellent appearance. He is lively, confident, and full of hopes of a speedy recovery. Probably as a result of the general toxemia, he is overwhelmed with the disease and constantly speaks of his condition, gets everybody interested in his health and well-being. He keeps on visiting physicians, and while some tell him that he suffers from incipient tuberculosis, others tell him that he has only a "cold," a "catarrh," etc., and his illusory hopes are heightened. He is convinced that his family physician has only scared him in order to make him lead a regular life. In New York many of this sort of patients now go from one of the tuberculosis clinics to another, giving everywhere another name because, as one told me, they placed him on the black list and they will everywhere tell him that he is a consumptive if they know who he is. A large number do not want to be known as consumptives, at times because they can not find lodging, but more often to avoid the stigma which has of late been placed on them by the antituberculosis crusade. With the progress of the disease their optimism assumes often another form. His vivid illusions of a quick cure are beginning to vanish; he fears that the disease is likely to kill him, and death appears to him horrible. As was already shown, his innate characteristic traits reveal themselves now in an accentuated form; especially those that were bad. He becomes a sore-head, a grouch, a grumbler. He is easily provoked, irritable, and quick changes of temper from hilarity to depression manifest themselves. Some become actual recluses, avoiding those who offer consolation and sympathy, hate many who were formerly dear to them, and become altogether despondent. It is noteworthy, however, that such cases are comparatively uncommon. The fact that very few consumptives commit suicide shows how rare actual despondency is to be met with. The vast majority of consumptives, even those who appear discouraged, are always hopeful in their heart of hearts. They are constantly on the alert for some new remedy, and are the victims of quacks more than other chronic sufferers. One patient of mine who always begged for poison to make an end to his sufferings reported to my office immediately on my return from the last International Congress on Tuberculosis with the special object to find out whether some new remedy has been reported, and offered himself as a willing subject for experiment. When told that no new remedy has been reported, he again despaired and said that after all science is a sham, a fraud, if it can not overcome such a small organism as the tubercle bacillus.

Their hopefulness, in spite of apparent despondency, is shown by their explanations of the changes in their condition. If their cough is aggravated, it is because they have caught cold the other day when leaving the house while perspiring, or due to change in the weather; if they have fever it is because they have eaten too much or have consumed a bad egg; if the pain in their chest is aggravated, usually due to pleurisy, they ascribe it to a draught while opening the window at night; if their appetite fails it is due to lack of exercise, of fresh air, etc.; their emaciation is of no importance, it is only due to the poor appetite, and if the physician would only give them a good tonic, they would soon gain in weight; their weakness and debility is due to nervous exhaustion, the result of the irritation on the parts of their relatives and friends, who never treat them right. They never want to realize their true condition; even those who are apparently despairing, telling everybody that they expect relief in death which is quick in coming, become very much alive when told of some new remedy which the newspapers announced; or of some quack who guarantees a cure..

The euthanasia of consumptives, which writers of fiction have exploited so much and even medical writers have often described, is not observed in all cases. Those who are overwhelmed with the toxemia of the disease, who are extremely emaci-

ated so that the dose of the toxin is large considering the smallness of the wasted tissues, are calm, peaceful, and often feel better apparently for a few days before death. The explanation is simple: The reflexes in these cases are practically abolished, the cough which troubled them formerly ceases now, all the aches and pains which made their life miserable have vanished, and they at times delude themselves that these are signs of improvement. In many of these cases the mind remains clear, and they dream of happier days, make plans for the future, and often wonder why their friends appear more alarmed than before. I have known one who wanted to marry a few hours before he expired. But not all consumptives have such a peaceful termination. Some realize their condition, and their end is frightful, because fear and terror is the dominant note. Their face expresses an atrocious terror, characteristic of consumptives who have despaired. They keep on inquiring when the end will come, how soon they will be relieved from their terrible physical and mental sufferings. These cases are rare. Most of the consumptives do not realize their true condition, and never know the approach of death. A few minutes before death he may ask his betrothed to prepare for the wedding, as I have seen in one case; he may plan a long voyage to regain his vanished strength. They often begin to indulge in some hobby which they hope to follow as soon as they can leave their bed; "as soon as that annoying cough stops," or "if those miserable night-sweats would not exhaust me so much I could do almost anything," etc. They thus deceive themselves until they sweetly and peacefully expire full of hope and aspirations.

Several authors, notably Bernheim, Baccelli, Saxe, Jessen and Mircoli, have spoken of the responsibility of the consumptive from the medicolegal standpoint. It is evident that the psychic state of the average tuberculous patient shows marked divergences from what we are wont to consider normal. The oscillating emotional manifestations, the alternating moods changing quickly from supreme exaltation to extreme depression, and his unwillingness or inability to realize his true condition even during the most ominous periods of his disease, show that his mind is not in equilibrium with his withering body. Some have drawn an excellent analogy between the consumptive who is in a state of intoxication by the toxines of the tubercle bacillus and the alcoholic. Indeed, the external appearance of the consumptive walking around with a subfebrile temperature are somewhat similar to those presented by one who is under the influence of alcoholic intoxication. The bright eyes, the dilated pupils, which contract at times, the rosy cheeks, remind one of the alcoholic, as Mircoli has pointed out. Mentally, also, there are great similarities: the flickering intelligence, which brightens up suddenly for a few hours to be soon followed by a depression of mentality; the impulsive actions, the perverse stubbornness, the egotisms which occasionally leads to criminal actions, combined with the quick transitions from optimism to pessimism, are seen among both alcoholics and chronic consumptives. That these are the effects of toxemia is evident when we consider the typical reaction of an injection of tuberculin and certain experiments with the toxins of the tubercle bacillus or some of the excretions of tuberculous patients, notably perspiration, which produce similar states of intoxication.

Bearing all this in mind, several authors have pleaded that the consumptive's responsibility should be limited by the law considering that their queer and unaccountable actions are performed under the influence of the tuberculosis toxine, for which they cannot be held responsible, and that they should not be harshly dealt with in courts of law. Mircoli is plain and ouspoken in his plea for the limited responsibility of the consumptive. Saxe says that the psychasthenia, the loss of self-control, and the rise of brute selfishness in some cases conspire to distort the clearness of the ethical perception, and cites several cases substantiating the irresponsibility of the consumptive criminal. I have met with several cases which confirm this view. In my experience this is especially true of those who realize the hopelessness of their condition, and, instead of resignedly waiting for the inevitable, or at most pleading for the relief of pain and discomfort during their last days, as is to be seen among patients who suffer from cancer, nephritis, heart disease, etc., they begin to manifest an intense dislike and even hatred toward those who appear bright and healthy. Such patients are apt wilfully and criminally to disregard all the injunctions against indiscriminate expectoration; even the fear of reinfection which keeps back many others from spitting, does not deter those who have despaired. They often watch whether any of their relatives or friends show any suspicious signs of tuberculosis, and I have seen some who regretted why nobody in their family has not been affected. One of my patients has regretted that his fiancée, who had spent all her savings and her health while attending to him during his protracted illness, remained in this bright world after his departure. Their jealousy knows no bounds. In sanatoria the patients who improve quickly are not only envied, but often persecuted by some who show no marked improvement in their condition. Especially is this true of the female patients, who actually begrudge every pound of weight put on by those who do well under the institutional régime.

Alienists agree that the responsibilty is to be limited in those who are so far deluded as to become incapable of estimating facts in their true relations; in other words, who lack a sense of proportion.

A consumptive who becomes obsessed by the idea that his relatives and friends are not doing their best for him; who pesters all his friends and unreasonably demands material assistance which they are not in a position to supply; who sits down at the table in the morning and swallows several eggs, a quart of milk and bread and butter, while his anemic and underfed children have to go hungry; who expectorates indiscriminately at times, with the avowed purpose of infecting others; who cohabits with his wife, and thus deliberately exposes her to the dangers of infection and pregnancy, etc., can by no means show any mitigating or minimizing circumstances in the usual course of events. But when, on inquiry, we find that before he became tuberculous he was as good and as considerate a man as can be expected; that he loved his fellow man and never perpetrated any antisocial act, we must acknowledge that the present change in his temperament, habits, likes and dislikes are not of his own choice or volition, but is the result of the intoxicating influence of the tuberculosis toxine. It is this toxemia that robs him of the sense of proportion, and in his instinctive desire to live he cuts loose from all ethical and conventional precepts. Of

course the advantages he may, in this manner, gain for himself are quite insignificant in comparison with the injuries he is apt to inflict on others. But such a disproportionate view of life can not be seen in a normal man or woman, and these actions are *prima facie* evidence that a consumptive who acts in this manner is incapable of estimating life in its true ethical relations. In our efforts to prevent the spread of the disease, and, incidentally, to prevent some of the anti-social acts of some consumptives, we are justified and often even called upon to restrain some patients whose actions endanger the life or happiness of their fellow man. We must forcibly remove all those who wantonly disregard all the injunctions against spitting, or are in any other manner making a nuisance of themselves, just as we remove other mentally perverse individuals in order to prevent them from harming others as well as themselves.

Major forms of crime are at times committed by victims of the advanced stages of consumption, as has already been stated. Ciofi, Chartier, Skulteki, Saxe, Mizcoli, Bernheim and others cite illustrative cases. Juries, as a rule, exercise great clemency in cases in which the defendant presents the stigmata of advanced tuberculosis; whether they know that he is a victim of psychic and somatic degeneration, or that he has acted under the influence of tuberculous toxemia, is immaterial. The fact is that it is quite difficult to obtain a conviction in such cases. But for medical men there is a wider field for prophylaxis. Advanced consumptives, who show criminal and anti-social tendencies, should be segregated in hospitals in the same manner as other persons with anti-social tendencies are segregated. This is at present not done to any reasonable extent. Most of the institutions for the care of consumptives admit only incipient cases, or aim in this direction, while the advanced cases, the ones that are most dangerous from all standpoints, are left to shift for themselves. Considering the perverse psychic state of some of these patients, and their anti-social proclivities, it becomes more and more evident that they ought to be segregated.

The peculiar mental traits of the consumptive have a great influence on the course, prognosis and especially on the treatment of his disease. In tuberculosis, just as much as in other diseases, it is the patient and not the disease that is to be taken care of. In the absence of a specific cure at the present state of therapeutics, we must rely on palliatives when we have a case of tuberculosis under treatment, and it appears from the literature on the subject that psychotherapy is of immense importance in our dealing with this class of cases. This has been recognized by all those who have devoted their lives to phthisiotherapy. Dettweiler long ago spoke of the importance of psychic treatment, and insisted that the complete and absolute confidence of the patient is the foundation of phthisiotherapy. Brehmer was of the same opinion, and he pointed out that the patient can learn to control excessive cough. We can see how true this is while visiting sanatoria, where the majority of patients hardly ever cough. Cornet is emphatic in his statement that no success can be expected by merely giving detailed directions concerning diet, rest, and drugs unless a bond of sympathy is established between the physician and his patient. Most others, like Rénon, Miner, Sokolowski, etc., who wrote on the treatment of tuberculosis express themselves to the same effect. It is a noteworthy fact that sanatorium treatment depends mostly on psychic treatment for success in the vast majority of cases, and it is questionable whether institutions which admit patients of different nationalities, with different habits, customs, and tastes, can register as many ultimate cures as those that admit a uniform class of patients. It is also well known that the success of the average sanatorium depends greatly on the personality of the superintendent and the physician in charge. I meet with numerous patients discharged from sanatoria, and have been struck with the differences in the results they attained. I know of two sanatoria which admit the same class of patients, keep them about the same length of time, and treat them in practically the same manner. But the differences in the results are striking: From one sanatorium practically all the patients come out after remaining at least six months, usually longer, in the institution, while from the other a large proportion leave within two and even one month after admission. The reason is that in the last-mentioned institution numerous patients are expelled for disobedience of rules and regulations, while in the former this occurs very rarely. Moreover, in the latter institution, the patients are living in constant fear lest the superintendent will order them to submit to what appears to them most dangerous injections of tuberculin. They in some manner have a tradition in that sanatorium that tuberculin aggravates the disease, and, when their information is confirmed by actual fact; when one submits to tuberculin treatment and gets fever, malaise, pains in the muscles and bones, etc., they pass it around among their fellow sufferers. I know of many patients who refused to submit to this mode of diagnosis and treatment, exposing themselves to expulsion, the invariable punishment for this disobedience, and the concomitant starvation in a New York tenement house, because they are practically all poor artisans. The bulk of these patients are of a low economic and social class, and their intelligence is correspondingly low. But they tell me that their personal observation has convinced them that every patient who has been treated with 'injections" suffered severely. The result is that when one does submit, his mental fear, terror, and anxiety only aggravate the symptoms of the reaction, and it serves as an object lesson to his fellow sufferers.

The psychic effects of the tuberculin treatment has been recognized by many experienced phthisiotherapeutists, notably Rénon and Mathieu. The failure of this mode of treatment in the patients just mentioned is not unique. In others the effect is quite the opposite. Experiments made by Albert Mathieu show distinctly the influence of the psychic state of the patient on the success or failure of tuberculin. He announced to his patients that a great discovery had been made in the shape of a new serum which positively cure tuberculosis, and he gave it the important name "Antiphymose." He selected his patients carefully, examined them minutely, and noted daily the results attained by this wonderful remedy, which actually consisted in the injection of a few centimeters of physiological salt solution. The patients were greatly impressed with the new remedy, and the favorable results exceeded all expectations. After a few days' treatment he noted an improvement in the appetite, a diminution in the temperature, cough, expectoration, and night-sweats, and even an improvement in the physical signs. The patients began to gain in weight, ranging from 1500

grams to 2 and 3 kilograms. As soon as the injections were discontinued, all the old symptoms reappeared.

Such is the influence of the psychic state of the patients, as well as the personality of the physician on the symptomatology, course, and treatment of tuberculosis. In sanatoria in which the resident physician has not succeeded in gaining the absolute confidence and sympathy of the patients, both fare very badly. Tuberculin injections for either diagnosis or treatment is apt to have disastrous results. On the other hand, when patients who know about the modern methods in medicine from reading popular articles are told by their physician in detail about the wonders expected from a new serum, "Antiphymose," the suggestion is apt to work wonders. That this is not an isolated incident is known in medical literature. Engel observed that the temperature of a patient sank after an injection of Hetol, but he also obtained the same result by an injection of distilled water. Many tuberculous patients fall asleep after an injection of water; others have their cough and their pains relieved in a similar manner.

It is this psychic factor that quacks gamble on when they "undertake to cure consumption when all other physicians have failed." I have seen many patients treated in sanatoria whence they were discharged as unimproved or even worse, submit to treatment by some advertising quack, and they improved wonderfully. I know many immigrants who contracted tuberculosis while laboring in the New York sweatshops and could obtain no relief in sanatorium or home treatment. As is often the case with immigrants, they began to long for their native home, where they felt confident they could be cured. Some of these have gone so far downward in their health that the steamship surgeon hesitated to admit them on board, fearing they could not stand the hardships of a long sea voyage. Yet I have often heard from their relatives that they began to improve as soon as they reached home and of many that have been cured in this manner. Some cases which I considered hopeless before they left for Europe, returned to New York after a sojourn of several months, a year or two, in excellent condition of health. That it was not the climate, nor the superior diet which contributed to the cure I am convinced from my knowledge of the sanitary and hygienic conditions, as well as the poverty in eastern Europe, whence the class of patients spoken of hail from.

It is also as a result of this psychic factor that the therapeutic measures recommended for the therapeutic treatment of tuberculosis, as long as they are harmless, always give the same proportion of satisfactory results. Rénon considers this an axiom, and says that he should like to write it down with large letters in all the new works of pthisiotherapy. It is an axiom which may be briefly and comprehensively stated in these words: "Hasten and take the new mode of treatment as long as it cures; delay may be dangerous; you may be too late." Indeed, comparing the results obtained by the various methods of treatment of tuberculosis, we find that they are always about the same. There is always a certain percentage "cured," "disease arrested," "improved," "unimproved," and, last, and in this case practically always least, "dead." A study of the literature of tuberculosis confirms this emphatically. All sanatoria, whether located on high or low altitudes, at the seashore or inland, in cold, warm, or moderate climates, irrespective of the special method of treatment, outdoors, indoors, or in tents; no matter what fad the attending physician believes to be of greatest importance, be it dietetic, medicinal, or specific, they all give the same results, if we may judge them by the percentages reported as cured, arrested, improved, etc., in their annual reports. Similarly, the several dozen kinds of tuberculin, each of which, in the hands of its discoverer, gives excellent results. Nor are drugs an exception, judging from the papers which appeared in the medical press during the first few years of their appearance, when they were urged by excellent observers as potent remedies for the disease. This can be seen from reports on creosote and arsenic and their derivatives, ichthyol, cinnamic acid, iodin and, the latest, the succinimide of mercury. They all cured a certain percentage, arrested the disease in a larger percentage, and failed in very few cases. All had a fair proportion of cures to their credit, which Rénon calls the "normal coefficient of amelioration," no matter what method of treatment was used. He explains this curious phenomenon by the psychotherapeutic factor which is the resultant of the faith which the enthusiastic physician has in his remedy and is able to imbue his patients with the same faith. In other words, it is mainly suggestion and autosuggestion which is efficacious. Rénon states justly that before accepting a method of treatment of tuberculosis as effective, we must first determine whether this "normal coefficient of amelioration" is exceeded; it must successfully survive the test of time; and it must also be tested in the same patient by different physicians or by the same physician—for a long time. Then, and only then, can a remedy be accepted as valuable in the treatment of tuberculosis.

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1337 Madison Avenue.

THERAPEUTIC DRAINAGE IN ONE HUNDRED AND EIGHTY-FIVE CASES OF UTERINE OBSTRUCTION.

PRESENTING A NEW FENESTRATED RUBBER UTERINE DRAIN.*

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Every normal woman is provided with a uterus and adnexa, instinct with a trinity of purpose, secretion, reception, and expulsion. The unalloyed enjoyment and fulfillment of these functional activities depend primarily on the free and unobstructed egress of the secretions and ingress of the human seedling wending its joyous way to the ovular rendezvous. Unfortunately for many women, obstructions bar the way, and the excretions are dammed back; bacterial growth, resorption of toxins, septicemia, and disturbance of the whole economy takes place, and life itself may be threatened or even sacrificed.

Obstruction to menstruation was the most frequent and principal symptom, in this series of 185 cases, and associated with the following conditions:

	Anteflexion Cervix.	Retroflexion Body.	Fixation.	Retroversion.	Totals.
Dysmenorrhea—Before.	13	1	5	7	26 times
During.	23	3	9	16	51 times
After..	2	0	6	7	15 times
Menorrhagia	12	0	6	7	25 times
Metrorrhagia	3	0	2	5	10 times
Totals	53	4	28	42	127 times

Intermenstrual Obstruction.—While we all agree as to the importance and desirability of facilitating women in their laudable desire to become mothers, and are ready to execute measures for the regulation of menstrual irregularities and excesses, but too few seem to realize the great detriment to girls and women of the tortures of dysmenorrhea and the dangers of intermenstrual obstruction.

Physically what can be more distressing to the young girl whose first menstruation is announced by severe abdominal cramps with loss of blood, especially when she is taught to look forward to its regular recurrence, as to a horrible nightmare, a part of the "curse" which each woman must bear, and from which she can obtain relief only by violation at the hands of the surgeon. Psychologically she is oftimes undone, her mind being unduly centered on her sexual apparatus, curiosity leads to palpation, tittilation, masturbation, and may end in ruination.

For the obstructed uterus there is no rest, during the whole twenty-four hours of the three weeks, more or less, of the intermenstrual period. After menstruation ceases the uterus remains congested, an excess of mucus is secreted, accumulates in the uterus and must be expelled by frequently repeated contractions, bringing about muscular hypertrophy, thickening of the walls, and a dilated cavity. The heavy organ dragging on its ligamentous attachments excites numerous aches and pains.

It is our firm conviction, based upon careful study of several thousand women, that intermenstrual uterine obstruction is far more productive of chronic pelvic disease than the more readily recognized discomfort, distress, or actual suffering during menstruation, and is the real reason for this effort to interest you in the special plan of treatment which has been carried out in this series of 185 cases.

Obstruction and Reproduction.—Obstruction causing sterility occurred in 57 cases, primarily in 19, and secondarily in 13 who had been pregnant and borne children, miscarried, or both; with 24 in whom fecundity had not been recorded.

From a mechanical standpoint sterility was associated with version 26 times; fixation, 28 times; anteflexion of the cervix, 29 times, and retroflexion of the body, 3 times. Of other conditions prohibiting conception, there were two cases of septate hymen, two of hyperesthesia of the hymen, necessitating removal, and one of excessive coitus. In two husbands no spermatozoa could be found.

While we know that the treatment of twenty-eight sterile women has given forty-six children and two miscarriages, the sequelæ in this class of cases may not always accord with what had been hoped for, as in the case of Mrs. McG., a patient of Dr. T. T. Gaunt, who in March, 1899, was curetted, a drain inserted, and the uterus supported with a pessary. Three months later (July) a large hematoma was removed by celiotomy and found to have been caused by rupture of a left-sided tubal pregnancy. January 15, 1900, the celiotomy was repeated for the removal of a large, multilocular ovarian cyst on the right side; all within ten months. The patient has been well ever since, but deplores the loss of procreative power.

Obstruction and Retention, with well-marked evidences of infection after premature expulsion of the fetus, occurred in 34 cases (5 abortions, 12 miscarriages, 1 premature labor, 5 puerperal sepsis, 11 retained secundines), which were all drained, effectually demonstrating the notable efficiency of the drain in overcoming retention, absorption, and toxemia, as shown by the rapid subsidence of all symptoms within thirty-six hours of its introduction, with or without curettage, and the early rise of temperature, pulse, and respiration if the drain was prematurely withdrawn.

Obstruction vs. Pain and Headache.—Pain, to the patient at least, is the one thing to be relieved, and demands of us that it be traced to its source. Referred pain and headache were complained of and associated with the subjoined conditions:

Pain—Associated with Referred to the—	Anteflexion.	Retroflexion.	Fixation.	Retroversion.	Total.
Abdomen	3	1	0	1	5
Iliac region	10	0	6	8	24
Sacrum	12	2	11	19	44
Hips	2	1	0	4	7
Thighs	4	2	3	0	9
Knees	3	1	1	0	5
Legs	0	0	1	0	1
Totals	34	7	22	32	95

*Read before the American Therapeutic Society at its tenth annual meeting in New Haven, Conn., May 8, 1909.

Pain—Associated with Headaches—	Ante-flexion.	Retro-flexion.	Fix-ation.	Retro-version.	Total.
Vertex	3	0	2	1	
Frontal	1	0	0	2	3
Supraorbital	0	0	1	0	1
Temporal	1	0	0	1	2
Occipital	1	0	1	2	4
Totals	6	0	4	6	16

Sacral pain, the most frequent, the most prominent symptom (44 of 95), and the most constant seat of the suffering, was due to inflammatory changes in the uterosacral ligaments, adhesions in the pelvis following localized peritonitis, and the increased size and weight of the heavy, congested, hypertrophied uterus dragging thereon. On the other hand, it was always necessary to exclude the urethra and bladder, the anus, and rectum as the possible seats of the disorder.

Iliac pain in twenty-four instances was associated with similar conditions and led to drainage of the uterus, with appropriate surgery on the tubes and ovaries. The relief of persistent headache, as a reflex indication of flexion, version, or fixation, presents the most gratifying results following drainage and restoration of the uterus to its normal position.

Version and Obstruction.—From a mechanical standpoint the uterus may be likened to a bottle, lying in a nearly horizontal plane, upon the pelvic diaphragm. Under normal conditions, varying with the quantity of urine in the bladder, the uterus rotates backwards within a radius of 90°, its anterior surface being always in contact and resting against the bladder wall. Whenever, congenitally, through trauma or as the result of the dorsal posture during the puerperium, etc., the uterus turns backward and fails to rotate forward, it more nearly resembles a bottle with its mouth uppermost. Under these conditions, during menstruation it must first fill, then overflow, and the clots be expelled by uterine contractions—dysmenorrhea. This state of affairs was present in forty-two cases, and not infrequently in connection with anteflexion of the cervix, of which there were fifty-three instances. After the uterus had been rotated forward, untwisting the broad ligaments and restoring normal drainage, painless menstruation was established, the congestion diminished, the hypertrophied organ involuted, the bearing down ceased, the headache disappeared, and the patient was cured, symptomatically, so long as the uterus was supported by a suitable pessary inserted with the broad end resting behind the symphysis, and the drainage was free. (*Philadelphia Medical Journal*, May 2, 1903.)

Obstruction and Fixation were associated in twenty-eight cases as the result of pelvic peritonitis' pus tubes, or thickening of the uteroscral ligaments. Whenever possible, the uterosacral ligaments were gradually stretched after the plan of Thure Brandt, or forcibly elongated under anesthesia, adhesions broken up, and the freed uterus maintained by a pessary. When this plan was impractical, when pus tubes were present, or adhesions could not be separated by these means, as in twenty-two cases, celiotomy was done, and if necessary the uterus was suspended after the plan of G. J. Jarman, by suturing a loop of the redundant round ligaments directly to the abdominal wall, and of the sixteen cases but one failed, a syphilitic, in whom catgut instead of silk or cotton sutures were employed.

Obstruction furnished its quota of mortality, three deaths in 185 cases now under consideration:

Case I.—Postpartum sepsis and pneumonia. Mrs. S., patient of Dr. Davin. When seen, the eighth day after miscarriage, the soft, flabby, immobile uterus nearly filled the pelvis. Skin jaundiced. Both lungs congested posteriorly. Considerable débris scraped from the uterus, which under potassium permanganate irrigation contracted. Gauze packing introduced. No anesthesia. Hypostatic (?) pneumonia increased and death occurred on the eleventh day after miscarriage.

Case II.—Postpartum septicemia. Mrs. McG., outpatient of the Mothers' and Babies' Hospital. Curettage the eighth day after labor, without anesthesia, brought away placental shreds, from the five-and-a-half-inch, flabby uterus, which did not contract. She died in profound sepsis one week later, the fifteenth day postpartum. (*Medical Journal*, New York, August 11, 1906.)

Case III.—Pneumococcemia. E. S., a physician's daughter, virgin, had been troubled with an irritating vaginal discharge for some months, also dysmenorrhea and fissure in ano. Under ether, dilatation of the hymen disclosed a follicular vaginitis. Cervix dilated and gold drain introduced; ichthyol gauze pack in the vagina. On the fifth day, when dressed and ready to go home, she had a severe chill, temperature 103° F. Five days later blood drawn from the median basilic vein, and smears from the vagina and cervical canal, taken by Prof. Ellsworth Elliott Smith, showed pure cultures of pneumococci.

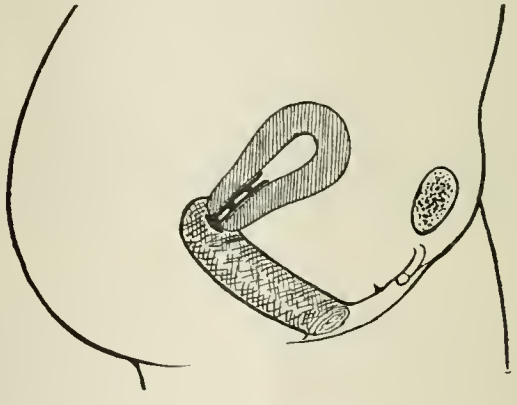

Fig. 1.—Fenestrated rubber uterine drain in the cervix; a roll gauze wick in the vagina.

Locally, there was only a small area of slough around the external os. Without developing any other demonstrable lesion elsewhere, she died on the nineteenth day after the initial chill.

Summary of treatment for the permanent relief of uterine obstruction:

(a) In case of obstruction, with or without flexion, evidenced by pain when passing a sound through the internal os, by a typical menstruation, by sterility, or by intractable headache, the cervix must be dilated to 38F., the cavity curetted and irrigated, and a bivalve or fenestrated drain sutured into the cervix, there to remain for from four to six months.

(b) When obstruction is associated with sepsis following abortion, miscarriage, or labor, in addition to the three-inch drain which has been inserted, a roll gauze wick (Fig. 1) must be introduced into the vagina and made long enough to protrude between the labia so as to come in contact with the vulvar pad, thus establishing continuous drainage from the interior of the uterus to the outside pad, a very important factor in the prevention of vaginal absorption and toxemia.

(c) When obstruction is combined with version

the fundus must be rotated forward and supported by an Albert Smith pessary, inserted broad end down and resting under the symphysis.

(d) Shortened, tender uterosacral ligaments and adhesions may be gradually stretched after the plan of T. Brandt, or forcibly loosened under anesthesia; these means failing, resort must be had to vaginal or abdominal celiotomy to free the uterus, and if need be resection of the adnexa, and suspension of the uterus by the round ligaments.

(e) In married nullipara, or those who have been sterile for years and are approaching the time of their probable menopause, carrying a heavy, displaced, adherent uterus, hysterectomy offers the one plan for permanent relief and cure.

(f) Trachelorraphy has been practised in a few instances of deep laceration into the fornices, and where the cervix was greatly hypertrophied and cystic, but amputation has been abandoned, as it shortens and removes a part absolutely essential to the support of the uterus in its normal position. Perineorrhaphy should be done whenever the perineum resembles the web between the thumb and forefinger, viz., two layers of skin without any muscular structure between.

Fig. 2.—The bivalve uterine drain.

The bivalve drain first described in the Medical Record, November 22, 1902, is made of the two halves of a split tube, united to a cuplike base, separated one-eighth of an inch on the sides, to permit the cervical mucus to flow into the drain, mingle with the uterine excretions, prevent clotting and plugging of the drain and providing an unobstructed outlet to blood, lochia, and mucus every minute of every hour of every day of every month while it is worn, and finally restoring the cervix to its normal shape and caliber. This incessant drainage promotes involution and atrophy of the hypertrophied uterus, stops dysmenorrhea, regulates menstruation, and if established early in septic cases, will bring about rapid subsidence of all the symptoms of infection. (*New York Medical Journal*, August 11, 1906.)

The fenestrated rubber uterine drain (Fig. 2., Tiemann & Co.) has these advantages: It is not corroded by the acid vaginal secretion, as is the silver or gold-plated drain, is more easily introduced, and stays in place better; but it cannot be boiled without losing its cervical curve, really a matter of minor importance.

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FATAL FACTORS IN PNEUMONIA.*

By G. WERLEY, B.S., M.D.,

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Lobar pneumonia will always be the final cause of death in many cases. It is the last disease of old age in the majority of instances. As a complication of the acute infectious diseases it is often particularly fatal. So, too, when pneumonia attacks individuals crippled by chronic disease of the heart, liver, or kidneys; or by diabetes, great obesity, or chronic alcoholism, the victim often goes down like a rotten tree before the wind. Anthrax, plague, and streptococcus pneumonias are much more fatal than simple pneumococcus pneumonia. Pneumonia complicated by meningitis is always fatal. If we class as lobar pneumonia every case in which it is the final cause of death, it will be attended by a mortality of 5 per cent. or more that is inevitable.

But why is the mortality so variable when the disease is uncomplicated? Why do different practitioners in the same localities have such varying mortalities? Why do some hospitals have a death rate of from 30 to 40 per cent., while others have 10 to 20 per cent? True, the virulence of the disease varies, but it can hardly be that some are always so unfortunate as to receive only the unpromising cases.

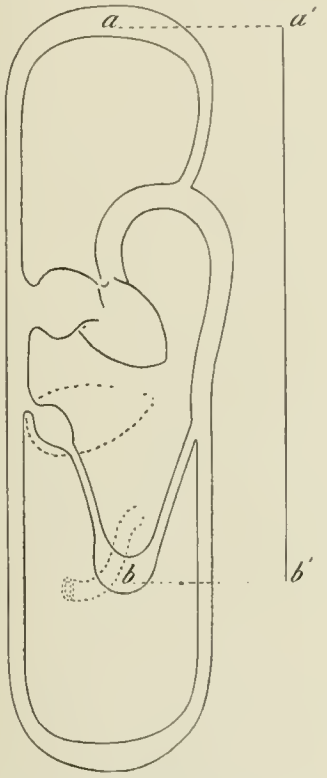

Diagram of circulatory system to illustrate the effect of position upon the vessels in the portal circulation. By constructing an apparatus with elastic bags at "a" and "b" and a Davidson's syringe in place of the heart it will be found that when the apparatus is placed horizontal on a table and the pump worked the two bags will dilate equally. But when the apparatus is placed vertically, and the pump worked with the same force as before, the bag at "a" contracts, while that at "b" dilates very much, owing to the fact that a column of fluid, extending from "b" to "a," now exerts hydrostatic pressure upon "b," in addition to that caused by the force of the pump.

I believe that much of the mortality is due to failure to realize the importance of a few underlying principles. The problem is a good deal like that presented by appendicitis. Recovery is a matter of placing the patient under the most favorable conditions to cure himself; with this difference that in pneumonia the natural means of defense generally effect a complete cure without the necessity of a subsequent operation to finish the work. In other words, the body by its phagocytes, its opsonins, and other means of defense will generally overcome the enemy if only given a good fighting chance and a little active assistance when plainly indicated. The great needs of the body in pneumonia are exactly the same as in health, viz., air, water, food, and proper rest, only the need for some of these is greater.

*Read before the El Paso County Medical Society, January, 1910.

F. Baumann[1] has well stated an important principle. He says, "it seems that the human system has in any given state of health only a certain well-limited amount of energy with which to perform its functions, consisting of building up, defending, repairing, reproduction, etc., and that by relieving the body of some of its work more energy will be at the disposal of defense and repair." It takes energy to overcome disease. The direct source of all the body's energy is oxidation. Withdraw the supply and death results in a few minutes. Insufficient oxygen means impairment of the whole mechanism of defense. I have calculated that a gas heater or oil stove of average size will consume as much oxygen as 10 or 15 people. Place one of these in the room, then add a few visitors and keep the doors and windows closed and your patient might about as well be in the Black Hole of Calcutta. The pneumonia patient needs and is entitled to the best air there is, and that is cool outside air, uncontaminated in any way. Northrup has proved that fresh air reduces the mortality in pneumonia. As long ago as the Civil War it was noted that pneumonia treated out of doors under apparently the most unfavorable conditions was less fatal than in the comfortable wards of hospitals. Giving half enough good air may be set down as the first great fatal factor in pneumonia.

It is altogether probable that the toxic substances generated by the pneumonia infection, like most other poisons and waste matter in the blood, are largely carried off by the urine. However that may be, these poisonous substances must be gotten rid of, and what are not destroyed or neutralized in the body should, if possible, be eliminated by the excretory organs. Other toxic conditions, like uremia, are treated very successfully in this way. The good results secured by Delancey Rochester[2] in pneumonia by his method of elimination through the skin, kidneys and bowels are practical proof that the mortality can be reduced by stimulating the excretory organs. Personally, my preference is to depend upon the kidneys almost entirely to carry off the poison. Simon Baruch[3] has proved that in the infectious diseases, the administration of four to six ounces of cold water every two hours increases the urinary secretions enormously. Practically we know that abundant urine is of good prognostic omen; scanty urine makes the outlook bad. Failure to give sufficient water may be set down as a not infrequent fatal factor in pneumonia.

Overfeeding and wrong feeding help to make pneumonia more fatal. Why? Because it takes energy to digest and assimilate food and excrete waste matter. Too much food adds an unnecessary burden, and food that is hard to digest wastes energy that is needed for defense and repair. For instance, meat soups do more harm than good, because they tax the kidneys enormously and yield almost no energy. Sugar in reasonable amounts is a valuable food in pneumonia, because it yields a great deal of energy and leaves nothing but water and carbon dioxide to be eliminated. Eggs and milk are very appropriate, but the stomach should not be overloaded even with these. The problem is rather the wise expenditure of the energy the patient already has on hand rather than to attempt to create new energy by forced feeding. In the average well-nourished individual there is a considerable supply of food already prepared in the body in the shape of fat, glycogen, and the tissue proteids, and these may be safely drawn upon for a few days. Air and water are absolute necessities for a man to win the fight, but a stomach too full may cause defeat.

Fright and worry are capable of killing a well person. Undoubtedly they are quite as important as pleurisy or pericarditis as fatal factors in pneumonia. Lack of sleep, especially if accompanied by restlessness, may result in exhaustion and death. If lack of sleep is caused by pain, morphine may save life. Fever is not generally a fatal factor in pneumonia. Only when fever reaches 105° or 106° is it doing harm, as a rule.

After thoroughly investigating the treatment of pneumonia in four of the largest eastern hospitals, the late Dr. H. P. Loomis[4] said, "I believe that if fewer drugs were given in pneumonia, a very much larger number of uncomplicated cases would recover with no medical treatment beyond an occasional laxative." He found the mortality in these hospitals to vary from 34.8 to 40 per cent. Dr. Deeks reports that on the Isthmus of Panama the mortality of 338 cases treated with quinine was 41.4 per cent., while the mortality of 236 cases treated without quinine was 30.5 per cent. The result was about 11 per cent. better without quinine. Might some other drugs be omitted with like improvement? Baginsky says that since he has come to treat pneumonia in children by ice bags for the pain, by hygienic measures, and no medicine, it has come to be the most successfully treated of all infectious diseases. Dr. Simon Baruch has lost no uncomplicated case of pneumonia since adopting his plan of cold packs to the chest, absolute rest, fresh air, cold water as a diuretic and drugs limited almost entirely to calomel, strychnine, and morphine. It is to be noted that Dr. Baruch draws his cases from the same region where the mortality of pneumonia is said to be from 30 to 40 per cent in the large hospitals. Dr. Thos. J. Mays reports a mortality of 3 per cent with his method of ice bags to the chest. M. Howard Fussell[5] says that since he has treated pneuomnia by absolute rest, wide-open windows and general hygiene, his medication has been practically nil and his mortality small. True, some report a very low mortality from the use of certain drugs, but, so far as my investigations go, they have been careful men who made wise use of rest, air, and water also. Generally speaking, it may be said that those who use few drugs and pay great attention to physiological measures have a much less mortality than those who concentrate their attention on drugs to meet every indication and neglect the teachings of physiology. Anyone who investigates will, I believe, reach the same conclusion as did Dr. Loomis, that indiscriminate drugging increases the mortality of pneumonia very much.

Failure to keep the patient continuously in the horizontal position adds greatly to the mortality of pneumonia. In my limited experience of about 200 cases, I have never seen recovery take place where the patient persistently got out of bed. The following is an illustration: June 17, 1909, I saw a Mexican laborer, about 25 years of age, who had been sick three days with lobar pneumonia. The upper right lobe gave dullness and bronchial breathing, the respiration was 32, the pulse 132, axillary temperature 104°. June 18, his respiration was 42, pulse 135, axillary temperature 104°. In spite of instructions, he had been getting up and going

from one bed to another because, as he said, he was too hot. June 19 I found him a block away from his house, sitting in the shade. His skin was covered with cold sweat, his lips and face were blue, he was gasping for breath, and his pulse was 170 and almost imperceptible. An hour later he was dead. Why is failure to maintain the horizontal position so disastrous? Because it overtaxes the circulation and wastes energy. We know that vasomotor paralysis is the chief cause of death in pneumonia. The vertical position makes such paralysis much more likely to take place.

Energy is expended in two principal ways in maintaining the circulation. The heart does work in pumping the blood, and the unstriated muscles in the walls of the smaller arteries and the nerves that supply them do a great amount of work in maintaining that constant, tonic contraction against the force of the heart which is necessary to maintain blood-pressure at the normal height. If the vessels of the portal circulation lose their tone and dilate, they are capable of containing about all the blood in the body. In fact, according to Howell[6], the vessels of the splanchoric area play a dominating part in the maintenance of normal blood pressure. Now, if we place the patient in the sitting position, these vessels of the splanchoric area have to maintain contraction, not only against the work of the heart, but, in addition, against the hydrostatic pressure of a column of blood, extending from the abdomen to the head, or about 60 grams per square centimeter. That would be over 40 millimeters of mercury; which means that by setting the patient up in bed we add about one-fourth to the work of the vessels in the portal system. It is easy to see that in pneumonia, with the vasomotor system already much weakened by toxemia, the addition of this needless hydrostatic pressure may readily cause paralysis of the vessels of the splanchnic area and death from circulatory failure. The higher mortality of pneumonia in women may be explained by the lax abdominal walls, which fail to maintain the intraabdominal pressure.

The horizontal position is advantageous in another way, for it saves the heart the work of elevating the blood to parts above its own level. Furthermore, we know that the toxin of pneumonia has a special tendency to paralyze the vasomotor center in the medulla. That is another reason why the head should be kept low, in order that the important centers in the medulla may receive an adequate supply of blood. The patient should be urged to lie as still as possible, for it is probable that muscular movement increases toxemia and raises temperature, just as it does in tuberculosis.

Rest is the principal thing in pneumonia, aside from air and water. If drugs are necessary to secure rest, they should certainly be used. If a patient cannot lie still on account of pleuritic pain, morphine may save life by enabling him to rest. A patient who can not lie down on account of dyspnea and incessant cough, due to early dilatation of the heart and beginning edema of the lungs, should be bled until he can lie down, and then given heart stimulants. Many mild cases of pneumonia are made severe because absolute rest in the horizontal position is not enforced from the very beginning, while the diagnosis is still uncertain. Every case of pneumonia, and every suspected case, should be put to bed and kept flat, with the limbs extended and the hips, shoulders and head on the same level, so as to make the circulation of the blood the easiest possible, both for the heart of the vasomotor system. Until this becomes the common practice, the mortality of pneumonia will never be as low as it should be.

The statistics of Wells,[7] covering 465,000 cases, showed a mortality of 20.4 per cent. Statistics made up by excluding fatal cases for one reason or another are valueless. The same is true if doubtful cases are included. Practically bronchial breathing and percussion dullness are the only certain signs of pneumonia, aside from laboratory diagnosis. Observing these precautions, my own mortality has been something less than 15 per cent. During the last year I have treated 32 cases of lobar pneumonia with 3 deaths. That is a mortality of less than 10 per cent. One of the fatal cases is reported above, one was in the last stages of aortic insufficiency, and the other was a woman about 70 years of age and a chronic asthmatic.

Of all fatal factors in pneumonia, lack of early, complete and continuous rest in the horizontal position is without a doubt responsible for more deaths than any other one thing.

A considerable mortality from pneumonia is inevitable. But the inevitable mortality is far less than what is occurring at the present time. In my opinion, much of the present mortality is needless. There is no serious infectious disease against which the body has more perfect means of natural defense. If only given a good fighting chance, a complete cure is generally effected in about 5 to 10 days without the aid (?) of any "specific" whatever. The body will take care of the pneumococcus if we take care of the body. The great fatal factors in pneumonia are, half enough water; half enough air; half enough rest; and too much meddlesome medication.

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204 Mesa Avenue.

PSYCHIATRY AND THE GENERAL PRACTITIONER.

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Knowledge of psychiatry has been accumulating so rapidly during the past few years that it has been nearly an impossibility for the busy general practitioner to keep abreast of the change. As a consequence, psychiatric science finds little application in his practice. He deals with the less active psychoses, when they complicate his cases, as best he can by applying his knowledge of general medicine; while the actively insane patient is hustled off to an institution as soon as the committing physicians can gather enough data to convince a magistrate of the mere fact of insanity. The reader will find nothing new or original in the subject matter which fol-

lows. But he will have his attention directed to the fact that there is much in the new psychiatry which is both interesting and an essential addition to his medical knowledge, if he would practise medicine intelligently. The subject is presented, not from the standpoint of a psychiatrist, but of a general practitioner.

A little study on the part of the men who have had little interest in the subject will reveal the fact that, largely within the past two or three decades, it has been removed from a purely empirical to a scientific basis.

The general practitioner is the first to see cases of mental disorder. Perhaps he assisted the patient over the devious route which brought him into the world. He is cognizant of much in the history that would be of value to the psychiatrist, who attends the patient later, and which the latter may fail to elicit through the usual channels for history geting.

Unfortunately, many general practitioners underrate the importance of accurate and early diagnosis and prompt and properly directed treatment in cases of insanity. This is due, probably, to the fact that they received their instruction in the not very remote days of empirical psychiatry, when the diagnosis of insanity having been made, an unfavorable prognosis was more than likely to follow. Today all this is changed. Under the present régime of rational diagnosis and treatment, in which restraint plays little part, recovery occurs in a liberal percentage of all acute cases admitted to State hospitals, and in many of the less acute; and the earlier in the course of the disease the patient is admitted to the institution, the better the outlook for early recovery. This fact, amply borne out by statistics, speaks well for the treatment such patients receive in the institutions. To what extent, if any, unintelligent treatment outside the institutions may be a factor in making this true, I am not prepared to say.

Appreciating the advantage, to both, of cooperation between institutional and family physician, the medical men in charge of the New York State Hospital system have recently undertaken an innovation, which we, as general practitioners, should appreciate. At least twice each week it has long been customary for the staff of each hospital to meet for the discussion of cases of recent admission. I have not said "of interesting cases" because, in the light of modern methods of study, it seems that very few cases are wholly without interest. Histories, mental and physical examinations are worked up with a thoroughness and attention to minutiæ almost unknown in the average general hospital. The cases are discussed from the standpoint of diagnosis, treatment, and prognosis. Of late, invitations have been issued to the physicians who committed each patient presented at "staff meeting" to be present, listen to, and take part in, the discussion. The writer has had the pleasure of attending but one such meeting in his capacity of committing physician, but he found that it was well worth all the time and energy spent in the forty-mile trip to the hospital.

As for the institutions in which our insane are cared for, it is a far cry from the County House of twenty or thirty years ago, where patients were "cared for" by being confined where they could not harm others or disturb the public, through the "asylum" stage, to the present system of thoroughly equipped and intelligently conducted hospitals for the insane. Not only are patients examined and case records filed with the utmost thoroughness, and skilled attention given to the treatment of physical as well as mental conditions, but of late physicians from the hospitals have been visiting the homes of patients recently admitted, to investigate their environment, with a view to improving it, if necessary, when the patient is in condition to leave the institution.

The classification of insanity has always been difficult and unsatisfactory at best. For the sake of comparison, there follows the classification adopted for statistical purposes by the State Commission in Lunacy in 1897, and after it, that adopted by the State Commission recently, for the same purpose. It will be noted that with the first it was necessary to cut diagnoses to fit the classification. In the latter, the conditions which cannot consistently be given a place in any of the established groups are frankly designated as "allied to" certain groups or as "Unclassified," although the necessity for falling back on these captions is daily growing less. In giving the new classification, I have quoted freely from the pamphlet recently issued to the New York State Hospital physicians.

Classification adopted in 1897:

Mania, acute delirious; mania, acute; mania, recurrent; mania, chronic; melancholia, acute; melancholia, simple; melancholia, chronic; alternating (circular) insanity; paranoia; general paralysis; dementia, primary; dementia, terminal; epilepsy with insanity; idiocy.

Classification recently adopted:

1. Psychoses with brain tumor.
2. Traumatic psychoses.
3. Senile psychoses.
4. Dementia paralytica; (a) cerebral form, (b) tabetic form to diminished or absent knee-jerks), (c) mixed form.
5. Psychoses with other brain and nervous diseases; (a) cerebral syphilis, (b) cerebral arteriosclerosis, (c) cerebral embolus or hemorrhage, (d) brain abscess, (d) tuberculous meningitis, (e) central neuritis, (f) multiple sclerosis, (g) polyneuritis, (h) tabes dorsalis, (j) acute chorea, and other nervous affections.
6. Alcoholic psychoses; (a) pathological intoxication, (b) alcoholic deterioration, (c) delirium tremens, (d) Korsakow's disease (polyneuritic psychosis), (e) acute hallucinosis, (f) chronic hallucinatory type, (g) paranoid states; (1) acute delusional type, (2) chronic delusional type, (3) delusion of jealousy; (h) other less characteristic symptomatic types.
7. Drug and toxic psychoses.
8. Infective-exhaustive and autotoxic psychoses; (a) infective or exhaustive reactions; (1) febrile delirium, (2) infection delirium, (3) exhaustion delirium (acute confusion, hallucinatory delirium, "amentia"); (4) delirium, with heart disease, (b) autotoxic disorders. (1) Thyrogenous disorders, (2) uremic and diabetic disorders.
9. Allied to infective-exhaustive type.
10. Symptomatic depressions; depressions closely associated with some physical ailment which more or less naturally predisposes to despondency.
11. Depressive hallucinosis; depressions usually of acute onset, in which hallucinations (generally auditory) dominate the scene, the sensorium remaining clear, the mood being one of anxiety or fear.

12. Involution melancholia; agitated depressions of middle life and later years, developing after prolonged worrying and uneasiness, with fretting and insomnia.

13. Depressions undifferentiated.

14. Dementia præcox; (a) paranoid form, (b) catatonic form, (c) hebephrenic form, (d) simple form.

15. Allied to dementia præcox.

16. Paranoic conditions.

17. Manic depressive phychoses; (a) manic attack, (b) depressive attack, (c) circular attack, (d) mixed conditions.

18. Applied to manic depressive psychoses.

19. Epileptic psychoses; (a) deterioration, (b) dazed states, (c) anxious delirium, (d) excitement, (simple or hallucinatory.)

20. Hysterical, psychasthenic, and neurasthenic psychoses.

21. Other constitutional disorders and inferiorities. A variety of types fall under this general heading. A satisfactory classification is not yet possible, but as provisional clinical groups one may contrast two types: (a) Constitutional psychopathic states. These individuals are usually well endowed intellectually, or at least are superficially bright, but they show lack of emotional balance, weakness of judgment, and undue suggestibility, which traits are often combined with defects of character or perversion of instinct. On this psychopathic basis various episodes may occur and necessitate commitment. (Excitements, depressions, paranoid trends, hallucinatory attacks, etc.). (b)) Constitutional inferiority; intellectual deficiency of a mild degree, to which may be added neurotic traits, signs of emotional instability, or moral defects. Transitory attacks of excitement or depression, paranoid states, and hallucinatory episodes may develop in these constitutionally inferior persons.

22. Imbecility with insanity.

23. Unclassified.

If the newer classification is more complex, it is also more satisfactory, for it is obvious that only with such a classification can any attempt be made to intelligently dispose of all the prevalent mental diseases. It has been adopted largely through the efforts of an eminent scientist and psychiatrist, Dr. Adolf Meyer, for several years and until recently, the moving spirit in the scientific work being done by the physicians of the New York State Hospital service. It is an adaptation of the classification which has been advocated by Kraepelin, of the German school.

In comparing the new with the old, one condition stands out preeminently as a product of modern psychiatry. In dementia precox the general practitioner, and the psychiatrist as well, finds much that is hard to master. Perhaps I can best quote a well-known writer: "Dementia precox is the name provisionally applied to a group of cases which are characterized in common by a pronounced tendency to mental deterioration of varying grades. Dementia, fortunately, does not occur in all cases, but is so prominent a feature that the name is best retained until the symptom group is better understood. The disease is one of the most prominent, comprising from 14 to 30 per cent. of all admissions to insane institutions. More than 60 per cent. of the cases appear before the twenty-fifth year." And again: "The disease, in the younger cases, seems to take the form of a simple, gradually progressive deterioration; in the somewhat later periods it assumes the acute or subacute forms with catatonic symptoms; while still later the more pronounced delusional formation appears." There are, however, no hard and fast rules to which we can cling, and the disease presents many variations. Until recently, the prognosis has been looked upon as invariably unfavorable as to recovery, but recent developments, I believe, have cast some doubt upon the wisdom of making a bad prognosis in every case. Dementia præcox has absorbed the primary dementias of the older classifications.

The manic depressive psychosis is a composite of the various manias, most of the melancholias, and the circular insanity of the old classification. It has been found that these are but varying phases of the same general condition.

In a paper of this scope, we are not justified in going over the long list of psychoses. So, in conclusion, the writer would take the opportunity to urge a more effective cooperation, reacting to the advantage, both of the general practitioner and of the psychiatrist to whom he sends his cases. The writer is almost inclined to offer, for the consideration of the State Hospital physicians, the suggestion that they institute a series of clinical lectures, for instance, one a month, upon the rudiments of the new psychiatry, for the benefit of the physicians in their districts. Such a course would result in more intelligent prophylaxis and after-treatment, more satisfactory commitment papers, and would create a more thorough cooperation and more sympathetic personal relations between the physicians in institutional and those in private work. While I am told that the physicians, so far, have not responded, to any great extent, to the advances already made, in the way of invitations to attend staff discussions, this is undoubtedly because we general practitioners are slow to adopt innovations, and moreover, little is generally known regarding the character and excellence of the work being done in the State institutions. A visit to one of the State hospitals, with an inspection of the pathological laboratory and museum, therapeutic equipment, etc., would result in a revelation to some of my fellow practitioners.

If the suggestion made above is impracticable, we can at least issue urgent invitations to some of the medical officers of our neighboring hospitals to attend county society and other medical meetings and to tell us as much regarding the new psychiatry as limited time will permit.

To summarize, the study of mental diseases has progressed so rapidly in the past few years that the general practitioner has fallen behind. This paper is presented with the hope of stirring renewed interest and more effective cooperation with the specialists in psychiatry in our State hospitals for the insane. An old and a recent classification of insanity is presented, for comparison, as showing the great advance in knowledge of mental diseases. One condition, dementia precox, seems to be attracting more attention just now than any of the others. The writer heartily recommends that his fellow practitioners take advantage of the invitations to attend staff meetings at the State hospitals, and that they seek the assistance of the hospital physicians to enable them to become more thoroughly acquainted with the new things in psychiatry, feeling that it will prove a diversion, and perhaps make them better practitioners.

SOME ANOMALIES AND POINTS FOR THE SURGEON TO BEAR IN MIND.

By CHARLES F. DISEN, M.D.,

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In the dissecting room anomalies seem to appear in lots, although it may be averred that, if looked for they would be found with some measure of regularity. Thus, taking the kidney for an example, I find, on reviewing my anomaly charts for the last 20 bodies dissected, six rather important anomalies. Another lot of 20 bodies might not furnish other anomalies of that organ than aberrant arteries entering beyond the hilus, such arterial anomaly seeming to occur much more frequently than is generally assumed.

Describing the six important anomalies, the first one to be given is a horseshoe-kidney. It was huge, occupying a large part of the abdominal cavity. The convexity was turned downwards, both ureters as well as the spermatic and inferior mesenteric vessels crossing the ventral surface of the mass. At the middle of the inferior border of the convexity an accessory vein passed off to enter the left common iliac vein, reminding one of the caudal vein that in some lower animals enters the kidney. The second case is presented by an infant, in which the inferior vena cava takes a curve into the hilus of the right kidney. This instance reminds us of the fact that more than one life has been lost on the operating table—and in the hands of distinguished surgeons—by interference with the vena cava in ligating for extirpation of the right kidney. In the third case one kidney has two ureters, separate as far as the opening into the bladder. The fourth case has three arteries given off separately from the aorta to each kidney. The fifth case has four arteries also given off separately as individual trunks from the aorta to each kidney. In both instances the uppermost and the lowermost artery entered the extreme upper part of the upper pole and the extreme lower part of the lower pole, respectively. The sixth case, perhaps of interest only for its rarity, has the left renal vein behind instead of in front of the aorta. Some of these anomalies certainly indicate that, whenever possible, the kidney should be cautiously inspected before ligating in the operation of nephrectomy. In this connection it may be of interest to the surgeon who, in exposing the kidney by the lumbar route, counts the layers of lumbodorsal fascia—as guide and with the view of guarding the nerves—to note that some modern textbooks only describe two layers. They ignore the layer in front of the quadratus lumborum, but, going by my own experience, I must say that it seldom fails to exist.

Considering operations on the bile-ducts, the surgeon should not take for granted that the structure, found at the extreme edge of the lesser omentum, always is the common duct. In the proportion of about one in fifteen bodies a quite large artery is lying parallel in front of the bile-duct. Sometimes it is the superior pancreatico-duodenal artery that takes this upward course to the gall-bladder, instead of descending to the pancreas and duodenum. At other times the inferior pancreatico-duodenal artery was found to take a similar course. It may not be amiss to mention that the portal vein sometimes has a very thin wall, and when in addition, as in case of the drinker, fatty degeneration happens to be present, this vein does not stand much handling. I know at least of one instance where the surgeon ruptured it in hooking his finger too forcibly forward in the foramen of Winslow. The result was fatal.

Occasionally the existence of a ligamentum cystoduodenale or hepatocolicum is responsible for a lateral extension of the lesser omentum, far beyond the place occupied by the bile-duct.

Considering thyroidectomy, I have investigated the relation between the recurrent laryngeal nerve and the inferior thyroid artery, as the operation so frequently is followed by aphonia, although, as a rule, only of a temporary character. The relation is not a fixed one; the nerve may be found either behind or in front of the artery, sometimes being split and going partly behind, partly in front of the vessel. In a good proportion of cases the nerve is behind the vessel on one side of the neck and in front on the other side, without maintaining any rule for either side. The advice of the Drs. Mayo to clamp the vessels in a vertical direction is certainly opportune; the chance of including the nerve is thus minimized, however more so on the left side, where the nerve has a more vertical course than on the right side. Regarding the parathyroids, they are not always found to be distinctly apart from the thyroid; frequently they are matted to the latter, if not actually imbedded. In the dissecting room they are recognized by having a more yellowish or lighter color than the thyroid, and as imparting on touch the idea of a finer structure. In spite of diminutive size and of the claim by some that they are embryonic forms of thyroid, it seems that the parathyroids, as furnishing an important special internal secretion that operates on the nervous system, are indispensable organs even to advanced age, and it follows, as generally settled, that they always should be saved. Simply leaving some thyroid tissue, unless it be connected with the parathyroids, is inadequate, as experiments on animals have repeatedly taught that the thyroid does not vicariate for the parathyroid. On the other hand, it is of scientific interest to note that some observers have found that the parathyroid begins to resemble the thyroid histologically three months after removal of the latter.

In ligation of the external carotid artery it easily happens that the hypoglossal nerve becomes cut in the incision, and recently a prominent surgeon was heavily sued for such an accident. In my own work I find the only safeguard is to locate the nerve by hunting in the angle between the greater cornu of the hyoid bone and the posterior belly of the digastric muscle, before I look for the artery. Similarly, in ligation of the third part of the subclavian artery, it simplifies the operation much if the posterior belly of the omohyoid muscle is located and it be remembered to incise a second layer of deep cervical fascia—the lateral extension of the prevertebral—before the vessel is sought at the lateral border of scalenus anticus. The arm must be continuously drawn downward, partly in order to displace the suprascapular artery. The right common carotid artery may be found overlapped by the internal jugular vein, although the textbooks only credit the left carotid with such, an at least occasional, relation.

Regarding the upper extremity, the only anomaly I can think of that might embarrass the surgeon is high division of the brachial artery. Sometimes I notice three specimens of this anomaly in one term; then, again, it may not put in an appearance for some three or four semesters.

In operating for femoral hernia it should be remembered that the femoral vein may not be covered with fascia lata in the region of operation; a fatty layer instead, an unusually extensive cribriform fascia, may have taken its place. To my knowledge the textbooks do not mention this occasional arrangement; it may be excusable if fatty change in the iliac portion of the fascia lata is a responsible factor, but it does happen that the surgeon cuts the femoral vein, because he is not familiar with this occasionally changed relation of the vessel. While on hernia, it may be stated that the interfoveolaris muscle described by some modern text-books in connection with the insertion of the conjoined tendon, which some surgeons imagined could be utilized to strengthen the inguinal canal, seldom exists, and, if present, is too frail for such a purpose.

In conclusion I wish to report an anomaly, or rather a rare excursion of the sigmoid colon. Instead of curving downwards from the descending colon to the bottom of the pelvis, it ascended as high as the upper part of the psoas muscle, where it was held by a short mesocolon; thence, it curved downwards to become the rectum. The specimen reminds me of the case of a female patient who presented a tumor-like mass in the abdomen, appearing in shape and size as a uterus in the seventh month of pregnancy. Consultants diagnosed fibroid tumor and set a day for operation. When temporizing with enemata the tumor disappeared. It may easily be guessed that impaction in a sigmoid loop, arranged as the one just given, would be liable to furnish such an embarrassing condition for diagnosis.

HEMORRHAGE AFTER REMOVAL OF TURBINATED BODIES.

By JULIUS SOLOW, M.D.,

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Hemorrhage after operation on the faucial tonsils or adenoid tissues is very frequent, as everybody who occupies himself with this special work knows, but it is not so frequent as that which we often see after the removal of turbinated hypertrophies. The hemorrhage, after removing any of the turbinated hypertrophies, lower or middle, may be only slight, and in this case it can be stopped by introducing a tampon of absorbent cotton into the nasal cavity and changing it a few times till the flow of blood ceases. In other cases again the hemorrhage may be very profuse and obstinate. Even cases in which only a small portion of a turbinated hypertrophy is clipped off, may have a severe postoperative bleeding. So, for instance, in the case related to me by Dr. Wolff Freudenthal of this city, in which he only removed a small portion of the middle turbinated body, and this was followed by a severe hemorrhage six days after the operation.

In persistent and severe hemorrhage it is always advisable to apply ice externally to the bridge of the nose and introduce into the nasal cavity a tampon of absorbent cotton soaked with adrenalin solution (1:1000), or with suprarenal extract (5 per cent.). In hemorrhages coming from the region of the middle turbinated bodies, the employment of aseptic gauze would be more advisable. Some advise the introduction of small pieces of ice into the nostril, but I think we can get along easily in most cases with only external application of ice and tamponading of the nasal cavity. When, after a severe hemorrhage, we succeed in stopping the flow of blood, then we leave the tampon in for about two days without disturbing it, as any attempt to remove the tampon before that time may be followed by a fresh bleeding. But after that the bleeding vessel is usually closed by a substantial thrombus and it is then safe to change the tampons. Should any difficulty arise in removing the tampons, it is advisable to irrigate the nares very carefully with a mild antiseptic solution. Total packing of the nose with sterilized gauze, anteriorly and posteriorly, is advisable only when all other means of stopping the hemorrhage have failed.

Septic complications, affections of the eustachian tube and the accessory sinuses of the nose, through retained discharge, are rare, unless the tampons are left in too long. Such complications, however, are frequently met with in cases where we are compelled to pack the nose completely. If the hemorrhage is not too severe, a tampon of asborbent cotton, soaked with a strong solution of tannic acid, may also do the work. Some use hot water irrigations in order to stop the bleeding. Its effect is the same as in hemorrhages of the uterus. But the water must be pretty hot in order to have any effect. Peroxide of hydrogen is also used considerably.

The one great advantage we have in being nearly always able to get control of the bleeding in such cases is that we always know where to look for the exact source of the bleeding, while in nose bleed from other causes, not post-operative, the exact source of the bleeding is not always known to us.

78 McKibben Street.

Epidemic Icterus.—Queirolo has studied an epidemic of icterus which occurred two years ago in Portoferraro, and repeated the observations in a similar epidemic at Piombino. The same conclusions are given as a result of the two different epidemics. Contrary to the affirmation of Chauffard, the malady can be imported and disseminated by the patients. The malady seems to be of telluric origin, the poison arising in hot, damp places where there is an excess of organic materials, is carried about by winds and by the patients themselves. The malady is especially dangerous to pregnant women, ten out of twelve affected having died at Piombino. Death occurred with symptoms of a profound intoxication, with the syndrome of hepatic coma. This poison has an especial action on the liver in women, who during pregnancy have inactive livers, the effect being to paralyze the depurative function of the organ. The renal and liver lesions of acute yellow atrophy are absent at autopsy. In some cases the production of premature labor has been of benefit to the patients in pregnancy.—*La Riforma Medica.*

Treatment of Osteomalacia by Adrenal Extracts.—Leon Bernard believes it necessary to the gaining of a sufficient knowledge of the action of adrenal extracts in osteomalacia that all cases should be reported in which it has been used. He reports a case of osteomalacia in a woman of 38 years of age, who was unable to leave her bed or to move any of her limbs except the left arm, on account of the pain produced and the existing deformities. She had, at the age of sixteen, an attack of the same disease, which was finally recovered from by rest in bed for a year and a half. She had amenorrhea at that time, and improvement began with the return of the menses. She remained well for ten years, at the end of which time she had a renewal of the disease, which brought her to a pitiable condition, sleepless and in constant pain, with marked deformities. Injections were given subcutaneously every two days. After thirty injections, marked improvement began. At the end of 100 injections she was entirely restored to health, could walk, go up and down stairs, and sleep well. Pain was gone and all deformities had passed away. The process had stopped and the bones had cicatrized. As to the cause of this action of adrenalin, the author believes that it is not due to the power of the drug to hold lime in solution in the organism. There seems to be a sort of antagonism between the actions of the ovaries and the suprarenal glands. Probably the curative action is due to opotherapy. —*La Presse Médicale.*

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THE PROBLEM OF MILK SUPPLIES.

Perhaps one of the most complete and instructive reports on the milk question ever issued has been published recently by the Ontario Milk Commission. This commission was appointed by the Ontario Legislative Assembly to inquire into the production, care, and distribution of milk in all parts of the immense province of Ontario, and right thoroughly and well have the members thereof done their work. Of course, much of the ground gone over—that is, in discussing and summing up the general situation as regards milk—has been traversed oftimes before, and necessarily, too, many, if not most, of the conclusions arrived at have been reached by former writers, practical workers, and commissions. However, nothing but good can come of the intelligent study of the milk question, and the more frequently and the more fully the matter is ventilated publicly, the sooner will come the much-needed reforms. It is to be gathered from the report of the Ontario commission that many of the citizens of the large and small towns of Ontario have been living more or less in a fool's paradise with respect to their milk supply. Whether the dairy farmers and dealers have been living in a similar paradise is to be doubted, or even possibly it may be doubted whether many of the citizens have not been suspicious of the quality of the milk. However this may be, the report renders clear to all that in order to obtain a passably pure milk supply in Ontario, reforms are urgently needed.

The infant mortality rate in Ontario is extraordinarily high for a sparsely populated district. The death rate under one year per 1,000 births for Ontario, according to the latest census, was over 160, while for Toronto it was more than 175. When the fact is taken into consideration that the death rate for infants in London, with its manifold slums, is only 116 per 1,000 births, the significance of the figures for Ontario will be better appreciated. The report holds the inferiority of the milk supply mainly responsible for the untowardly high infant mortality rate, and without doubt rightly.

The following are the conclusions reached by the Ontario Milk Commission: 1. The present laws governing the production, care, and distribution of milk for human consumption are cumbersome and ineffective, and should be consolidated and amplified. 2. The general principles governing the production, care, and distribution of milk should be fixed by the Legislature. 3. Inasmuch as the administration of such laws is and must remain in the hands of municipalities, such amplification should be in the direction of giving municipal authorities larger powers of licensing and supervision. 4. A general definition of adulteration should be adopted, but municipalities should be given the power to fix a standard of food value, said standard to be not less than 3 per cent. butter fat and 12 per cent. solids. 5. In the interests of health and common decency, more attention should be paid to the cleanliness of stables and healthfulness of cattle, and to this end the consuming municipalities should be empowered to make inspections at the sources of supply and be urged to appoint veterinarians to act in conjunction with the medical officers of health. 6. With a view of lessening the alarming infantile mortality in the province, municipalities should be empowered to establish and maintain, or to assist in the establishment and maintenance of infants' milk supply depots. 7. Firm measures should be taken to combat the ravages of tuberculosis, which constitutes a serious menace to both bovine and human species; and as an initial step along with an educational campaign, all cows suffering from tuberculosis of the udder or showing clinical or physical evidences of the disease, or whose milk is shown by bacteriological or microscopical examination to contain tubercle bacilli, should be promptly removed from dairy herds. 8. Pasteurization is not a provincial ideal, but may be a municipal expedient if carried out in accordance with proper scientific regulations. 9. In cities of over 50,000 population no milk should be sold except in bottles or other sealed packages. 10. Cans, bottles, or other utensils used in handling milk should be used for no other purpose, and should be promptly rinsed by the consumer on being emptied. 11. Producer, distributor, and consumer should alike be educated to the importance of cleanliness in handling milk and to the value of prompt chilling and keeping in a cool place. These recommendations are exhaustive and, if carried out, would solve to a very large extent the difficulties of the existing situation in regard to the milk supply of Ontario. Unfortunately, these cannot be carried out in their entirety and the best that can be hoped is that the most important recommendations will be put into effect.

The recommendation of the greatest moment to the community at large is that which discusses tuberculosis in cows. Tuberculosis is prevalent among the milch cows of Ontario, and although there is no agreement as to the percentage of tuberculous animals, it would be no exaggeration to state that 10 per cent. of the dairy cows suffer from tuberculosis. There is no need here to enter into the vexed question of the transmissibility or otherwise of bovine tuberculosis to the human being. It is now generally believed that, given favoring conditions, tuberculosis can be, and is, frequently conveyed to young children by means of infected milk. Thus it is obvious that in Ontario the tuberculous cow is a grave

menace to health and life and that steps taken to abolish the diseased animal or to render it harmless will be steps taken for the benefit of the whole population of the province. The obstacles in the way of effective measures in this direction are very great, greater than in most districts, for the reason that farmers in Ontario hold the balance of political power, and they are not likely to enact laws which they imagine might be against their interests. Before the farmer will allow such legislation to be passed, he must be convinced that it is not opposed to his material welfare. Therefore the entire community must first be educated to comprehend that laws in support of a pure milk supply are beneficial to all, although in the first instance they may appear hurtful to some. The weight of opinion in towns and cities will settle the question, for the dairy farmer must supply the article for which his customers call. But in Ontario as elsewhere public opinion is not generally sufficiently well educated on the subject of milk, and it behooves the medical profession to instruct the laity as to the superlative necessity of an unpolluted milk supply. The Milk Commission of Ontario has taken New York City and some other cities in this State as models when studying the milk question, and it is to be hoped that much valuable information has been gained and that the knowledge will be not only assimilated but improved upon.

REPORT OF THE SURGEON-GENERAL OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

Good wine needs no bush, nor does the work of the Public Health and Marine-Hospital Service need commendation. But although the work does not need praise, at the same time it is both interesting and instructive to review the more important investigations and researches conducted by the members of the service during the year. As is well known its duties are manifold and far-reaching, and it is a matter of some difficulty to select any outstanding series of investigations and researches as worthy of special comment. Moreover, the more noteworthy features of the year's work have already been discussed in these columns.

One of the chief benefits rendered the community by the officers of the Service has been the abolition of plague from San Francisco. In Oakland, in Contra Costa County, in Point Richmond, in Alameda County, and in Los Angeles, anti-plague operations have been and are being prosecuted vigorously, with eminently satisfactory results, although it is stated that in the cities of Alameda and Berkeley antiquated methods of garbage and refuse disposal are still employed and rat destruction and other precautionary measures have been entirely neglected. On the whole, however, the State and local health officials of California have loyally cooperated with the officers of the Service. It is worthy of notice that in Contra Costa County 3,826 ground squirrels have been examined bacteriologically, of which number 42 were found to be infected with *B. pestis*.

The division of scientific research of the Service has been especially active during the year. The laboratories now in operation are the hygienic laboratory in Washington, the leprosy investigation laboratory in Hawaii, and the federal plague laboratories in San Francisco and Seattle, as well as small clinical laboratories at the Marine Hospital Sanatorium, Fort Stanton, N. M., and at certain of the marine hospitals. At most of these stations research work is being carried on. It is stated in the report that there is necessity for a research laboratory on the Gulf Coast for the investigation of tropical diseases and that a research laboratory should also be established in the region of the Great Lakes for the study of problems in relation to interstate sanitation, such as the prevention of the pollution of streams and the prevention of the transmission of typhoid fever, tuberculosis, and other communicable diseases by vessels and trains. Lastly, it is thought desirable that a research laboratory be established in New York, in which to investigate the problems arising through immigration, and in order to utilize the large amount of clinical material in the study of communicable diseases.

Perhaps the most important investigation undertaken by the department during the year has been that of typhoid fever in the District of Columbia. The conclusions reached have been fully dealt with in the editorial pages of the Medical Record, but it may be said that no more valuable studies as to the cause of typhoid fever have ever been conducted in America, and that with regard to human typhoid carriers as a means of spreading the disease, fresh light has been thrown on the subject by the aid of which we must revise to a considerable extent our long-held views of the origin and spread of the disease. Pellagra has received the notice that its increasing prevalence or recognition deserves. On account of the widespread occurrence of amebiasis on the Pacific coast and in other parts of the country, it is expected to continue investigations of the disease at certain hospitals of the service to determine whether amebas can be found in the stools of patients suffering from intestinal and liver diseases, and to record and report on the antecedents of all cases of amebiasis. Leagues have been formed in the Southern States among the negroes, mainly in connection with the churches, to combat the ravages of tuberculosis. The bureau is assisting this movement by advice and by providing lectures to organize an educational campaign. The bureau suggests to the Federal Government, that in view of the prevalence of typhoid fever among negroes, due to ignorance of sanitary laws, it would be judicious to disseminate information as to the necessity of proper sanitation, better educational facilities, and more recreation, and the means necessary to bring these reforms about.

So far as domestic quarantine was concerned, during the fiscal year ending June 30, 1909, at the various stations of the United States, a total of 8,266 vessels were inspected by officers of the service, and under their supervision 520 were disin-

fected, either for the destruction of mosquitos as a precaution against the introduction of yellow fever, or for the destruction of rats and other vermin as a precaution against plague. In addition 495 vessels were spoken and passed, making a grand total of 8,761 vessels passing under the observation of the service at the ports in the continental United States. The operations of the service as to quarantine in the Philippine Islands is stated to have been remarkably effective, while similar statements apply to Hawaii and Porto Rico. The work of the service with respect to foreign quarantine covers a very wide field. The most unhealthy station with which the service was concerned was Guayaquil, Ecuador, in which city during the year there have been outbreaks of plague, smallpox, and yellow fever. An idea of the unhealthfulness of the locality may be gathered from the fact that the annual death-rate varies from between 25 and 30 per thousand in July and August to between 90 to 100 per thousand in February and March. During the fiscal year ending June 30, 1909, 966,124 immigrants were examined by medical officers of the service to determine their physical fitness for entrance at ports in the United States and in Porto Rico and Hawaii. During the year 53,074 seamen were treated at the various stations of the service. The service operated 21 hospitals and maintained 126 other stations. The results of treatment of cases of tuberculosis at Fort Stanton were satisfactory, but the medical officer in command points out that Fort Stanton being at an elevation of more than 6,000 feet certain classes of patients are not benefited by sojourn there.

Surgeon-General Wyman concludes the report by discussing certain public health problems in an interesting manner. A perusal of the entire report demonstrates the fact that the officers of the service are, as always, fully alive to the importance of their duties and lose no opportunity to conserve the health of the American people. The service deserves in a high degree the confidence of the nation and should be rewarded in a correspondingly generous manner.

Hookworm Disease or Ground Itch Anemia Among Public School Children.

Dr. Chas. Wardell Stiles of the Public Health and Marine-Hospital Service publishes in Public Health Reports, March 25, 1910, the result of some observations made by him in February last with regard to a number of school children in Southern Florida examined for hookworm disease. Together with Dr. E. E. Lindemann and Dr. J. S. Helms eight schools were visited and 1,306 children inspected. The pupils were classified as "suspects," "doubtfuls," and "non-suspects," and the following is a summary of the outcome of the examination: Boys, 596—number of suspects, 409; percentage of suspects, 68.6. Girls, 710—number of suspects, 322; percentage of suspects, 45.3. Total, 1306—number of suspects, 731; percentage of suspects, 55.9. Those classified as suspects were obviously suffering from hookworm disease, and Dr. Stiles thinks that according to experience, on a basis of 55.9 per cent. suspects, it may be concluded that the infection is probably not less than 80 per cent. It may also be pointed out that the pupils in these schools represented not only some very poor children from the farms, but also children of very well-to-do families from farms and towns. Furthermore, at least five of the teachers in the schools visited showed clear and pronounced effects of hookworm disease. The observations referred to above only go to show that which is already well known to physicians in many of the Southern States that hookworm disease is lamentably common among the general population and that the sooner the work of the Rockefeller Commission is earnestly undertaken the better it will be for all concerned. Certain skeptical individuals have gone out of their way to sneer at the philanthropy of the millionaire and to suggest that the money donated might have been more usefully spent otherwise. All evidence shows that a crusade against hookworm disease is urgently called for in parts of the Southern States. Dr. Stiles draws attention to a somewhat amusing difficulty which has arisen as to the treatment of sufferers from hookworm disease. They refuse to consider treatment if they are told that they have hookworm disease, but willingly undergo the same if the complaint is termed uncinariasis, or even if alluded to by the plebeian name of "ground itch." The possession of hookworm disease they regard as something of a social slur.

The Germicidal Action of Water from Coal Mines and Tanneries.

In the Pennsylvania Health Bulletin, November, 1909, the above subject is considered and discussed. Experiments were undertaken at the laboratories of the Pennsylvania State Department of Health, under the direction of Dr. Samuel G. Dixon, to discover the influence of water from coal mines and tannery wheels upon certain pathogenic bacilli. It has been observed that the water supplies of cities situated on main streams, below extensive coal fields in Pennsylvania, such supplies being drawn from these streams, are comparatively free from bacterial life in spite of the large quantities of sewage deposited therein. This freedom from germs is attributed to the action of the acid drainage from the mines. Spent tan liquors from tanneries are known to exert a somewhat similar influence on sewage organisms. The conclusions reached as a result of the experiments were as follows: Mine water will prevent the growth of typhoid bacilli after the lapse of one hour. Mine water will markedly limit the growth of colon bacilli so that they die off progressively and cannot be cultivated after a lapse of twenty-four hours. The organisms lived for three days but could not be found on the fourth day in one experiment in which the dilution was high. Spent tan liquor limits the growth of the typhoid bacillus and causes it to disappear after the sixth hour. Tan liquor permits the growth of the colon bacillus up to the twenty-fourth hour and in one experiment where the dilution was 1-4000 it was found after three days. The tan liquor has a somewhat similar effect on *B. anthracis* as on *B. coli*. The inference which Dr. Dixon thinks should be drawn from these experiments is that, so far as the risk of the most serious of all water pollutions is concerned, judging by the typhoid bacillus and its companion and index, the colon bacillus, and inferentially the cholera bacillus, which is known to succumb readily to sulphuric acid, the attempt to exclude mine water and spent tan water from streams which may eventually become sources of

drinking water would be a mistake. The opinion has long been held by those who have studied the health conditions of Philadelphia that the acid condition of the head waters of the Schuylkill River, owing to mine drainage, was an important factor in holding in check the prevalence of typhoid fever in that city. Dr. Dixon says that the results of the Pennsylvania Health Department experiments indicate that this opinion has a solid foundation.

News of the Week.

Army Medical Corps Examination.—The surgeon-general of the army announces that preliminary examination of applicants for appointment as first lieutenants in the Army Medical Corps will be held on July 18, 1910, at various army posts throughout the country. Full information concerning the examination can be procured upon application to the Surgeon-General, U. S. Army, Washington, D. C. The applicant must be a citizen of the United States and between 22 and 30 years of age. There are at present 123 vacancies in the Medical Corps of the army.

Medical Interne Government Hospital for the Insane.—The United States Civil Service Commission announces an examination on June 15, 1910, to secure eligibles from which to make certification to fill at least two vacancies in the position of medical interne (male), Government Hospital for the Insane, Washington, D. C., at $600 per annum each, with maintenance, and vacancies requiring similar qualifications as they may occur in that hospital, unless it shall be decided in the interests of the service to fill either or both of the vacancies by reinstatement, transfer, or promotion. Both men and women will be admitted to this examination, although there are no vacancies for women at present. Applicants must be unmarried. Age limit, 20 years or over on the date of the examination. Applicants should at once apply to the United States Civil Servic Commission, Washington, D. C., for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington.

National Tuberculosis Sunday.—The National Association for the Study and Prevention of Tuberculosis has set aside Sunday, April 24, as a "National Tuberculosis Sunday" on which all clergymen are asked to preach on the subject: No Uncared for Tuberculosis in 1915. Under the direction of the head of the Labor Department of the State Charities Aid Association, the labor unions of the large cities are being requested to attend church in a body on that day, or to have the subject of tuberculosis discussed at their regular Sunday meetings.

Typhoid Fever in Eastern Massachusetts.—A series of epidemics of typhoid fever which have occurred recently in Boston, Cambridge, Somerville, and Waltham have been under investigation recently by the Massachusetts State Board of Health. The report states that it is probable that all of these epidemics have arisen as the result of a case of typhoid fever on a milk farm in Sudbury.

Tipping Lawyer Arrested.—A case was brought up before the Tombs court in New York recently of a lawyer who was accused of offering tips to a nurse at Bellevue Hospital for information as to ambulance cases. The nurse swore that the lawyer proposed a rate schedule for ambulance tips. A case involving amputation of a finger or toe was worth $10, that of an arm or leg $15, and death $35. Payment was contingent upon the lawyer obtaining the case.

Pure Food Law Conviction.—A physician recently was found guilty in the United States Circuit Court on an indictment charging violation of the pure food law. The Government contended that the label describing the uncooked wheat bread he sold as a cure-all for stomach trouble was a misrepresentation of the actual properties of the article. The penalty is $250 fine.

Autopsy Suit Dismissed.—The suit for $25,000 damages against a coroner's physician in New York for removing organs from a boy's body and failing to return the same, which was noticed in the MEDICAL RECORD for April 9, 1910, has been dismissed by Supreme Court Justice Bijur. The physician's defence was that he had a right to perform the autopsy because the death was a violent death, and that the spleen was of interest to science because it weighed fourteen pounds. It was sent to a pathological laboratory for microscopical examination.

Antispitting Ordinances.—The National Association for the Study and Prevention of Tuberculosis has issued a bulletin upon the enforcement of the anti-spitting ordinances in various cities. The report states that during the year 1909 in 80 cities, 3,421 arrests were made for violation of the laws regarding spitting in public places. Over 2,900 convictions were secured and $4,100.87 was collected in fines. New York City had more arrests than any other city, having had 2,513, with 2,099 convictions, and $1,936.80 collected in fines.

The Sale of Wood Alcohol.—The New York Department of Health has begun a campaign against sellers of wood alcohol. Inspectors have visited many saloons and liquor stores in various parts of the city and taken samples of liquors offered for sale. Of the first fifteen samples of liquors analyzed three contained wood alcohol. Practically all the liquors containing wood alcohol that have been found up to date were discovered in East Side saloons and liquor stores.

Cold Storage Bill in the Senate.—The Senate Select Committee on the cost of living has made a partial report in the form of a bill introduced by Chairman Lodge. The bill is aimed at the exclusion from inter-State commerce of food held in cold storage for over a year. The bill also requires that any article of food that has been in cold storage for any length of time shall be considered misbranded in the meaning of the Pure Food act unless it carries a label stating correctly the length of time it has been in storage.

To Investigate Cancer in Fish.—President Taft sent a message to Congress last week asking for an appropriation of $50,000 to found a laboratory for the study of malignant disease in fishes. This fact illustrates the pressing need of a national bureau of health to which all matters of this kind could be referred.

Dr. Oskar C. Gruner, Clinical Pathologist to the General Infirmary, Leeds, England, has been appointed Pathologist to the Royal Victoria Hospital, Montreal, and Lecturer in Pathology at McGill University.

Individual Drinking Cups.—The announcement is made that the Pennsylvania Railroad Company

in compliance with the resolution of the State Board of Health, will introduce at all their stations and on their trains paper drinking cups.

Charitable Bequests.—By the will of the late Miss Martha R. Hunt of Somerville, Mass., the following institutions received bequests: Baldwinsville, Mass., Cottage Hospital, $15,000; Home for Incurables, Dorchester, $10,000; Maclean Insane Asylum, $10,000; Perkins Institute for the Blind, $10,000; Willard Hospital, Bedford, Mass., $10,000.

The Hempstead Hospital Association of Hempstead, Long Island, has filed articles of incorporation for the approval of the State Board of Charities. The new association is to take over the South Shore Hospital.

The Babies' Dairy has filed incorporation papers for the approval of the State Board of Charities. The dairy will operate in New York City and is formed to supply proper food to orphans, pauper, destitute, and sick children, and to care for and board such children, and for the education of mothers as to the care and feeding of infants.

The Working Women's Evening Dispensary has been established in Minneapolis. Dr. Mabel Ulrich originated the idea after a study of the conditions of working girls in Minneapolis. A corps of women physicians will be in attendance each night and may be consulted by the working girls in need of services. In all the departments the girls will be given treatment and supplies at cost, but the charges will be large enough so that the dispensary will be self-supporting.

A Clinical Course in Pulmonary Tuberculosis for graduates in medicine will be given at Bellevue Hospital, on Monday, Wednesday, and Friday afternoons from 2 until 4 o'clock, beginning Monday, May 8, 1910. The course will be given by Dr. James Alexander Miller of the College of Physicians and Surgeons, Attending Physician and Director of the Tuberculosis Clinic, Bellevue Hospital, and consists of twelve clinical lectures upon the modern problems of tuberculosis, combined with opportunity for the individual examination and study of a large number of patients. Information concerning the course may be obtained from the registrar of the college, 437 West Fifty-ninth street.

Dr. Massey at the London Cancer Hospital.—During the first week in April, Dr. G. Betton Massey of Philadelphia demonstrated his method of cataphoresis in the treatment of cancer at the London Cancer Hospital.

Rhode Island Medical Society.—The time for the annual meeting of the Rhode Island Medical Society has been changed to Tuesday, May 31, 1910, at Providence, R. I.

The National Association for the Study and Education of Exceptional Children will hold a conference on April 21 and 22, 1910, at New York University, Washington Square, N. Y. The president of the association is Dr. Franz J. A. Torek.

The American Proctologic Society will hold its twelfth annual meeting at St. Louis, Mo., on June 6 and 7, 1910. The headquarters and place of meeting will be at the Planters' Hotel, Fourth and Pine streets. The officers of the association are: *President,* Dwight H. Murray, M.D., of Syracuse, N. Y.; *Vice-President,* T. Chittenden Hill, M.D., of Boston, Mass; *Secretary-Treasurer,* Lewis H. Adler, Jr., M.D., of Philadelphia, Pa.

An International Medical Association to Contribute to the Suppression of War has been formed recently. It will hold its first congress in June, 1911, in Paris. The *President* of the association is Dr. J. Rivière and the *Secretary-General* Dr. J. Mazery.

The Montgomery County (Ark.) Medical Society was organized recently at a meeting at Womble, Ark. The following officers were elected: *President,* Dr. L. S. Kennedy; *Vice-President,* Dr. J. E. Alford; *Secretary,* Dr. J. H. McLean, *Corresponding Secretary,* Dr. J. B. Stuart; *Treasurer,* Dr. I. N. Freeman.

The South Texas Medical Association.—A number of colored physicians of Houston have organized themselves into the "South Texas Medical Association" for the purpose of research and special study of the three most dreaded diseases which afflict their race, tuberculosis, pellagra, and hookworm. The officers of the association are: *President,* Dr. J. D. Daviss; *Secretary-Treasurer,* Dr. E. A. Durham.

The Taylor County (Texas) Medical Society, at a regular meeting held April 5, 1910, elected the following officers: *President,* Dr. F. E. Haynes; *Vice-President,* Dr. C. T. Scott; *Secretary-Treasurer,* Dr. M. M. Carrick of the State Epileptic Colony.

Obituary Notes.—Dr. George M. Bazemore of Cleveland, Tenn., died at his home, March 24, 1910, aged 76 years. He was a graduate of the Bellevue Hospital Medical College in 1874, and was a member of the Bradley County Medical Society, the Tennessee State Medical Association, and the American Medical Association. Dr. Bazemore was the oldest medical practitioner in his county and was for many years chairman of the local board of health.

Dr. Clarence H. Beetle of Berkeley, Cal., died at the Roosevelt Hospital in that city, March 26, 1910, aged 28 years. Dr. Beetle was a graduate of the Cooper Medical College in 1904, and since that time had been resident physician of the Roosevelt Hospital in Berkeley.

Dr. George M. Bell of Benton Harbor, Mich., died in the University Hospital in Chicago, March 28, 1910, aged 62 years. He was a graduate of the University of Michigan in 1870, of the Northwestern Medical College in 1871, and of the Bellevue Hospital Medical College in 1875.

Dr. A. J. Darrah of Enosburg Falls, Vt., died at his home on April 3, 1910, aged 66 years. He was a graduate of the University of Vermont College of Medicine in 1867, and a member of the Franklin County Medical Society, and the Vermont State Medical Society.

Dr. Joseph Simon Girouard of Worcester, Mass., died at the Worcester City Hospital on April 3, 1910, aged 40 years. He was a graduate of Laval University in 1890, and had practised medicine in Woonsocket, R. I., Attleboro, Vt., Manchester, N. H., and Greenville, N. H.

Dr. D. Thomas Long of Topeka, Kan., died at his home, March 20, 1910, aged 63 years. He was a graduate of the Eclectic Medical Institute of Cincinnati in 1882, and was a member of the Kansas State Medical and Surgical Society and the National Eclectic Medical Association.

Dr. J. H. Rice of Pomona, Cal., died at his home recently, aged 83 years. He was a graduate of the Burlington Medical College and practised for many years in Magnolia and Logan, Ia. He retired from

practice twenty years ago and for the past twelve years has lived in California.

Dr. Samuel E. Smith of Nettleton, Ark., died at his home, March 26, 1910, aged 45 years. He was a graduate of the Barnes Medical College in 1904, and was a member of the Craighead County Medical Society and the Arkansas Medical Society.

Dr. Philander B. Taylor of Clio, Mich., died on March 30, 1910, aged 69 years. He was a graduate of the University of Michigan in 1885 and was a member of the Genesee County Medical Society and the Michigan State Medical Society.

Dr. Joseph Warren Odell of Greenland, N. H., died at his home, March 24, aged 79 years. Dr. Odell was a graduate of the Harvard Medical School in 1855, and was a member of the Rockingham County Medical Society and the New Hampshire Medical Society.

Obituary.

ANDREW HEERMANCE SMITH, M.D., LL.D.

NEW YORK.

Dr. Andrew H. Smith, who died on April 8 at his winter home in this city, was for many years one of the most prominent medical figures in New York. He was born in Charlton, N. Y., in 1837, was graduated in arts from Union College in 1853, and in medicine from the College of Physicians and Surgeons of this city in 1858. After graduation he studied at the universities of Göttingen and Berlin, and returning to this country at the beginning of the Civil War, went to the front as assistant surgeon in the Forty-third New York Volunteers. At the close of the war he remained in the regular service as assistant surgeon until 1868, when he resigned and came to New York, where for forty years he led the active life of a practising physician. He was especially interested in laryngology and was for a number of years connected with the throat department of the Manhattan Eye and Ear Hospital, but he never practised that as a specialty, preferring the broader field of general medicine. He was a close observer and clear thinker and the expression of his opinions was always listened to with respect even when his theories were not at once accepted as correct by his hearers. In practice he was full of suggestions and resources, a therapeutic optimist, and therefore a successful practitioner. In his social relations he was genial and pleasant and always welcomed as an entertaining companion. In his professional relations he was most sensitive as to true ethics and upright dealing and was righteously impatient of any deviation from the strait and narrow path of professional rectitude.

Dr. Smith was at different times attending and consulting physician to St. Luke's, St. Mark's, the Presbyterian, the Woman's, and the Post-Graduate Hospitals, and was a member of the New York Academy of Medicine, the Medical Society of the County and that of the State of New York, the Practitioners' Society, American Climatological Association, and Association of American Physicians. In 1903-4 he was president of the Academy of Medicine. In 1907, at the age of 70 years, he retired from the practice of medicine, moving to his summer home in Geneva, N. Y., spending his winters, however, in this city. In that year his Alma Mater, Union College, conferred on him the honorary degree of Doctor of Laws.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

OSLER'S LUMLEIAN LECTURES, ANGINA PECTORIS—CONTRACTED PELVIS, PUBIOTOMY—COLLEGE OF PHYSICIANS PRESIDENCY—OBITUARY.

London, March 25, 1910.

The Lumleian lectures at the Royal College of Physicians have been given this year by Professor Osler, who took for his subject "Angina Pectoris," on which he speaks with the authority of long study and ripe experience. What he had to say was said with his accustomed felicity of expression, making one wish that some other able men were similarly gifted. He defined angina as a disease characterized by paroxysmal attacks of pain, pectoral or extrapectoral, associated with changes in the arterial walls, organic or functional. It is, he declared, primarily an affection of the arterial system—of the pump and the pipes, of the system in which are literally the issues of life and death—and added there is no essential difference in these parts, for the arteries are only a long-drawn-out heart, and the heart but a bulbous expansion of an artery. This physical unit is worked as such and is controlled at every moment by an outside mechanism, an elaborate system of nerves penetrating every part and losing themselves in its structures. After referring to the general etiology, mentioning the interesting fact that angina seems to be specially prevalent among doctors, the lecturer divided his own cases into three groups: (1) Les formes frustes, of the French; (2) mild; (3) severe. The mildest cases form group 1. Its symptoms are substernal tension, uneasiness, and distress, rising gradually to positive pain, a not infrequent complaint from which few people escape. It is associated with three conditions—emotion, muscular effort, and high pressure. These three points differ much in significance. 2. The mild form, "angina minor," of which he had notes of forty-three cases. They comprise the neurotic, vasomotor, and toxic cases, which we used to call false, or pseudoangina, but which the lecturer considers identical with the others. 3. The severe group are those known as angina major, of which he had had 225 cases, 211 of them in men. In all these, or nearly all, there are organic changes in the arteries and liability to sudden death. Though recognizing that it is neither easy nor wise to class cases by symptoms alone, the professor made four groups: (a) Cases of death in the first attack or in a rapidly recurring series—those we have been calling "status anginosus"—and it is in such we meet with the most startlingly sudden death. (b) When a series of twenty, thirty, or forty attacks have occurred in the course of a year or more. (c) Chronic cases, extending over ten years or more.

Prof. Osler next passed to extrapectoral, or, more correctly, extracardiac forms, which may be regarded vascular crises. Of these he gave an exceedingly interesting account. Without asserting they were always due to such crises, he grouped them as (a) peripheral, (b) abdominal, (c) pulmonary, (d) cerebral, according to the prominent features which suggested the several distant vascular disturbances. Most instructive extracardial cases were given as their features appeared to throw light upon the essential nature of the disease.

The Harveian Society has held an important discussion on the treatment in labor of contracted pelvis, particularly in reference to the revival of pubiotomy. It was opened by Dr. F. C. Blacker, obstetric physician to the University College Hospital, in a paper based on a large collection of facts, the value of which was endorsed by subsequent speakers. He grouped the cases according to the degree of contraction. With a conjugate of two and two-fifths inches or less he said abdominal section was always called for. Between that diameter and three inches the ideal treatment was cesarean section, either before the onset or in the early stage of labor. The results were so good as an operation of election that its performance might be extended to a conjugate of three and two-fifths inches, or even more. In unsuitable conditions (version and forceps failing) craniotomy, or embryotomy, must be done. With a diameter of three and three-fifth inches or more spontaneous labor at full term must be waited for. The greatest difference of opinion related to cases with a conjugate between three and three and three-fifths

inches. It is in such pubiotomy had been proposed as a substitute for the induction of premature labor, version, high forceps, or craniotomy. But the maternal mortality of premature labor was in fact practically nil, and the patients recovered better than after full term. The fetal mortality was admittedly high—25 per cent.—but those born alive did as well as full term children. Pubiotomy, in skilled hands, showed 2 per cent. of maternal and 7 per cent. of fetal mortality, the morbidity being 40 and 60 per cent., respectively. It had no advantage over cesarean section for either mother or child, but for the child the mortality was less. There were some patients in whom the comparatively safe operation of cesarean section threatened extra risk, and in whom perhaps pubiotomy might seem less risky if done in proper surroundings, and was preferable to craniotomy on a living child.

Dr. Champneys as a teacher could not recommend pubiotomy to the profession; its general adoption would be a disaster. Cesarean section was in all points better, the risk to mother slight (with no after effects), and to the child nil. If inadmissible craniotomy could be done, which he held had no risk for the mother, those attributed to it being due not to the operation but to the conditions demanding it. He wondered how many patients who could appreciate what was to be done to them had submitted to pubiotomy.

Dr. Herman looked to cesarean section for improvement in the mortality and morbidity of childbirth. It dealt with healthy structures, every step could be foreseen, so different from tumor cases, and there ought to be no mortality. He had not done and did not intend to do pubiotomy—the operator could not control the injuries to the soft parts involved in the separation of the bones after division. It was no use to advise an obstetric operation which admittedly could only be done in hospitals with safety. He added that the age of the fetus was as important as the pelvic measurements.

Dr. W. S. A. Griffith said no exact measurements could be made unless the whole hand was introduced or the pelvis contracted to three inches or less. Other factors were as important. He thought cesarean section required when the head could not enter the brim.

Dr. Herbert Spencer favored induction of premature labor and said the statistics of fetal mortality were not reliable. He had induced labor six times in one woman and five of the children were alive and well, and had had other cases of multiple inductions. Such cases weighed with him more than statistics. Dr. Blacker put the elective point for cesarean section a little too high. He had induced labor at the thirty-fifth week in a three-inch conjugate, the child at birth weighing five pounds and now being a healthy girl of eighteen years. If called when infection or laceration of tissues had occurred, he would prefer cesarean section with excision of the uterus to pubiotomy.

Dr. A. Routh supported the last remark in cases where bruising and possibly infection of tissues had been produced. He instanced such a case where cesarean section had been done and it was hoped infection had not occurred, but within a few days sloughs on the child's head and over the abdominal wound had followed.

Dr. Gow would never do pubiotomy as an operation of choice. He would rather even do craniotomy. He did not think accurate measurements possible even with the hand inside. He could only think of one condition to justify pubiotomy—a case when, after many hours in labor, the head was jammed in the pelvis so as to make cesarean section difficult and dangerous.

Sir Richard Douglas Powell, not desiring to occupy any longer the positon of president of the Royal College of Physicians, Sir Thomas Barlow has been elected his successor. We have, therefore, three ex-presidents living, the other two being Sir Samuel Wilks and Sir William Selby Church.

One of the oldest members of the profession, Dr. Folliott James Sandford, died on the 17th inst., aged 92. He qualified at the College and Hall in 1846-1847 and took the M.D. St. And. in 1862. He had served as Medical Officer of Health at Market Drayton and was consulting surgeon to the hospital there, and had held other appointments. He had also been surgeon-major in a volunteer regiment. He contributed to the old *Medical Gazette* the eighth recorded case of "Dislocation of the Radius Backwards," and to the *Lancet* a case of "Hernia of the Appendix Vermiformis Calci."

The death was announced yesterday of another retired surgeon, John Nettleton Terry, in his seventy-eighth year. He was consulting surgeon to the Bradford Infirmary, M.R.C.S. at S. A. 1855.

Dr. William G. Curgenven died on the 18th, aged 68. He was consultant to the Derby Royal Infirmary and to Trent College, M.R.C.S. 1864, M.D. St. And. 1862. He wrote on "Fractures" in the *Medical Times-Gazette*, 1866.

Dr. J. T. Higgins, surgeon to the South Hospital, died on the 18th inst. L.R.C.S. 1865, M.D., R.U.L. 1868. He was J.P. for the county and held many appointments.

Dr. J. J. Roughton, J.P., surgeon to Hettering Hospital, died on the 19th inst. in his eighty-seventh year. Qualified in 1886. He had been assistant electrician at St. Bartholomew's Hospital.

Brigade Surgeon-Major F. Odevaine, F.R.S.C.I., died on the 20th inst. in his seventy-third year. He served during the Crimean campaign with the Turkish contingent and was awarded the medal.

Progress of Medical Science.

Boston Medical and Surgical Journal, March 31, 1910.

Growing Pains; a Possible Mechanical Explanation.—After a general consideration of this subject, L. T. Brown says that strained or relaxed sacroiliac joints may be a marked factor in causing growing pains in children. The treatment consists in giving support, combined with systematic exercise, to these joints until they are strong enough to carry out their functions without causing any symptoms in the rest of the body. The night pains and morning lameness seen in these children, may be explained as follows: During the day the muscles and ligaments holding the sacrum in place are in a constant state of contraction and the only symptoms are that the child gets more easily tired than other children, and that he cannot run and jump as well as his companions. At night, when sleep relaxes these muscles and ligaments, the sacrum may move or sag, and in so doing strain or irritate the joints and this irritation may be transmitted to the lumbosacral cord or the sacral plexus and cause the child to wake with pains in his legs and back. On waking, the position is changed, the muscles contract, the joints are protected, and the child goes to sleep again, the condition to be repeated with more or less frequency during the night. The ease with which this symptom may be confused with hipjoint disease is evident. In the morning there may be some lameness present when the child gets up, but this soon passes away. The fundamental principle of treatment is to give proper support to the feet. It is usually necessary also to give proper support to the pelvic girdle. This is easily done with a small leather belt which is fastened around the pelvis so that it comes, in front, below the anterior superior spines, and at the back, over the posterior superior spines. The belt is held in place by two perineal straps. This belt is used only temporarily, but if there is much pain it should be worn at night as well as in the day. Exercises should be planned with the idea of strengthening those muscles which tend to correct the faulty posture and not those which tend to exaggerate it.

Correlation of Respiration and Heart Beat During Exercise.—E. A. Wright says that the causes which lead to increased depth and frequency of respiration and to acceleration of the heart rate during exercise are to be considered separately. The two possible paths of connection between the acting muscles and the respiratory center are afforded by the nervous and circulatory systems. Experimental evidence does not support the idea of a pure nervous reflex, but suggests the idea that stimulation is effected through some product of muscular metabolism. The place stimulated is the respiratory center and not the afferent nerve endings in the muscles or the afferent nerves connected with the veins throughout the body. The stimulating agent is CO_2 which is carried by the blood to the lungs, probably in excess of the usual amount. The CO_2 tension (partial pressure) in the alveolar air and so in the arterial blood is thus raised and the respiratory center supplied by this blood is by virtue of its extreme sensitiveness to changes in CO_2 tension aroused to increased activity. In the case of excessive exercise the threshold exciting pressure of the CO_2 in the respiratory center is lowered, due to the presence of lactic acid in the blood. The part played by the vagi in this connection is probably a subordinate one; by regulating the rhythm of the respiratory center they lead to an economy of muscular effort. As regards the heart beat, there is experimental evidence to show (1) that the rate may be accelerated as a result of chemical action and (2) that changes in the chemical composition

of the blood, waste products of muscular metabolism, may act directly on the heart muscle if the work is vigorous and prolonged. The relative importance of the inhibitory and accelerator centers in the medulla, as central stations for a reflex activating the heart, is considered. Inhibition of the cardioinhibitory center at the beginning of exercise, combined with stimulation of the accelerator center later on, is the view favored. The origin of the nervous impulses affecting the cardiac centers is considered. The view that these impulses may be due secondarily to increased respiratory activity is discarded. They probably arise in the acting muscles and cells of the cerebral cortex. The correlation between respiration and the heart beat during exercise is not determined by a common cause, but is determined in part indirectly through the cause leading to increased respiratory activity, but not at the beginning of exercise. It is rather mainly determined by independent causes acting in harmony with each other.

New York Medical Journal, April 2, 1908.

Dissemination of Disease by the Fly.—After some observations on the early work in reference to the house fly as a disseminator of disease and the distribution of the insect, H. G. Beyer passes in review the evidence in our possession as to its influence in transmitting tuberculosis, leprosy, cholera, plague, summer diarrhea of children, carbuncle, frambesia or yaws, oxyuris, tenia, swine plague, and typhoid fever. Special mention is made of the spread of typhoid fever due to flies during the Spanish-American war of 1898. Elaborate evidence is supplied as to the relation of flies to these latter fever outbreaks. The author evidently believes that virulent typhoid bacilli do actually pass through the fly's intestine into the fly specks, about fifty being deposited within twenty-four hours by a single fly. These experiments give us an idea of the tremendous spread of typhoid germs that may be brought about by flies, breeding in infected excrements, when we reflect that one observer was able to hatch out 4,000 flies from only one-sixth of a cubic foot of night soil. These facts would go far toward explaining the hitherto not fully understood perpetuation, year after year, of typhoid occurring in certain localities in the milder climates, especially when we connect their meaning with the calculation made by one observer, viz., that twelve flies hibernating in crevices during a mild winter would send out forty thousand bacillus carriers, flying at the rate of about one mile in five minutes in all directions in search of food on the advent of the warm season.

Methods of Controlling the House Fly and Thus Preventing Disease.—E. P. Felt says that this depends on several factors. 1. The general recognition that flies must find certain favorable conditions for breeding or they cannot become abundant. 2. An understanding of at least the fundamental conditions controlling this multiplication of the insect. 3. A widely spread appreciation that exposed fly producing material is not a necessary accompaniment of our civilization. Some suggestions are given as to matters of daily life. Manure from domestic animals should be stored in fly-proof receptacles. Stables should be kept clean and dry, and should not be located near dwellings. Food kept for domestic animals easily breeds flies. Garbage pails and swill buckets should be kept tightly covered, kept clean, and emptied frequently. Miscellaneous house waste including decayed fruit, sweepings, and dish or slop water should be disposed of so as to prevent accumulation about the premises. Table scraps not used for animals should be burned. All flies should be excluded from the sick room, particularly in cases of contagious disease. Discharges of all kinds must be properly disposed of. All food that is to be eaten without being cooked must be kept from flies. Flies that have not been allowed to gain access to decaying material are comparatively harmless. We shall never be able to eradicate the fly, but can do much to prevent its development. Screening the windows is most commendable. Sticky fly paper is better than the use of poisonous preparations for dead flies may fall into the food. We should do away with pools of stagnant water. The warfare carried on against the mosquito shows what may be done in this direction.

Milk Intoxications by Ergotic Flora.—C. B. Fitzpatrick has made certain observations with regard to the infection of milk by ergotic flora, and reaches the following conclusions. (1) These investigations furnish a suggestion for the experimental investigation of milk intoxications. It is self evident that if these toxic agents can obtain entrance into the milk and cause disease, the substances which contain them, such as various members of the numerous plant disease fungi and similar organisms holding toxic bodies, can do likewise if they gain access via the fodder. The whole subject of the absorption of toxic agents in cows and their milk elimination thus demands investigation, prevention, and treatment. (2) A list of the toxic or poisonous weeds which occur in the fodder of cows in the New York city milk zone and elsewhere also becomes of significance. Likewise the activities of the agents which cause plant diseases of cow fodder. (3) The lesions of the digestive tract of the cow are also of vital importance, because we know that in these digestive diseases the toxic agents are not rendered harmless or neutralized, but eliminated directly as such. (4) That given an exact physiointoxication assay of the toxic agents of weeds, fungi, etc., in cow fodder, it would be practical to construct a table of say the fifteen or so of the most important of these poisons by their diagnostic reactions, for the qualitative analysis of milk intoxications, and thus perhaps recognize the poison and prescribe the appropriate therapeutic measures. (5) That the use of ergot as medicine should be much restricted. (6) The tests, as reported in literature, "of ergot have revealed a condition of affairs that may justly be said to be horrifying." A sample of ergot may be used for its stimulant or contractile effects, for instance, and have no such effects, but the opposite effects, and even the toxic and gangrenous results of ergot poisoning may result. Hence, the urgent necessity of comprehensive and exact assay of these agents such as outlined under conclusion 4.

Journal of the American Medical Association, April 2, 1910.

Modern Antiseptic Surgery.—W. W. Keen gives a history of the development of modern antiseptic surgery and of the rôle of experiments in its discovery and growth. He describes the conditions in the preantiseptic period when pus was always "on tap" and considered unavoidable, when surgical fevers were the rule, and secondary hemorrhages were also frequent, lock jaw and gangrene were common, and compound fractures and open joints were in more than half the cases fatal. The details and discovery of the antiseptic method by the researches of Pasteur, Lister, and their followers, together with the discovery of the infectious germs of surgical disease, are given in detail. Practically the progressive introduction of the antiseptic method from compound fractures up to deliberate surgical operations was, Keen says, one vast experiment in the human living body—an experiment justified, as all the world well knows, by its splendid and continuing results. Yet when in 1880 or 1881 Lister wished to make additional experiments on animals to perfect his method still further, so stringent was the law in Great Britain that he was obliged to go to the Veterinary School at Toulouse, France. What the results have been is shown by Keen. Most wounds now heal within a few days, one might almost say without the patient being ill, compound fractures and open joints heal as if there had been no break in the skin. Arteries can be tied anywhere without fear of secondary hemorrhage. The abdomen is now fearlessly opened. When Keen was assistant to Dr. Washington Atlee in the late sixties, two out of three of his ovariotomy patients died, yet he was then the most famous operator in America. Now any surgeon who loses more than five out of one hundred is looked at askance by his colleagues, and many hundreds of patients are operated on with a mortality under 1 per cent. The abdominal cavity is almost the surgeon's playground, and it does not contain an organ that has not been subject to operation. In obstetrics the same happy results have been obtained; puerperal fever, which used to kill frequently one-half or two-thirds or more of the women in a maternity hospital, is now almost unknown, and the preantiseptic general mortality in maternity cases has been reduced from 10 per cent. or more to 1 per cent. or less. Compound fractures now have a mortality of 1 or 2 per cent. or less, instead of over 60 per cent., and very rarely require amputation. The most striking evidence of the value of antiseptic treatment, however, was seen in the results of hospital treatment, and three notable instances occurring shortly after its introduction are quoted, the most extraordinary of which was that obtained by Lister in his own hospital in Glasgow. We are still, however, far from perfection. There are many problems of disease, still waiting solution, which can be solved by the experimental method. A number of organs are as yet inaccessible and there are others of

which we have yet to learn the functions. The causes of many diseases are yet unknown, and to dispel this ignorance and to discover a cure is the work of experimental medicine. Shall this be favored by the community? or shall we, by restrictive legislation, call a halt and give disease and death their free course? The answer, Keen says, is clear. It will never be other than an emphatic no to the latter.

Duties of Medical Officers.—L. B. Ashton, after noting the history of modern military surgery and pointing out some of the mistakes that have been made, advocates the endowment of chairs of military surgery and sanitation in the principal medical colleges of the country and the assignment of this branch of medicine to some correlated section in the State and national medical organizations. Ashton points out some of the duties of the military surgeon and especially as they are required in the tropical dependencies of the country at the present time, where, in the conquest of tropical diseases, American military surgeons have already earned a distinguished name. He regrets that more militia surgeons have not availed themselves of the advantages given by the throwing open of the Army Medical School at Washington, admitting them to its privileges with the regular army officers.

The Army Medical Service.—The lack of definite knowledge on the part of the general practitioner of the privileges and opportunities of the army surgeon is noted by Eben C. Hill, who quotes from an address to a graduating class of the army medical school in 1894, by Dr. Osler, in support of his contention. He emphasizes the fact that an army post contains, besides soldiers, who are not generally supposed to have a wide range of diseases, also women and children who come under the care of the post surgeon. Contrary to the rather general impression, venereal cases play a subordinate part in the sum total of disease at a post. While soldiers are not usually invalids, being selected men, they are subject to the ordinary infections and troubles, and the practice of the army medical man covers, as he shows by a statement of the classes of cases actually treated in three months at one post, a very wide range of disorders. The hospitals are thoroughly equipped for all kinds of surgical work and with necessary medical supplies, and the laboratories contain all facilities for clinical study. The leading American and foreign journals are taken and a rather complete library furnished. It is possible that a surgeon may be alone at a post, but this is exceptional, and the opportunities altogether are especially good for advancement in professional knowledge.

Proctoclysis.—An apparatus for continuous proctoclysis is described by Angus McLean. It consists of a galvanized iron or tin box, size 7 by 8 by 9 inches, the walls, floor, and cover of which are made of two layers with asbestos between. For the front two layers of glass instead of metal are used. A two-quart dish for the saline solution is placed in this box. The solution falls drop by drop into a funnel and is carried by a double-walled tube into the patient's rectum, a strip of gauze carrying it over the edge of the dish into the funnel, a strip giving fifty drops a minute being used. The water is kept at a definite heat of from 140 to 145 F. by means of an electric bulb or alcohol lamp under the dish. If any obstruction occurs it can be observed by the fluid filling the funnel. There can be no constriction of the tube by the arrangement used and obstruction would have to be caused by feces or pressure of the thighs, or in some other way. The apparatus furnishes a perfect drop which can be regulated to suit the needs. It allows for rapid expulsion of flatus, is inexpensive, and can also be improvised in any household with a basin, a funnel, a tube, and piece of gauze.

Epidermidolysis Bullosa Congenita.—J. R. Kanoky and R. L. Sutton report a case of this disorder, of which there are only about a hundred reported in the literature. A microscopic examination was made of the uninjured integument of the child, away from the lesions, showing the absence of the elastic fibers between the two major layers of the skin. They agree with Pusey in considering that these elastic fibers constitute an important factor in binding together these layers and their absence in epidermidolysis bullosa, or rather in the skin of the subjects of this disease, is the cause of its development after slight injuries. As the condition is undoubtedly congenital and hereditary in only about half the cases, the term "congenita" substituted for "hereditaria" seems to him more appropriate.

The Lancet, March 26, 1910.

The Abdominal Watersheds and Their Influence on the Localization of Intraperitoneal Infections.—C. R. Box divides the peritoneal cavity into various watersheds or drainage regions and discusses the tendency of lesions in the cavity to drain in accord with the directions of these regions. When a purulent infection begins to descend the declivity which slopes from the pelvic ridge toward the right loin it naturally tends to travel along the ascending colon which lies on this slope. The colon being usually more or less distended divides the slope into two gutters to which the names external and internal paracolic grooves have been applied. The external which lies between the colon and lateral abdominal wall leads directly to a well around the head of the right kidney. To this well also the mesocolic slope tends to direct effusions poured out in the upper part of the abdomen. Thus the right renal well or subhepatic pouch is of importance not only in connection with lesions in the upper part of the abdomen but also with the more common lesions of the appendix. Ascending infections may not only affect the right renal well but tend to make their way between the left lobe of the liver and the lateral wall of the abdomen into the right subphrenic space. Following along this general line of description the author then considers the anatomical boundaries of the recesses in which pus finally tends to accumulate and the signs which are diagnostic of its presence at these spots. Above the mesocolic shelf (transverse colon in connection with the great omentum) there are three situations in which suppuration may occur. First, the pus may lie in the right dome of the diaphragm constituting the true right subphrenic abscess. Second, it may lie in the left dome occupying part or all of the space known as the stomach chamber; this is the left subphrenic abscess sometimes called perigastric or perisplenic from the relations it bears to the stomach and spleen. Third, pus may lie below the right lobe of the liver in the recess known as the right renal well, right kidney pouch, or subhepatic fossa. When the purulent collection is very extensive its distribution may be widespread so that all the cavities are simultaneously involved. The author then gives the clinical histories of four cases which illustrate the anatomical points made by him. The treatment of all these forms of abscess is essentially surgical. Drainage is called for. Localization takes from seven to ten days or more. Dangers of secondary diffuse peritoneal infection, infection of the pleural sac and lung, and of portal pyemia are always present. The findings of the aspirating needle are often fallacious. It should never be used for puncture below the ribs nor below the diaphragm on the left side. In doubtful cases exploratory incision is the safest course in the long run. Extensive right subphrenic abscess caused by recent rupture of a gastric or duodenal ulcer is usually first explored from the front and if the pus collection is found localized, posterior transpleural drainage is usually adopted. If due to appendicitis it may be treated by an incision high up and far back in the flank but if the collection is of any magnitude it is better to open the subphrenic space higher up by the transpleural route, steps being taken to shut off the pleural cavity. The author advocates the Fowler position as the one in which appendicitis cases should be nursed. This position has the merit of preventing ascending infection but it favors drainage into the pelvic cavity and this fact should not be lost sight of.

The Treatment of Psoriasis.—E. G. Graham Little offers certain observations on the diagnosis of this condition and dwells on the character of the initial lesion. Of all local applications he prefers chrysarobin which may be applied in various ways as it is soluble in ether, chloroform, and benzine. It must be kept from the conjunctiva and if used on hairy parts must be carefully washed off before soap is applied, otherwise there ensues a purple discoloration of the hair. For small patches it may be applied in sticks made with white wax and lanolin. For exposed parts an ointment of 15 grains to the ounce is strong enough. In psoriasis of the scalp after removal of the scales an ointment of sulphur, camphor, liq picis carb., carbolic acid, and resorcin may be used; also an ointment containing oil of cade which is less difficult and cheaper to make. Oil of cade is probably the remedy next best to chrysarobin if the latter cannot be tolerated, but this rarely happens if one is careful. Tar baths may also be used and *x*-rays and light rays. In cases of acute and extensive disease chrysarobin may be applied to the whole body, the patient being kept in bed, the point aimed at being desquamation of the whole body under the remedy

and this treatment is kept up until the result desired is attained. Internally, arsenic has been much used and in children and in first attacks it is of service but is not as specific as mercury is in syphilis and its use does not prevent the appearance and spread of an eruption and the danger of forming an arsenic habit must be remembered. The use of that form of arsenic known as atoxyl is dangerous. Salicin has been used with very irregular results. Copaiba resin and potassium iodide have also been given. Many of these patients are neurotic and must be treated accordingly. The author is not an advocate of any special diet. The eruption can nearly always be dispersed even if the patient is not fully cured.

On a Case of Heart Block.—J. G. Emanuel describes the case of a small man of fifty-six years of age, who had a severe rheumatic attack at the twentieth year. All through his life thereafter he had attacks of momentary unconsciousness. When seen by the author the heart was found to be rather small, the pulse strong and full, and while a systolic murmur was audible at the apex that in itself was not considered sufficient to account for the frequent syncopal attacks and the persistent dyspnea on any but the slightest exertion. The most prominent symptom was the bradycardia and a diagnosis was made of heart block of Stokes-Adams disease. The author discusses the nature of this disease and refers to recent experiments by Erlanger on the mammalian heart. The bundle of muscular fibers involved in such cases has the form of an inverted Y which commences in the auriculoventricular node situated in the wall of the interauricular septum near the opening of the coronary sinus into the right auricle and passes down in the interauricular septum through the fibrous auriculoventricular ring into the interventricular septum where it divides at the lowest part of the pars membrane septi into two branches, one passing into the wall of the right and the other into the wall of the left ventricle. Finally the fibers of each branch spread out under the entire endocardial lining of the ventricular cavities. Erlanger found that by very slight compression of this bundle the interval between the contraction of the auricle and that of the ventricle was increased. With further compression a ventricular beat was regularly missed. In the present case the pulse beat ran from 36 to 42 per minute. Blood pressure was high. There was no cyanosis or edema of the extremities. Urine was free from albumin and sugar and there was no enlargement of liver or spleen. Pupils were normal. Knee-jerks were exaggerated. Pulse tracings are given. No satisfactory treatment has been found for this class of cases. In the syncopal and convulsive attacks rapidly diffusible stimulants and the nitrites may be of service. Many of the cases have shown, on autopsy, gummata, and potassium iodide might be given. Such drugs as strophanthus and digitalis are injurious. For this group of drugs diminishes conductivity along the auriculoventricular band and if pushed to excess will produce the condition of heart block. It is evident then for this if for no other reason the recognition of these cases is important and in every case in which there is persistent bradycardia, simultaneous tracings of the jugular and radial pulses ought to be taken, this being the readiest means by which this condition may be diagnosed with certainty.

British Medical Journal, March 19 and 26, 1910.

The Local Injection of Sodium Salicylate in Acute Rheumatism.—B. N. Ghosh says that in whatever form salicylic acid is taken it is converted into sodium salicylate in the blood and that the carbonic and phosphoric acids of the blood are constantly striving for the possession of the sodium. The salicylate has analgesic, antithermic, chologogic, and eliminative properties. Moreover, the bacterium of rheumatism, whatever it may be, is acted upon by the remedy with the same certainty as with mercury in spyhilis and quinine in malaria. This action is a local one, and the author decided to treat his rheumatic cases by injection of the salicylate. This has been done by Santini. He gives no explanation, but observes that the tendency to relapses was greater. Others recommend the deep injection of 1 per cent. solutions of carbolic acid. Still others have used a 10 per cent. solution with great relief to the joint pains. It appears to Ghosh that the curative effects of these methods lie not in the carbolic acid but in its conversion into salicylic acid, which in the laboratory is prepared by the action of CO_2 upon carbolates. We know that the carbolic acid is transformed into a carbolate in the blood and tissues. Therefore, when the carbolic acid is injected into an inflamed joint the carbolate comes in contact with the nascent CO_2 the result of the local inflammation with the effect that the free salicylic acid is formed which asserts its influence there. The author makes no mention of his own clinical results.

A Case of Family Albuminuria.—J. N. Ferguson refers to a family, all of whom were passing albumin. They were all of middle life and over and all appeared perfectly well. He calls attention of the significance of this fact to the matter of eligibility for life insurance. In one special instance alluded to, the condition had been present for at least twenty-five years. No casts were found and there was nothing in the patient's symptoms or condition to indicate kidney trouble. In fact, the existence of albuminuria came to light only incidentally. The heart was normal in size, the sounds were normal, the blood pressure was within normal limits, and there was little or no arterial thickening. At no time had there been any edema of the eyelids or legs. The albumin was serum-albumin and was present to the extent of 3 grams per liter. It is difficult to explain such cases. There is usually some relation between the passing of the albumin and excessive physical exertion, excessive ingestion of albuminous food, or emotional causes. One of the functions of the kidney is to prevent the escape of the albuminous matters from the circulation and the explanation of most cases of albuminuria is that one kind of disease or other either by directly damaging the organ or by indirectly interfering with its nutrition has impaired this function in greater or less degree. A few persons may have kidneys in which the albumin function is only imperfectly developed.

Acute Tuberculous Bronchopneumonia After Gastroenterostomy.—The patient whose history is herein described was under the care of W. A. Mackay, I. Macdonald, and H. A. Sutherland. These authors comment on the pulmonary complication to be feared after major operations of this nature but by careful disinfection of the mouth for some days before operation, by avoidance of chill during the preparation of the patient, by the minimum exposure of the viscera, and by the adoption of the elevated position whenever the effects of the anesthetic have passed off, much can be done to lessen the postoperative danger to the patient. The operators named above have lost one man out of 80 cases from pneumonia and two patients from cancer, death being due to "vicious circle." The present case was that of a man aged 39 who gave a long history of severe epigastric pain without vomiting, usually most severe in the early hours of the morning. After five days of hospital observation, the abdomen was opened above and to the right of the umbilicus, the right rectus muscle being pulled aside. About one inch beyond the pyloric venous plexus on the upper surface of the duodenum an irregularly rounded ulcer the size of a sixpence with a hard indurated base was found. Posterior gastroenterostomy was performed and the patient returned to bed in good condition. He did well till the sixth day when there was an onset of what proved to be tuberculous bronchopneumonia. It ran the usual acute course for two weeks. Prior to the operation the patient had neither cough, sputa, nor abnormal chest signs. It is probable, however, that he had a latent focus of infection which required only a lowered resistance to break out into this grave form of phthisis. Any suspicion of the duodenal ulcer being tuberculous was negatived by the clinical history, the appearance of the ulcer at examination, and a negative result in examining the feces for tubercle bacilli. The patient died in six months from this form of acute tuberculosis. The incidence of phthisis supervening on chronic gastric or duodenal ulcer varies from 20 to 27 per cent. and, in view of the fact experimentally proved that a lesion of the intestine favors the absorption of tubercle bacilli into the lymphatic and circulatory systems, by either of which routes they may reach the lungs, there is a clear indication for the earlier resort to surgical measures in cases of chronic ulcers which are not benefited by medical treatment. On the Continent it has been generally believed that the danger of the operation of gastroenterostomy itself is practically nothing compared to the risk of postoperative pulmonary infection which usually takes the form of bronchopneumonia.

Death Under Spinal Anesthesia by Jonnesco's Method in a Case of Acute Intestinal Obstruction.—Encouraged by his success in one case of intestinal obstruction operated on by this method of anesthesia, F. V. Milward tried it on a second patient, a man of fifty years admitted to hospital with symptoms of intestinal obstruction which had lasted eight days. He was much distended and vomited fecal matter very frequently. This in the surgeon's mind rendered general anesthesia out of the question and an injection of 10 cg. of stovaine and 1 mg. of strychnine in 1 c.cm. of water was made in the dorsi-lumbar region. On account of the patient's condition and abdom-

inal distension it was impossible to employ the sitting posture and forward arching of the back to any advantage and it was only after three attempts that the insertion of the needle was accomplished. In seven minutes after injection the patient's pupils began to dilate and his pulse to fail. In a few minutes he became unconscious, vomited profusely, and his respiration became very shallow. Fifteen minutes after injection his pulse was imperceptible and he was practically dead. Various measures of relief were tried without effect. Autopsy showed both visceral and parietal layers of the peritoneum studded with small nodules of gray malignant growth, thickest in the pelvic region and at the mesenteric attachments of the gut. The sigmoid flexure was severely kinked by the attachment of a nodule of growth in the omentum to an epiploic appendix; a little free fluid was present. The appearance of the spinal cord was perfectly normal. No hemorrhage was noted inside the spinal theca and the technical part of the injection appeared to have been properly carried out. There can be no doubt that the man's death was due directly to the toxic effects of the stovaine and strychnine given by injection. Shock caused by traumatism was negatived by the absence of any definite injury to the cord or its membranes but the sudden and fatal onset of cardiac and respiratory failure was exactly what might be expected of a reagent producing the same changes in the medullary region as was purposed to be produced in the lower dorsal segments of the cord. The author has previously operated on a similar patient without any disturbance. In this case the complete analgesia of the entire abdomen, its complete relaxation together with the entire absence of peristalsis and inclination of the distended bowels to press through the wound were most satisfactory experiences in abdominal surgery and he was inclined to think that the ideal method of anesthesia had been found. He believes that it would have been dangerous in the patient here mentioned to have given even a less concentrated dose of stovaine. Jonnesco utters no grave warning against full doses but does advise that the amount of 10 cg. shall be reduced in cases of severe illness and has extolled the wonderful safety to be acquired by the combination with strychnine.

Optic Neuritis and Suppurative Otitis.—J. S. Barr and J. Rowan have made a further investigation into the frequency and significance of optic neuritis and other vascular changes in the retinæ of patients suffering from purulent disease of the middle ear. Their results are presented in tabular form and must be studied by those interested. The following conclusions are presented (1) Optic neuritis may occur in cases of purulent middle ear disease without obvious signs of an intracranial complication, 11 times in 160 cases of 6.8 per cent. (2) Apart from optic neuritis vascular changes of a lesser degree are frequent, 39 times in 160 cases or about 25 per cent. (3) Cases of purulent middle ear disease in which the optic neuritis or vascular engorgement of the fundus is present are much less amenable than those in which the fundus is normal. (4) As a general rule an improvement in the eye condition is accompanied by an improvement in the aural condition while an increase in the intensity of the changes in the fundus or their persistence is associated with less amenability to treatment and greater gravity of the ear condition. (5) The most probable cause of vascular engorgement of the fundus or optic neuritis is serous meningitis, localized or diffused. (6) Optic neuritis caused in this way is not usually followed by atrophy and unless there are other symptoms demanding it, opening of the dura is unnecessary. The practical lessons deducible from the foregoing are that a case showing these changes in the fundus should be closely watched, and their existence regarded as an additional reason for the early performance of the radical mastoid operation, and if on the other hand they show a tendency to clear off, especially with improvement in the ear condition, or if the fundus is normal to begin with and remains so, we may with more confidence look for a favorable response to conservative treatment.

Berliner klinische Wochenschrift, March 7 and 14, 1910.

The Treatment of Perforated Gastric Ulcer.—M. Martens says there is no condition demanding a rapid diagnosis more than perforation of a gastric ulcer. The cases are often confused with appendicitis and allowed to die owing to conservative treatment. The diagnosis in the early stages should not be difficult. Most of the cases have complained previously of stomach trouble. Though there may have been no hematemesis or intestinal hemorrhage, there is usually a history of pain directly after meals. The characteristic symptoms are the sudden lightning-like pain and collapse. The temperature may be raised or subnormal. In some cases the pulse is very rapid, in others it is slowed. The leucocytes are as a rule high. Vomiting occurs in one-third of the cases. The tongue becomes dry very early. The whole abdomen is spontaneously painful. The chief pain is in the epigastrium or near the navel; it may be over McBurney's point. The abdomen is board-like. On admission to the hospital the author has the patient put to bed, the extremities wound in flannel, and hot water bottles applied. He is then given morphine, scopolamine, and caffein. Then immediate operation is indicated, preceded by an infusion if necessary. The best antidote to shock is closing the perforation. The two purposes of operation are the closing of the perforation and the toilet of the peritoneum. He advises against excising the perforation. He stitches it up in two stages. The stitches should be taken parallel to the long axis of the stomach, especially near the pylorus. If the ulcer has produced a stenosis, a posterior gastroenterostomy is indicated. The second stage of the operation is the peritoneal toilet. He prefers irrigation to washing. He uses physiological salt solution of a temperature from 99° to 104°. He usually makes a secondary incision in the ileocecal region, through which the pelvis is irrigated and drained. Of the last eighteen cases so treated by the author, eight have recovered.

Two Rare Cases of Retention of Urine.—L. Casper reports two peculiar cases. The first, a man of 68, free from nervous or other diseases, and with a normal prostate, had had complete retention of urine for eight years, necessitating a catheter life. This is probably a case of "age bladder," due to fibrous degeneration of the muscles of the bladder wall. The second case was of a man of 34 years of age, who had had complete retention for six years. This patient also showed signs of atrophic condition in the skin. Casper believes that in this man also there is atrophy of the bladder muscle. In both cases Casper inserted permanent catheters.

The Casein Content of Woman's Milk.—Engel and Frehn have analyzed a considerable number of specimens of woman's milk in respect to the casein content. The specimens varied from the eleventh to the two hundred and twenty-third day of lactation. Their conclusions are that the casein nitrogen makes up from 40 to 45 per cent. of the total nitrogen. The casein content of the milk varies from 0.4 to 0.6 per cent. The relative amount of casein in the milk varies greatly in the same person, for which no laws can be laid down. The various factors which influence the composition of woman's milk, as period of lactation, individuality, phase of nursing, and intermission between nursings appear to play no especial rôle in the determination of the casein content.

The Diagnosis of Cancer of the Rectum.—L. Kuttner describes the case of a man of 51 years who came to him for indigestion, slight irregularity of the stools, and loss of weight. An examination of the abdomen and the gastric functions showed nothing abnormal, but as a little blood was found in the stools a rectal examination was made and a small ulcer seen, 11 cm. from the sphincter. A piece was excised and the diagnosis of adenocarcinoma made. The rectum was excised. The ulcer measured only 1.5 x 2 cm. The author emphasizes the necessity of making a rectal examination in every case suggesting cancer, and the importance, if an ulcer is seen, of excising a bit for examination.

Münchener medizinische Wochenschrift, March 8 and 15, 1910.

On Muscle Hernia.—Lexer and Baws say that the term muscle hernia is applied to a clinical picture, most commonly seen in connection with the biceps muscle after a trauma, a sudden strain, or disease of the fascia. There appears a soft pseudofluctuating tumor which becomes hard with muscular contraction. Usually when the muscle is relaxed the slit in the fascia can be felt. The pain is slight. Cases also occur in which the fascia is not torn, but only thinned so that the muscles bulge it out. In others, the muscle has been torn and the tumor which one feels is in reality the loose end of the muscle. The condition may be simulated by tearing loose of one head of the biceps. The authors have carried out some animal experiments, from which they conclude that a pure muscle hernia without associated rupture of muscle can be considered to exist, only when a muscle tumor protrudes during relaxation through a palpable tear in the fascia, and disappears on muscle contraction. If the muscle tumor increases during contrac-

tion, one is dealing with a ruptured muscle. If the slit is palpable in the latter condition the lesion is a combination of injury to the fascia and tear of the muscle. In the absence of a palpable slit in the fascia, a muscle tumor increasing during contraction is an uncomplicated tear of the muscle.

The Action of Sublimate Upon the Wassermann Reaction.—Satta and Donati refer to a former paper in which they suggested that the Wassermann reaction was the result of ferment activity. In a search for substances which would paralyze the Wassermann reaction they hit upon sublimate solution. They found that the addition of a trace of bichloride absolutely prevented the action of the Wassermann reaction in syphilitic sera. The Wassermann reaction, however, reappeared if to the bichloride solution was added some substance which would dissociate the mercury salt, as potassium cyanide.

Deutsche medizinische Wochenschrift, March 3 and 10, 1910.

A Case of Diabetes Remaining Cured for Ten Years.—Teschemacher refers to the scant literature on cured and latent cases of diabetes mellitus and then reports a case of his own, a man of 57 years of age, who first came to him in the summer of 1899. The patient was an exceptionally large, powerful man, who, in recent years, had not done any work, owing to the shock of an injury in which his testes were crushed. Some years after this accident the patient became ill with weakness and emanciation and a mild grade of diabetes mellitus. He came under the author's care a few months later. Physical examination showed nothing abnormal. The urine contained 2.7 per cent. of sugar, but no albumin or acetone. After four weeks on a strict diet the urine was sugar-free. At the end of five weeks the patient was discharged, taking daily 150 grams of bread and some potato and fruit without glocosuria. The author did not see the patient again for ten years. During that time he had returned to a full mixed diet, and systematic urine examinations made every few weeks had failed to demonstrate any sign of the previous diabetic condition. At the second visit the patient was suffering from chronic nephritis. The author then refers to a series of cases seen by him in 1902, in which two children, one four years old and the other fourteen months old, suffered from what appeared to be acute diabetes, but recovered. At the same time their parents both had glycosuria, the mother's transient, the father's continued. The author states that all these cases took his "cure," but fails to mention of what that consists.

The Clinical Picture of Tooth Retention.—A. Ffister says that our knowledge of the diseases caused by the retention of teeth has grown rapidly during the last few years, this being in no small degree due to the use of the *x*-rays. The cause of the retention may be that the original deposition of the tooth germ was in such a deep position in the jaw that the developing tooth was unable to penetrate the overlying bone; it may be due to the seed having been placed at an improper angle so that the line of growth is not towards the usual point of eruption, and the tooth grows out towards the gum behind the jaw, into the lip, into the nose, or into the anthrum. A second cause is too small a jaw bone crowding the tooth out of its natural position. The third cause is inflammatory or traumatic changes in the jaw. The symptoms of the condition are varied. There is usually more or less swelling of the alveolar process over the point where the tooth lies buried. Next to the swelling the most common symptom is pain, which may vary from mild discomfort to intense agony. The pain is usually of a neuralgic character. The reason for it is not always clear. It may be a true neuralgia from the root or the crown pressing upon a nerve. This is most commonly the case with the molars of the lower jaw, which when misplaced may press upon the nervus mandibularis. Rarely the roots of the teeth grow together, and in so doing surround a nerve or the entire mandibular canal. If the pain is slight and the axis correct, the tooth should be allowed to take its course. In other cases of removal of bone the tooth may be straightened. A complication which may call for surgical interference is an inflammation of the jaw. This may be of one of three forms, an ulcerative stomatitis or pressure ulcer, a periostitis, or an inflamed alveolar cyst. In long standing inflammation there may be fistula formation, and granulations suggesting neoplasm. The surgical importance of such cysts and tumors is that radical operations should be avoided. The symtoms of tooth retention usually appear between the fifteenth and thirtieth year, though they have been seen as early as twelve, and as late as seventy. The canine tooth is the most frequently involved, then the incisors and the wisdom teeth. The *x*-ray makes the definite diagnosis very simple. Three cases are reported.

Treatment of Myomata by the X-Ray.—Schindler reports twelve cases of myomata treated by the *x*-ray. In no case did the treatment cause increased bleeding. The author considers that in the *x*-ray we have a most valuable means of treating myomata, far superior to all other known methods except operation, and that frequently *x*-ray treatment spares the patient the hardships and dangers of operation.

Tuberculous Meningitis in the Aged.—J. Jaquet says that while tuberculous meningitis is primarily a disease of youth, it may also occur in the aged. Of 621 cases of tuberculosis treated in his hospital, to which only adults were admitted, there were 16 cases of tuberculous meningitis confirmed by autopsy. Nine of these were between the ages of 17 and 40 and seven above 40. These last seven he reports and analyzes. Four were men and three were women. The clinical picture was quite uniform, but varied markedly from that of the disease in childhood. The most common symptoms were stupor and coma. Delirium was not frequent. Vomiting was absent in most of the cases. Spontaneous complaint of headache occurred in but two cases. Retraction of the abdomen occurred but once, and retraction of the head was very rare, as was also Kernig's sign. The pateller reflex was absent but once. Babinski's reflex was positive once. The fever was variable; once it was absent, once very slight. Eye symptoms were slight, in only one case there being strabismus. In three cases there was retention of urine; in one, incontinence. The course of the disease varied from 5 to 20 days.

Hysterical and Spastic Intestinal Obstruction.—O. Nordmann says that intestinal obstruction may be caused by a spasm of the musculature of a section of the gut. The cause of the cramp lies in a general nervous condition, especially in hysteria. There are cases in which the most careful examination of the patient is fruitless, and the section either at operation or postmortem fails to throw any light upon the cause of the conditions. It is important in every case where there is a suspicion of an obstruction due to muscular spasm that the patient at once be removed to a hospital. The therapy, if the nervous foundation of the condition is evident, may be conservative, so long as the patient's general condition remains good. If the condition grows worse an enterostomy is indicated to empty the distended loop and prevent autointoxication. The prognosis of the attack, provided the gut is not paralyzed, is good, especially when the cause of the spasm is nervous. It is bad when the paralysis, which is often associated with the spasm, cannot be overcome.

A Contribution to the Functional Diagnosis of the Kidney.—Julius Vogel discusses the proper procedure in cases of kidney disease in which urethral catheterization is not possible. One must make as much use as possible of the classical methods of examination, palpation, percussion, and chemical and bacterial uranalysis. Next in importance comes cystoscopy, if it can possibly be done. With simultaneous injections of indigo carmine rather extensive information as to the functional activity of the kidneys may be obtained by cystoscopy, even without ureteral catheterization. Next the phloridzin test should be made and cryoscopy of both blood and urine done. If the latter gives repeatedly bad results, the author advises against the operation. If cryoscopy is out of the question, the following procedure, recommended by Casper, may be carried out. Before the operation a catheter is inserted into the bladder. Then, after dissecting out the ureter of the kidney to be operated upon, this is clamped off and at the same time injections of indigo carmine and phloridzin are made. By this means one can learn quickly the condition and functional activity of the opposite kidney. This method is, of course, open to greater errors than ureteral catheterism, but it is used only as a last resort. He especially recommends cryoscopy of the blood and urine in all cases, and emphasizes its significance as an indication for operation.

Two Cases of Alopecia with Arrest of Development Localized on the Cranial Vault.—Lequeux describes a peculiar failure of development of the cranial vault and the skin covering it, which results in a localized baldness, and a deficiency of the bone of the vault. He notes two cases of this malformation. It occurs in all degrees from a small spot of baldness and a small absence of bone tissue, to a large defect covered only within a thin layer of fibrous connective tissue. The defect is always between the two fontanelles.—*Bulletin de la Société d'Obstetrique de Paris.*

Book Reviews.

Surgical Anæsthesia. By H. Bellamy Gardner, M.R.C.S., L.R.C.P., London; formerly Anæsthetist and Instructor in Anæsthetics at Charing Cross Hospital; Anæsthetist at St Mark's Hospital for Fistula, the National Orthopædic Hospital, and the Male Lock Hospital; Assistant Anæsthetist at the Royal Dental Hospital of London. New York: William Wood and Company, 1909.

The keynote of success in anesthesia is that the patient should receive the anesthetist's undivided attention; that each patient should be considered as an individual who shall receive his narcotic according to his peculiar needs and susceptibility, not as a body through which so many grams of gas is to be passed in so many minutes. This is the note most happily struck in the present volume. The first part of the book is taken up with the patient, the signs of anesthesia, the physical type and temperament, and the pathological condition of the subject. The cardinal principles of anesthesia are given to "maintain a clear airway" and "to make absolutely sure of the exact degree of narcosis present." The beginner is told "that he must either feel or hear every respiration." Types of breathing—rapid, deep, shallow, and irregular—each receives its paragraph. The second half of the book takes up the various anesthetics—nitrous oxide, ether, chloroform, and ethyl chloride. Under these headings the methods of administration are given, and the more common forms of apparatus described, but here, too, one gets the impression that observation of the patient is the all-important point. The last few chapters briefly discuss anesthesia in its relation to regional surgery, surgical shock, emergencies, and after-treatment. For a book of its small size the present work is exceptionally complete. It is written to tell the student what he should know as briefly as possible, a purpose which is accomplished without sacrifice of literary style or loss of clarity. It can well be recommended to every senior student and hospital interne.

Diseases of Children. Edited by Abraham Jacobi, M.D., LL.D.; Member American Medical Association, American Pediatric Society, Association of American Physicians, American Climatological Association, Congress of American Physicians and Surgeons, New York Academy of Medicine, New York Pathological Society, New York Obstetrical Society, Consulting Physician Mt. Sinai, Bellevue, German, Babies', Women's Infirmary, Orthopedic, Minturn, and Hackensack Hospitals, etc. An authorized translation from "Die Deutsche Klinik" under the general editorial supervision of Julius L. Salinger, M.D. New York and London: D. Appleton and Company, 1910.

Probably the most valuable portion of the physician's education is the period after he has learned what his own professors have been able to teach him, has completed his practical work in his hospital, and then gives up his few months, or, if he is so fortunate, his year or two, to traveling from city to city studying the methods of other teachers who think differently from those whose opinion he has come to consider as law. To those who can afford it, such a "*Wanderjahr*" is considered a necessary part of the education, and the mental breadth and tolerance so obtained remain with him through his entire career. This is especially so in the case of pediatrics, where so much is done by rule of thumb and by mathematical formulæ. To the young American pediatrist, with his firm impression of top milk feeding, to go to England and see little but diluted whole milk used; to France, where the whole milk is not diluted; or to Germany, where the entire attention is paid to the caloric content of the mixture—even if he may not believe that the results in all cases are quite as good as those of his revered professor at home—the lesson of broad-mindedness is taught. To many students and physicians, however, such travels are not available, and for their sake in the present volume Dr. Jacobi has brought the great clinics of Europe to him. The book is a series of monographs upon subjects pediatric, each by a man whose name is well known far beyond the confines of his own country, but monographs so concise and yet so comprehensive that the subject is covered with most excellent completeness. In many parts of the book opinions are expressed which differ radically from those held in this country, as, for example, when Czerny states that an infant two weeks of age should be fed not oftener than once every four hours. Each chapter of the book, however, takes up some aspect of the subject on which the author is considered especially qualified to write; and as the list of authors includes such well-known men as Czerny, Keller, Heubner, Mornti, Finkelstein, Baginsky, and Henoch, a perusal of its pages is an excellent substitute for a tour of the German clinics. It is not a book to be put into the hands of the student. If read before the reader has thoroughly familiarized himself with the teachings of his own school, it would be apt to produce hopeless confusion. To one who is, however, well versed in his own country's theories of pediatrics and anxious to learn in what ways the German authors differ therefrom, but is unable to cross the ocean to find out, the present book is of inestimable value. To the man who has worked in the German clinics, it is fascinating reading, recalling the special peculiarities and hobbies of the various chiefs.

Quain's Elements of Anatomy. Editors: Edward Albert Schäfer, LL.D., Sc.D., F.R.S., Professor of Physiology and Histology in the University of Edinburgh; Johnson Symington, M.D., F.R.S., Professor of Anatomy in Queen's College, Belfast; Thomas Hastie Bryce, M.A., M.D., Lecturer on Anatomy, University of Glasgow. In four volumes. Vol. III.—Neurology, by E A. Schäfer and J. Symington. Parts I and II, eleventh edition. London: Longmans, Green and Company, 1908.

Quain's Anatomy has become too well known during its many editions to require any recommendation to the teacher or student, as it has won for itself its own position as one of the standard text books of the day. Its convenient form, in several small volumes, commends it to the student who has to carry his text book back and forth from the dissecting room, and its careful attention to microscopic anatomy, as well as gross structure, makes it differ somewhat from the usual type of anatomy familiar in the class-room. This characteristic is especially noticeable in Part I of Volume III, which deals with the general structure of the nervous system and the structures of the brain and spinal cord. Under this heading are described not only the gross shapes of the cerebrospinal axis, but the minuter details of the neuron theory and fiber grouping which makes up the present-day science of neurology. Part II contains the descriptive anatomy of the peripheral nerves and the organs of special sense. The books are in no sense dissecting-room guides, but are of especial value to those who wish to know the physiological significance of the structures of the human body, as well as their outward appearance. The illustrations, as in previous editions of the same work, are rather small and tend more toward being objectively accurate than diagrammatically clear. The system of lettering and numbering the various structures, and then explaining the letters and numbers in a footnote, is adopted rather than the less artistic but simpler and more evident one of placing the name on the structure or at the edge of the picture. This leads to considerable loss of time in referring to the plates, and sacrifices usefulness to neatness. The book, however, is an excellent piece of work, and this volume in its two separate parts makes up a thoroughly accurate and trustworthy text-book of neurological anatomy.

Surgical Anatomy. By John A. C. Macewen, B. Sc. in Anatomy and Physiology with Honors, M.B.C.M., with Honors, Fellow of the Faculty of Physicians and Surgeons, Glasgow. Senior Assistant to the Regius Professor of Surgery, Glasgow University; Surgeon to the Elder Hospital, Govan; Assistant Surgeon to the Royal Infirmary, Glasgow, and H. R. H. Princess Louise Hospital, Roseneath; Late Civil Surgeon, South African Field Force. New York: William Wood and Company, 1910.

This is a concise yet connected account of the essential features of surgical anatomy. It will serve as a useful companion to any of the standard text-books on descriptive anatomy; and to the physician or surgeon in general practice it will be more serviceable than the ordinary text-books. The work is well written, well printed, and well illustrated.

Bibliography of Trypanosomiasis. Embracing original papers published prior to April, 1909, and references to works and papers on Tsetse-Flies, especially Glossina Palpalis. Rob.-Desv. Compiled by C. A. Thimm, Librarian, Sleeping Sickness Bureau. Issued under the Direction of the Honorary Managing Committee. London: Sleeping Sickness Bureau, Royal Society, Burlington House, 1909.

The contents of this pamphlet are sufficiently indicated by the title. There are 228 pages, with 1894 titles alphabetically arranged; and the volume is an almost complete list of references to the published works on sleeping sickness. It will be indispensable to all future writers on that subject.

Society Reports.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held on February 21, 1910.

THE PRESIDENT, DR. ROBERT T. MORRIS IN THE CHAIR.

A Case of Typhoid Fever of Unusual Duration.—Dr. RANSFORD E. VAN GIESON of Brooklyn said he had just discharged a case of typhoid fever that had been under his care since September 13, 1909, a period of over five months. When he first saw the case, the initial temperature was 104° and the patient gave a history of having been sick about ten days. After five weeks' illness the temperature dropped to normal, and remained so for ten days. Then it arose to 104° and remained elevated for about a fortnight. After remaining normal for about a week, it again became elevated to 104.5° and altogether there were three relapses of this kind, making this the longest case of typhoid fever he had ever seen. In reply to a question, Dr. Van Gieson said he strongly suspected that these relapses were due to a focus of reinfection in the gall-bladder. Previous to each relapse, the patient had had violent attacks of vomiting with very slight jaundice.

DR. ANTHONY BASSLER mentioned a similar case observed last year. In his case there were three relapses, and the case was of about three months duration. During the attack and first two relapses there were no symptoms of gall-bladder infection, but the last relapse was accompanied with jaundice and bile in the urine, and for some weeks there was a fatty diarrhea, with clay colored stools. The intestinal symptoms immediately cleared up when the fatty intake of food was controlled. It was probable that the gall-bladder was infected early in the history, but that definite symptoms of it did not occur until considerable cholecystitis occurred.

A Case of Puerperal Septicemia with Unusually High Temperature.—Dr. EDWARD WAITZFELDER said that about a month ago a pregnant woman was admitted to Gouverneur Hospital suffering from severe burns of the arm, thorax, and abdomen. These were treated by the open method (exposure to the air), and after a week or ten days, she was taken in labor and transferred to the maternity ward, which was occupied at that time by a number of parturient women. In less than a week after her admission to this ward, five of the inmates developed puerperal septicemia. In one of these cases the temperature gradually rose, with daily remissions, to 108.6° F. 6th day, 108.6° on the ninth day, and finally reached 110° on the 10th day. It has gradually receded and to-day, the 32d day of her illness, it is 98.6° and the prospect of recovery is very good. In spite of this high temperature the patient never complained of thirst, heat, pain, or any feeling of discomfort and in fact the psychosis of the case was more remarkable than the temperature, and at no time did she have the appearance of one severely ill. In this case, the blood culture was negative; but a single examination was made, the patient refusing to allow another vein to be opened. The speaker hoped to have another blood culture made before the termination of the case as he had found that in cases of septicemia with high temperature, repeated examinations are sometimes necessary to recover the organism from the blood. Dr. Waitzfelder said he regarded the high temperature in this case only as a medical curiosity; that it was caused by the action of the toxins on the heat center, that it was in no sense the measure of the amount of inflammation present and that the only scientific importance to be attached to it was the fact that no visceral changes resulted. Except for a slight albuminuria, which lasted only a few days, there was no evidence of the presence of parenchymatous degeneration of the heart, liver, or kidneys; a condition which we would expect to find with high temperature and toxemia. The question as to whether the patient was suffering from streptococcemia or sapremia, that is, whether it was a bacteremia or a toxemia was still under consideration and could only be answered by other blood cultures. The patient who was suffering from the burns, and to whom these infections were attributed, was duly confined and did not suffer from puerperal septicemia.

A Case of Cancer of the Liver with Misleading X-Ray Plate.—Dr. WAITZFELDER reported this case, and showed an *x*-ray picture which had led to the mistaken diagnosis of cancer of the stomach. The patient was a woman of 60, who, when she came under observation two weeks ago was markedly cachectic and gave a history of long-standing gastric trouble, including occasional attacks of vomiting and pain after eating. Upon examination, there was a well marked mass in the epigastrium, just to the right of the median line. This Dr. Waitzfelder was inclined to attribute to a tense condition of the fibres of the rectus muscle, although several other physicians who examined her looked upon it as a malignant growth connected with the stomach. The patient was given a test meal, and the stomach contents were subjected to the usual laboratory tests, with negative results. An *x*-ray picture was taken by Dr. William H. Stewart, which showed a distinct narrowing of the diameter of the stomach, particularly in the region of the lesser curvature. This strengthened the belief that the case was one of cancer of the stomach, and an exploratory operation was done, which revealed a cancer infiltrating the left lobe of the liver, with involvement of the mesenteric and retroperitoneal glands. The stomach, with the exception of a small nodule in the wall of the lesser curvature, was practically normal. The case was interesting, the speaker said, in that the interpretation of the *x*-ray findings were absolutely negatived by the results of the operation.

DR. ROBERT W. EASTMAN, after examining the *x*-ray plate, said that in radiographic pictures of the stomach and intestines, the changes in the position and outline of the organs should be looked upon as relative rather than absolute. In this particular case he thought that the narrowing in the outline of the stomach was due to pressure from without rather than to a growth of the stomach wall itself.

DR. WILLIAM H. STEWART said he agreed with Dr. Eastman that it was sometimes impossible to tell from the *x*-ray picture whether we had to deal with actual involvement of the stomach wall or whether the change in outline was due to pressure from without, in this case the narrowing of the stomach shadow with some irregularity at the upper portion of the line representing the lesser curvature, had been responsible for the opinion given that the growth involved the stomach wall. There was no organ in the body which so frequently changed its relations to the adjacent organs as the stomach, consequently the normal shadows frequently vary. The speaker had now learned that before giving an opinion, one or two confirmatory radiographs should be taken.

The Effect of X-Ray Treatment in a Case of Endothelioma of the Stomach.—The president, Dr. MORRIS, said that some months ago he did a posterior gastroenterostomy to relieve pyloric obstruction in a case of supposed epithelioma. The growth was so extensive in character that a radical operation was deemed inadvisable, but a section was removed and submitted to Dr. Aspinwall Judd, who pronounced it an endothelioma. Under *x*-ray treatment, the growth had apparently disappeared entirely; the patient had gained about 50 pounds in weight and was now practically well, but may have recurrence. Epitheliomata and endotheliomata, Dr. Morris said, simulated each other so closely that they could not be distinguished ex-

cept by the aid of the microscope, and if of the latter type, the growth was amenable to the *x*-ray treatment, it was a fact worth keeping in mind.

Address by the Retiring President.—Dr. Morris, the retiring president, spoke of the high class of work done by this association, which was now recognized as the most active medical society in the city, perhaps in the State. In a large measure, he said, its success was due to the activity and efficiency of its Secretary, Dr. P. Brynberg Porter, and to the constant aim of the Association to restrict its work to strictly scientific channels, avoiding discussions of subjects of non-medical character, and in presenting at its meeting papers and discussions that covered the topics of the day in medicine.

Why We Are What We Are: The Proper Function of the Medical Society.—Dr. Reynold Webb Wilcox, the President-Elect spoke on this subject. After briefly reviewing the work of the association, he said that it did not find the motive for its existence in the dreary level of mediocrity, but in an earnest and successful effort to create a medical aristocracy, in membership, scientific work, and social relations; an association of scientific gentlemen for the uplifting of a gentlemanly science. It was true, he said, that commercialism was rampant in the land. Its influence had been felt in our profession, for the number of students entering the schools was diminishing, and, unfortunately, there was greater proportional loss in institutions whose entrance requirements were highest, whose instruction was most advanced and thorough, whose final tests were the most exacting, and, finally, whose equipment was the best. But so long as medicine continued to be the noblest of professions, men of culture with the best-trained and the best-equipped intellects and the noblest characters would be attracted to it. When it became the most despicable of trades, this association would have ceased to exist.

Dr. Thomas E. Satterthwaite said that the opportunities for usefulness of a medical society were largely in proportion to its numbers, the variety of its members' attainments, their intellectual breadth, the thoroughness with which discussions were conducted, and the extent to which they were brought before the medical public. Of the three larger societies in Manhattan, the County Society, the Academy of Medicine, and the Medical Association of the Greater City of New York—each operated on its own individual lines. Through the County Society, its members were brought into close touch with the administrative branches of the City and State governments, while each County Society was also one of the constituent elements of the State Society, its members being at the same time eligible for membership in the American Medical Association. Our County Society was, therefore, a useful and necessary body. Among other things, it brought together the medical profession in larger numbers than any other, protected them against malpractice suits, published a directory, and through its legislative committee was concerned in securing good legislation and preventing bad. It was a society that every practitioner of medicine should join: not only as a measure of self-protection, but for the maintenance of the public good. The Academy of Medicine was a more exclusive and smaller but more highly specialized organization, with wider activities in a scientific direction. Its library facilities alone were worth the annual dues. The Medical Association of the Greater City of New York was composed of a select body of general practitioners and specialists, who met jointly to hear and discuss papers of general interest. Through its borough branches it brought its members into closer contact than the other two societies. A dominating feature was that it took up for presentation and discussion the open medical questions of the day, in a systematic manner, concentrating on each one the combined experience of qualified members, and invited guests, lay men and lay women. This novel feature, introduced by this society, had now been adopted as a feature of other societies. Dr. Satterthwaite said that the profession demanded a systematic and timely representation of all the positive advances in medical science, presented by the best qualified exponents of each topic, and in the most concrete and intelligible form, with all the side lights obtainable from any source, inside or outside of the medical profession. We had no time to pour indiscriminately over all the medical literature of the day. The plan as outlined was feasible, though the selection was not always an easy task for the president or program committee. Indeed, it was often quite difficult always to secure readers of papers capable of presenting topics both clearly and fairly. All open questions were, of course, amenable to discussion from various points of view. Not long ago, he was present at a symposium in one of the larger societies, where an open question was discussed, and solely from a partisan point of view. Such a performance was a manifest impertinence on the part of those who devised the program. Curiously enough, the best qualified men or women could usually be secured more easily than the less qualified. Such a campaign of education the Greater New York Association was better fitted to conduct than any other metropolitan society. If, on the other hand, topics were admitted to the program in a haphazard way, or a member could have the rostrum for the asking, valuable time would be frittered away listening to the conceptions of an idealist, exploitations of immature or undigested material, assortments of unrelated facts, or statistics of no real value. Dr. Satterthwaite also believed that the membership might with advantage be widened in at least two new directions. He thought the day was near at hand when the larger societies would have to be opened to all legally qualified practitioners of reputable character, independent of sectarianism. Such liberality would certainly be fruitful of much good. Indeed, we were still owing a debt that we ought to pay to the homeopaths and eclectics, for it was through their help and against the concerted action of those within our own ranks that State medical examinations were secured some years ago. Every year we needed the help of all intelligent, legalized practitioners, to secure useful legislation and combat vicious measures, sometimes even to neutralize misdirected energies in our own ranks. Our present influence in the halls of legislation in this State was seemingly threatened by the divided front we maintain there, when with trivial concessions to others not of our fold, our profession of medicine would be more dignified and respected by the community in general. In the interest of the greater good, it was desirable that we should waive minor differences and come together. The sounder and broader the basis of any organization, the better fitted was that organization for a substantial and enduring superstructure.

Dr. Edward W. Lee said he favored admitting to membership in the Association any worthy practitioner of medicine (male or female), as such, but not as an eclectic or disciple of homeopathy or any other pathy. If medicine was a science, then there was no room in it for different sects.

Dr. Morris, referring to Dr. Satterthwaite's suggestion to admit homeopathic and eclectic practitioners as members of the association, thought that any man who was qualified to practice medicine in the State of New York was also qualified to become a member of this association. The responsibility for the character and attainments of the physicians of these schools, he had long thought, rested with the State, under whose authority they practiced. As to the admission of women physicians, Dr. Morris said that he could see no logical grounds upon which they could be excluded.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held March 28, 1910.

THE PRESIDENT, DR. JOHN E. WEEKS, IN THE CHAIR.

Report of Committee on Public Health.—Dr. JOHN H. HUDDLESTON, chairman of this committee, said that several years ago a committee had been appointed to learn the amount of venereal disease in New York City and to provide some sort of registry. This Committee on Public Health drew up a resolution providing for examination of smears of pus by the Health Department, and this was presented to the Comitia Minora one month ago. The Comitia Minora authorized the Committee on Public Health to ascertain the attitude of the Health Department toward such a resolution. The result was the Department of Health appointed a committee to confer with a similar committee appointed by the Medical Society of the County of New York in order to determine the wisdom of presenting such a resolution. The Comitia Minora authorized the committee to bring this resolution before the County Society. The resolution was that the Medical Society of the County of New York request the Department of Health to prepare for the examination of smears; also that it send to all physicians in Greater New York a letter stating that it was prepared to examine smears of pus for gonococci for the purpose of diagnosis. The Department of Health, after examining the specimen of pus, would send to physicians a circular letter of information as to the care of patients suffering with gonorrhea, syphilis, and chancroids. Further the Department of Health would furnish physicians with cards for the voluntary reporting of these diseases, such cards to be kept by the Department of Health. The cards were arranged to furnish the age, sickness, and social condition of the patient, but would not disclose his identity. It was moved and seconded that the president appoint a committee of three to confer with the committee from the Department of Health. This was carried.

Perineal Prostatectomy.—Dr. PARKER SYMS read this paper with the object of reviewing the subject of prostatectomy in a broad way, giving special attention to a few important lessons which had been learned by him during the last fourteen years. The radical removal of an obstruction was the only satisfactory method, when the case had reached a period demanding active relief. The radical removal of the obstruction was the only means of affording permanent relief. The topical treatment by means of the catheter was never more than palliative, and was more dangerous than a properly performed radical operation. Prostatectomy was the proper treatment for prostatic obstruction. Perineal prostatectomy should be the method of choice when it could be satisfactorily employed. Anatomically the perineal method was the logical one. It was about twice as safe as the suprapubic operation. It was undoubtedly a more difficult operation and this was the reason why some surgeons advocated the suprapubic operation. Perineal prostatectomy, when properly performed, should give perfect ultimate results. It should be performed with a full knowledge and with a strict regard to the important anatomy of the perineum which was a very complex one. The operator should be able to rely upon the sense of touch, as well as the sense of sight. The complete removal of the obstructing gland and a satisfactory preservation and conservation of various important anatomical structures followed a successful perineal prostatectomy. If these two objects were obtained there would be complete relief of all the symptoms of obstruction and a complete restoration of the normal bladder function. During the early days of prostatectomy, they feared tight stricture of the canal and incontinence of urine. A large instrument should be passed through the urethra a few days after the operation, and a full sized sound should be passed into the bladder once or twice during the period of healing. In fact, there was more apt to be an increase of the caliber of the deep urethra than a diminution. Incontinence of urine as a result of perineal prostatectomy should never follow; this depended on making a proper, clean cut through the membranous urethra with division and not ablation of the fibers of the urethral sphincter, and of conservation of the bladder sphincter. If one was able to reach and recognize the prostate within its sheath, and to find the proper line of cleavage so that the gland could be enucleated without much effort, there should be little laceration and no damage to the bladder. The majority of the cases showed a nearly complete incontinence when the tube was removed, but when the patient began to gain control so that he could hold a small quantity of urine, he always felt confident that complete control might soon be expected. One could not be sure that he had completely removed all the obstruction unless he could reach his finger tip well within the bladder neck and sweep it around the circumference. Dr. Syms called attention to one class of cases in which the obstruction was due entirely to a fibrous contracture of the prostrate, difficult cases to operate upon: in removing these prostatic "rings" or "collars" he always feared that he might produce urinary incontinence. It was important to remove all palpable prostatic tissue; otherwise recrudescence might take place. The most important elements in the disease were cystitis, pyelitis, renal insufficiency, and autointoxication. Kidney insufficiency might exist without the occurrence of infection, due to back pressure through the ureters and it played a very important rôle in many cases. Pyelitis acted in a double capacity by its septic poisoning and its influence on the kidney function. There was a septic poisoning and a lack of elimination, conditions which were not cured by removing the obstructing prostate; therefore, the care of these patients should not cease when their wounds had healed, for they required advice and treatment until the inflammation and infection had disappeared. With regard to the preservation of sexual function, Dr. Syms was confident that perineal prostatectomy left this function unimpaired in a large proportion of cases. Some of the patients had regained this function when it had been absent before the operation. Some had apparently lost it as the result of the operation; others had retained the function unimpaired when it existed prior to the operation. The vast majority of Dr. Syms' patients had been practically cured, having regained or retained their full bladder function, not requiring the use of the catheter, and they were relieved of their distressing symptoms, pains, hemorrhage, cystitis, pyelitis, pyuria, and the autointoxication due to kidney insufficiency. The regeneration of these patients in fact amounted to a rejuvination.

DR. HUGH H. YOUNG of Baltimore reported a careful study made of some four hundred cases of perineal prostatectomy. As late as 1900 a recognized authority on prostatic work made the statement that the mortality of prostatectomy was 20 per cent., and he called attention to the marvelous strides in the saving of lives that had occurred since that time, only ten years ago. During this same period the mortality of the suprapubic route had been reduced from 20 per cent. to 6 per cent. while the perineal mortality was about two and a half per cent. This reduction in the mortality was accomplished through a better knowledge of the anatomy and pathology of the cases, and the development of a more scientific technique, with the operations more thoroughly performed. With regard to the end results, very much depended upon the operator and his knowledge of the anatomy and pathology of the

enlarged prostate and upon the employment of a careful and thorough technique. He should not be hurried except in rare instances because of the improved methods of administering the anesthetic. From an anatomical standpoint there were many things which should be respected in the operation, and the first was the sphincters; these muscles were not obstructive and should not be removed unless necessary. The bulb and urethra also should be respected; if one cut into them there would be loss of blood. They should also respect the blood vessels, especially those in the space of Retzius, the nerve supply to the sphincters which had to do with incontinence of urine, and the verumontanum. With regard to the pathology in the simplest form of enlargements, the two lateral lobes, the internal sphincter was entirely intact. Those cases should not be attacked through a suprapubic opening, but through the perineal. In those cases of median enlargements, one might meet with a case in which the lobe projected into the lumen of the urethra. Or one might meet with a pedunculated middle lobe inside the sphincter or trigone, really more easily attacked by the suprapubic route, but it was wiser to attack it through the perineal route. Aberrant growths of the prostate had been met with frequently, and he had seen several cases in which there was an enlarged lateral lobe present which he thought he had removed, but later he had been surprised to find two lobes again present on the side of the urethra. The lateral lobes grew upward behind the bladder into the region of the seminal vesicles. A rare form of enlargement was an hypertrophy of the lateral lobes which projected toward the symphysis pubis; in operating upon such cases one might leave behind enough of the prostate to form a projecting enlargement about the side of the urethra. Dr. Young said there was no ideal technique, and that most of the methods employed had been destructive in nature. He described his technique in detail, and presented numerous drawings and pictures to illustrate his method of performing perineal prostatectomy. Among his 400 cases there had been 14 over eighty years old, and 150 over seventy years old. There had been 13 deaths, two occurring during the first week, two during the second week, six during the third week, two during the fourth week, and one during the eighth week; this last patient was eighty-eight years old. Among these 13 deaths, there were some that could be held against the operation itself. He had been able to get records of 38 patients who had died since being operated upon, the periods varying from six months to several years, and there were several patients still alive. With regard to their sexual powers, 76 patients claimed they were normal before operation; after the operation, 44 claimed themselves to be normal, 10 claimed coitus was possible, and 22 claimed that coitus was considerably impaired. This operation was not a cure for lost manhood. These patients got out of bed on the third day. There were 280 patients who used the catheter before admission, and only three had to return to catheter life after the operation. The percentage of cured cases was 88; almost cured, 9; distinctly improved, 3. There were only two cases that had incontinence of urine, and he recalled the great importance in preserving the sphincters in order not to have incontinence of urine. He had not seen a single case with stricture of the urethra following the operation. The mortality among his first series of 167 cases showed seven deaths; in his second series of 233 cases there were six deaths, making 13 deaths altogether.

Dr. Charles L. Gibson told of the end results of the operation he had been doing for nine years, perineal prostatectomy, simply an intraurethral enucleation; this operation was very simple, very efficient, and a life-saving one. Since employing this operation he had had no deaths and his late results had been very good. It was remarkable how the old gentlemen were rejuvenated after this operation. Many of the operations were those of emergency and not of expediency. The one trap in the operation was the incontinence of urine, a very serious condition. He thought the danger due more to damage to the cut-off muscle than to damage of the sphincter. With regard to the sexual powers, those he operated on were old people and he never thought to ask regarding this matter. He had three or four cases in which fistulæ resulted. So far as he knew none of the patients used the catheter again after the operation.

Dr. Eugene Fuller discussed the paper. A large portion of his remarks were embodied in a paper recently published by him. (See page 569.)

Juxtaepiphyseal Fractures of the Upper Ends of the Humerus and Femur and Their Treatment.—Dr. Fred H. Albee read this paper in which he showed that epiphyseal disjunction at the hip might occur from all degrees of trauma or from none at all. It occurred very largely in the adolescent period, never above twenty-one or twenty-two years and rarely under ten. If there was no intercurrent disease, the only signs to be detected by physical examination were very slight shortening. Abduction and rotation were usually slightly limited. The skiagraph gave the most information. This disclosed a flattened and somewhat mushroomed head, especially on the superior and inner aspect. The condition was liable to be mistaken for various other hip-joint affections. Conditions which contributed to separation were rickets, scurvy, starvation, septicemia, pyemia, syphilis, and prolonged mercurial treatment. An injury which would produce a dislocation in an adult would, in the adolescent, produce a separation of the epiphysis. If the fracture was a fresh one, then manipulation consisting of strong traction, abduction, and marked inward rotation should be tried. The limb should be fixed in a long plaster-of-Paris spica and the part radiographed to see if a good reposition had been secured. However, on account of the uncontrollable upper fragment, the possibility of securing a good reposition was remote and an open operation was usually necessary. In either event, if the fragments were replaced, they could be held perfectly without metal spike or suture by the above-mentioned position of abduction and inward rotation. Thus the fractured end of the neck, which was always displaced forward in front of the head, was thrown backward into apposition with the fractured surface of the head and the unruptured posterior portion of the capsule was put on tension and served as a splint. The element of abduction carried the upper end of the lower fragment under the rim of the acetabulum and prevented all danger of displacement of the lower fragment upward. The inward rotation was the difficult part of this position to hold, and the writer had flexed the knee to a right angle and held it perfectly in this way. Dr. Albee also considered epiphyseal disjunction of the humerus which he stated was an accident of youth and might occur from birth to the twentieth year; the most frequent period was from the tenth to the eighteenth year. The diagnosis of this condition was usually made by palpation, which revealed the normal convexity of the shoulder, due to the presence of the humeral head in the glenoid cavity, thus distinguishing it from a dislocation. The upper end of the lower fragment, somewhat rounded in its contour, could usually be felt under the coracoid process. The crepitus was of a softer quality than in cases of ordinary fracture. Localized pain and swelling were present and a wrinkling of the skin, caused by a hooking of the upper end of the lower fragment into the subcutaneous tissue, was very characteristic. Abduction was especially limited and muscular spasm interfered with all motions. This was the most difficult fracture of the humerus to treat by conventional methods, there being always a strong tendency to

a recurrence of the displacement. The writer carefully explained the reasons for this tendency. Dr. Albee reported a number of cases, upon which, in view of the difficulties in the way of treatment, he had operated successfully. It was his custom to expose the fracture by a large U-shaped incision with its apex about one and one-half inches above the insertion of the deltoid muscle. The skin, fasciæ and deltoid muscle were turned up *en masse*. The fragments were brought into good apposition by strongly elevating the arm forward and slightly outward, so as to come into alignment with the upper fragment. They were then secured firmly with silver wire. The arm was fixed in this position anteriorly elevated horizontally with the humerus rotated inward. The deltoid muscle was approximated by interrupted chromic catgut sutures through its substance and its fascia which had purposely been left adherent. The shoulder and arm were then incorporated, with the elbow fixed at a right angle, in a plaster-of-Paris spica from the wrist to the umbilicus. In view of the cases reported and the clinical observation of a considerable additional number, and the careful examination of a large number of radiographs taken both before and after treatment, the writer felt that the following advantages could be claimed for this method of treatment: 1. This posture relaxed the prehensile or most of the strongest muscles of the shoulder and arm, namely, the pectoralis major, the biceps, the supraspinatus, the coracobrachialis, the strongest part of the deltoid and the subscapularis muscles, and did it more efficiently than the lateral abduction position. 2. The lower fragment was controlled accurately and held very securely. 3. As in the case of a subtrochanteric fracture of the femur the capital fragment could not be controlled on account of its shortness and the pull of the trochanteric muscles; therefore, the lower fragment was placed in alignment with it in strong flexion and abduction. This treatment of the femur had for a long time been accepted and the same mechanical reasons held here. 4. If limitation of motion at the shoulder occurred, this relation of humerus to scapula was the one of selection, both because it was one of usefulness and also permitted the scapulothoracic muscles to functionate the most efficiently. 5. It was a more comfortable position from the experience of Drs. Berry, Orr, and the speaker than the classical position of fixation to the side of the thorax.

A Study of Diphtheria in Children Based on the Treatment of Eight Hundred Cases.—Dr. E. Mather Sill said that diphtheria was one of the most insidious and treacherous diseases they had to deal with, and on account of the great divergence of its clinical manifestations even those with the widest experience could not expect to diagnose every case by clinical means alone; in fact it was possible to do so only in the more typical cases. On the other hand many cases which on culture growth showed bacteria morphologically identical with the Klebs-Loeffler bacillus, the clinical aspects alone would not indicate or lead them to suspect diphtheria, and it was from his studies along this line that he had been prompted to write this paper. The cases he reported were all verified by bacteriological culture growth. His figures covered a period of eight years, the cases being endemic. Of 757 cases under ten years of age, there were 521 pharyngeal, of which 24 were one year and younger, 116 from one to three years, 76 from three to five years, and 265 from five to ten years. There were 166 nasal cases, the youngest being five weeks old: 22 were one year and under, 69 from one to three years, 32 from three to five years, and 43 from five to ten years. There were 70 laryngeal cases: 7 were one year and under, 35 from one to three years, 9 from three to five years, and 19 from five to ten years. Thus in the order of frequency it was pharyngeal, nasal, and laryngeal diphtheria. With a view of comparing the clinical aspect with the bacteriological findings, 155 cases of diphtheria were examined; there were 61 cases of clinical pharyngeal diphtheria with membrane; 36 of these showed the Klebs-Loeffler bacillus present, and in 25 it was absent. There were 72 cases of clinical nasal diphtheria, or a chronic nasal discharge, 41 of which showed the Klebs-Loeffler bacillus, and in 31 cases it was absent. There were 22 laryngeal cases, 18 of which showed the Klebs-Loeffler bacillus, and in 4 it was absent. Of these 155 cases of clinical diphtheria, there were 95 positive Klebs-Loeffler bacilli reports, or 61.3 per cent. Of 127 cases chosen of simple sore throat without membrane, 59 showed positively the diphtheria bacilli with the first culture, 44.75 per cent. Few people were disposed to take the disease. One attack conferred immunity in a large proportion of the cases for the rest of the individual's life, second and third attacks occurring in from 9 to 13 per cent. of cases. Diphtheria was so frequent in early childhood because children were putting all manner of things in their mouths and, also, because they were prone to catarrhal conditions of the nose and throat. The disease might be contracted by direct or indirect contact. The diagnosis of this disease was both clinical and bacteriological, but finding the Klebs-Loeffler bacillus in the throat established the diagnosis. Dr. Sill's experience with antitoxin in the treatment of diphtheria was that it should be given in large doses, and his rule had been for many years to give an initial dose of 8,000 to 10,000 units, irrespective of the age, for cases of ordinary pharyngeal diphtheria, from 5,000 to 10,000 units in nasal cases, and from 10,000 to 15,000 units in laryngeal diphtheria. These doses were repeated in eight, twelve, or twenty-four hours if there was no improvement. The antitoxin should be given in sufficient doses to neutralize or antidote the toxin of the disease, since they now knew that death was due to the toxin. Enough antitoxin should be given to produce a marked change for the better. A physician was never justified in waiting for the bacteriological examination of a culture; he should always administer antitoxin in a clinical or suspicious case of diphtheria and at once. The mortality in these 800 cases had been less than one per cent., and none that died were over two years of age.

Dr. William H. Park related some interesting experiences in the laboratory work connected with the Department of Health and compared the smear and culture diagnosis of diphtheria. It was only in the doubtful cases that cultures were necessary for the sake of diagnosis. He was glad to be able to report that the antitoxin now furnished had more of the protein eliminated. They now met with practically no disturbances following the use of large doses of the antitoxin. The only objection to the giving of these large doses was the expense.

Dr. Charles Gilmore Kerley said that a great deal had been learned concerning diphtheria during the past ten years, and there was one thing in particular that should be impressed upon every physician, that the giving of antitoxin was a safe procedure and should never be left out in the treatment of diphtheria: even when in doubt as to the diagnosis, one should give antitoxin. Two reasons for the present mortality of diphtheria were (1) the gradual onset of the disease misleading the parents into believing the child was not very sick; the child was then allowed to pass by the point when the antitoxin would be of great value; (2) the antitoxin was not given in sufficiently large doses. His practice was to give a large initial dose without much regard as to the age of the patient; he gave as large a dose for a child one year old as he gave to a child five or six years old, and invariably 5,000 units, and with 3,000 repeated at twelve-hour intervals until he was satisfied that the disease was under control. He had never seen any harm done by these large doses.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

OUTLINES OF BACTERIOLOGY. By DAVID ELLIS, Ph.D. (Marburg), D.Sc. (London), F.R.S.E. 8vo; cloth; 262 pages; illustrated. Longmans, Green & Co., New York.

ESSENTIALS OF CHEMICAL PHYSIOLOGY. By W. D. HALLIBURTON, M.D., LL.D., F.R.S. 8vo; cloth; 280 pages; illustrated. Longmans, Green & Co., New York.

A PRACTICAL GUIDE TO THE ADMINISTRATION OF ANESTHETICS. By R. J. PROBYN-WILLIAMS, M.D. 12mo; cloth; 228 pages; illustrated. Longmans, Green & Co., New York.

OPERATIVE SURGERY. By JOHN FAIRBAIRN BINNE, A.M., C.M. (Aberdeen). 12mo; leather; 553 pages; illustrated; $3.50 net. P. Blakiston's Son & Co., Philadelphia, Pa.

AN ENGLISH HANDBOOK TO THE PARIS MEDICAL SCHOOL. By A. A. WARDEN, M.D. 12mo; paper; 52 pages; 50c. P. Blakiston's Son & Co., Philadelphia, Pa.

THE ROENTGEN RAY IN PEDIATRICS. By THOMAS MORGAN ROTCH, M.D. 8vo; cloth; 224 pages; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

PREPARATORY AND AFTER-TREATMENT IN OPERATIVE CASES. By HERMAN A. HAUBOLD, M.D. 8vo; cloth; 650 pages; illustrated. D. Appleton & Co., New York.

DISEASES OF THE GENITO-URINARY ORGANS. By EDWARD L. KEYES, Jr., M.D., Ph.D. 8vo; cloth; 975 pages; illustrated. D. Appleton & Co., New York.

ATLAS ZUR MIKROSKOPISCHEN DIAGNOSTIK DER GYNÄKOLOGIE. Von Priv.-Doc. Dr. RUDOLF JOLLY. 8vo; paper; 87 pages; illustrated; marks 17.50 S. Urban & Schwarzenberg, Berlin, Germany.

DIE SYPHILIS DER UNSCHULDIGEN. Von Dr. OSKAR SCHEUER. 8vo; paper; 239 pages; marks 9. Urban & Schwarzenberg, Berlin, Germany.

PROCEEDINGS OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION. 8vo; paper; 476 pages. Association.

DIE FORENSISCHE BLUTUNTERSUCHUNG. Von Dr. OTTO LEERS. 8vo; paper; 212 pages; illustrated; marks 6. Julius Springer, Berlin, Germany.

NEURASTHÉNIE ET NÉVROSES. Par Dr. PAUL-EMILE LÉVY. 12mo; paper; 403 pages. Felix Alcan, Paris, France.

ACCORDING TO MARIA. By Mrs. JOHN LANE. 12mo; cloth; 319 pages; illustrated; $1.50 net. John Lane Company, New York.

CLAIMS ARISING FROM RESULTS OF PERSONAL INJURIES. By W. EDWARD MAGRUDER, M.D. 12mo; 266 pages. The Spectator Company, New York.

THE PROPAGANDA FOR REFORM IN PROPRIETARY MEDICINES. 12mo; cloth; 292 pages; 35c. American Medical Association, Chicago, Ill.

SYNOPSIS OF SURGERY. By ERNEST W. HEY GROVES, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.). 12mo; cloth; 579 pages; illustrated; $3.25 net. Wm. Wood & Co., New York.

HANDBOOK OF DISEASES OF THE EAR. By RICHARD LAKE, F.R.C.S. (Eng.). 8vo; 248 pages; illustrated; $2.75 net. Wm. Wood & Co., New York.

TROPICAL MEDICINE AND HYGIENE. By DANIELS AND WILKINSON. 8vo; 264 pages; illustrated; $3 net. Wm. Wood & Co., New York.

STUDIES ON IMMUNIZATION. By Sir A. E. WRIGHT, M.D., F.R.S. 8vo; cloth; 490 pages; illustrated; $5 net. Wm. Wood & Co., New York.

CLINICAL OBSTETRICS. By ROBERT JARDINE, M.D. (Edin.), M.R.C.S. (Eng.), F.F.P. and S. (Glas.), F.R.S. (Edin.). 8vo; 717 pages; illustrated; cloth, $6.50; half morocco, $7.50. Wm. Wood & Co., New York.

CYSTOSKOPIE UND URETHROSKOPIE. Von Prof. W. STOECKEL. 4to; cloth; 288 pages; illustrated; 16 marks. August Hirschwald, Berlin, Germany.

DIE BESTÄTIGUNG DER KÜNSTLICHEN ZÜCHTUNG DES KREBSERREGERS. Von Dr. ROBERT BEHLA. 8vo; paper; 50 pages; marks, 1.50. Richard Schoetz, Berlin, Germany.

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE. 8vo; paper; 116 pages; illustrated; 7 shillings 6 pence net. Longmans, Green & Co., London.

TWENTY-THIRD ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF OHIO. 8vo; paper; 352 pages. Springfield Publishing Company, Springfield, O.

PROGRESSIVE MEDICINE. By HOBART AMORY HARE, M.D. 8vo; paper; 322 pages; illustrated. Lea & Febiger, New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of April 9, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	738	193
Diptheria	514	46
Measles	1,541	36
Scarlet Fever	826	40
Smallpox	—	—
Varicella	186	—
Typhoid Fever	37	6
Whooping Cough	47	5
Cerebrospinal Meningitis	2	6
Malarial Fever	—	—
Totals	3,891	332

Results Obtained by the Use of the Ultraviolet Rays in Therapeutics.—H. Bordier says that a mercury vapor lamp is superior to the Finsen lamp as a source of the ultraviolet rays. This may be used at a distance or in contact with the tissue to be treated. The time may vary from fifteen minutes to an hour, the average time being fifteen to twenty minutes. An hour's treatment is to be used in cases in which it is not necessary to produce anemia by pressure. When a deeper effect is desired, it is necessary to use the lamp in contact with the surface, and make pressure. This pressure may be obtained by means of a rubber bandage. A long application is not productive of greater destruction than one of less duration. After an hour's treatment there is no benefit in continuing the sitting. The rays penetrate to a depth only slowly, because the superficial layers of cells absorb them. When the author wishes to get a deep-seated effect he gives one sitting of fifteen to twenty minutes, and repeats it after the first eschar has fallen. The treatment is especially beneficial in lupus, the scars being less marked and more supple than after the x-rays. It is beneficial in herpes or trochophyton circinata. In port wine stains and nevi its effect is marked and satisfactory. Here contact and pressure are necessary. In acne it reduces the hypertrophy and stops suppuration.—*Annali di Elettricità Medica e Terapia Fisica.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 8, 1910:

			CASES	DEATHS
CHOLERA				
India, Calcutta	Feb.	6–12	..	51
Moulmine	Jan.	22–Feb. 4	..	13
Negapatam	Jan.	30–Feb. 4	..	3
Rangoon	Feb.	13–19	..	4
YELLOW FEVER				
Brazil, Manaos	Jan.	31–Mar. 12	..	10
Para	Jan.	31–Mar. 6	18	13
Ecuador, Guayaquil	Feb.	16–28	28	10
PLAGUE				
Guayaquil	Feb.	16–28	15	1
Milagro	Feb.	16–28	6	2
India, Bombay	Jan.	27–Mar. 1	..	91
Calcutta	Feb.	6–12	..	13
Kurrachee	Feb.	20–26	45	44
Rangoon	Feb.	13–19	..	10
Siam, Phrapatom	Feb.	15	..	Epidemic
Turkey in Asia, Jiddah	Mar.	10–13	6	6
SMALLPOX				
Argentina, Rosario	Dec.	1–31	..	1
Austria, Galicia	Feb.	27–Mar. 5	1	..
Brazil, Para	Jan.	31–Mar. 5	1	..
Canada, Halifax	Mar.	20–26	1	..
France, Paris	Mar.	6–12	16	3
Great Britain, Bristol	Mar.	13–19	2	..
One case on steamship from Bombay.				
India, Bombay	Jan.	27–Mar. 1	..	42
Kurrachee	Feb.	20–26	5	2
Rangoon	Feb.	13–19	..	22
Italy, general	Mar.	6–13	21	..
Genoa	Mar.	1–15	1	..
Naples	Mar.	7–13	8	3
Mexico, Chihuahua	Mar.	14–27	2	1
Manzanillo	Mar.	1–6	5	..
Portugal, Lisbon	Mar.	6–12	13	..
Russia, Libau	Mar.	7–13	7	..
Riga	Feb.	28–Mar. 5	1	..
Warsaw	Jan.	23–29	.	21
Spain, Almeria	Jan.	1–31	..	3
Huelva	Feb.	1–28	..	2
Seville	Feb.	1–28	..	2
Valencia	Mar.	6–12	1	..
Vigo	Mar.	6–12	Present, vicinity	
Straits Settlements, Singapore	Feb.	9–13	..	2

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Original Articles.

THE PATHOLOGY AND DIAGNOSIS OF GALLSTONES AND DISEASES OF THE BILIARY SYSTEM.*

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THE exact diagnosis and proper treatment of gallstones and diseases of the bile tract must be based upon a full understanding of their pathology. Up to recent years our knowledge of pathology was based almost entirely upon postmortem findings, which, in the main, represented terminal states and did not show conditions as they existed in the earlier stages of disease. Living pathology, as seen by the surgeon at the operating table, is more interesting, and is of inestimable value in elucidating the symptomatology of disease. There is nothing which contributed more to our knowledge of diseases of the biliary system than the more frequent opportunity of observing living pathology during operations. Nothing makes a more lasting impression upon our minds than a clear demonstration of the existing lesions; therefore, it cannot be urged too strongly that whenever it is possible patients be followed by their attending physicians to the operating table, where they can see the cause of many obscure symptoms and realize the futility of former treatment. One who sees a gangrenous appendix, with rapidly spreading peritonitis eighteen hours after the onset of symptoms, will not again wait, after making an early diagnosis, for the development of a localized abscess. Nor will he attempt to cure so-called gastralgia, dyspepsia, indigestion, and hyperacidity with pepsin, hydrochloric acid, bicarbonate of soda, or gastric lavage, when at the operation there is revealed to him as the cause of all these symptoms a gall-bladder packed with calculi and adherent to pylorus, duodenum, and colon. A few such observations will convince any one that gallstones may be present without jaundice, in spite of the still existing and widespread belief that such a state of affairs is impossible. A study of conditions revealed at the operating table will demonstrate the futility of attempting to dissolve calculi in a cystic gall-bladder. It will show how misleading is the sense of security after the passage of a large calculus through the rectum, when subsequent operation demonstrates many more calculi in a gall-bladder, adherent to all surrounding structures and connected by a fistula with some portion of the gastrointestinal tract. The cure of such a condition is connected with a great deal of danger, whereas the removal of calculi from an otherwise intact gall-bladder is, in the hands of the experienced, one of the safest operations. There is nothing which will impress one more with the dangers of gallstones than to see at operation a carcinomatous gall-bladder filled with calculi, which, by their long continued irritation, have brought on a hopeless condition. Knowing these dangers, the physician in the future will not wait, temporize, and advise operation only as a last resort, but will seek surgical relief at an earlier stage of the disease, when operation is safe and is followed by speedy and permanent relief. Realizing the great importance of pathology as the foundation of our knowledge of disease, we will endeavor to outline briefly the various changes as they occur in the course of gallstones and gall-bladder diseases and their relation to the various symptoms which they produce. Furthermore, for the satisfactory understanding of the symptomatology of diseases of the biliary system, it is essential to recall the close relationship which exists between this system and such neighboring structures as the stomach, duodenum, and pancreas. This relationship is embryological, anatomical, and physiological, and the pathology of one frequently produces changes in the other, as, for instance, the frequent involvement of the pancreas secondary to stone in the common bile-duct, or pyloric obstruction, due to adhesions between stomach and gall-bladder.

For purposes of illustration, we will cite the histories of a number of patients selected from a series operated upon by me at Lebanon Hospital in the course of eighteen months; this period includes our three terms of service during the last three years. Our list includes the various diseases of the gall-bladder, from simple noncalculous cholecystitis to carcinoma. Many of the cases are typical illustrations of lesions as they are found by the surgeon, and it must be stated at the outset that no two patients present the identical pathological or clinical picture.

There were 32 operations performed upon 30 patients, 9 of whom were men and 21 women.

The pathological conditions found at the time of the operation were: acute cholecystitis, 7 (died, 1); acute gangrenous cholecystitis, 1; acute perforating cholecystitis and general peritonitis, 1 (died, 1); acute perforating cholecystitis and pericholecystic abscess, 1; post-typhoid cholecystitis, 1; empyema of the gall-bladder, 5; hydrops of the gall-bladder, 2; chronic cholecystitis, 8; carcinoma of the gall-bladder, 1; noncalculous cholecystitis, 3.

Cholecystostomy was done in 27 cases and cholecystectomy in 3. Pain was a symptom in every case, jaundice in only 8 of the 30, and a mass was palpable in 10 of the patients. One patient died as the result of acute perforation of the gall-bladder and general septic peritonitis. The history of this patient will be given in detail in another part of this paper. The second fatal case was that of a man, 50 years old, who was operated upon during an acute attack of cholecystitis. He gave a history of twelve attacks of biliary colic within six years. On account

*Read at a meeting of the Medical Society of the Borough of the Bronx, December 8, 1909.

of a very large abdomen, the operation was one of the most difficult in this series, and was interrupted several times by respiratory difficulties caused by the anesthetic. Cholecystostomy was followed by a mucous fistula and repeated attacks of retention. At a subsequent operation, several months later, the sinus was explored with the result of finding another calculus in the neck of the gall-bladder. Removal of this calculus was followed by a free flow of bile, but the patient, unfortunately, developed bronchopneumonia and died ten days after the operation. The other patient operated upon twice was a man, 33 years old. A cholecystostomy was done for acute cholecystitis, and several calculi were removed. This was followed by a free flow of bile lasting several weeks. The fistulous tract continued to discharge a mucopurulent fluid which persisted until it was explored. At the second operation no calculi were found, and the only cause for the sinus which could be demonstrated was a mass of granulation tissue which filled a contracted gall-bladder. Removal of this was followed by a free flow of bile and final closure of the sinus. The patient is now enjoying perfect health.

Normal bile in the healthy individual, with unobstructed flow, is comparatively free from bacteria, although it is looked upon as a good culture medium for some. When the natural flow is interfered with, for one reason or another, stagnation of bile occurs, and this favors the growth of bacteria in the residual fluid. The microorganisms are brought to the liver from the intestine by way of the portal circulation, although infection may ascend from the duodenum along the common duct. In passing through the liver the virulence of bacteria is greatly diminished and the resulting infection is of a mild degree, giving rise to a catarrhal condition of the gall-bladder, the so-called lithogenous or stone forming catarrh. The microorganisms most frequently found are the colon and typhoid bacilli, although others, such as the staphylococcus, streptococcus, and pneumococcus, may be present. The catarrhal inflammation may persist for some time and remain as a chronic noncalculous cholecystitis, which is not at all rare. In most instances, however, as the result of this catarrhal inflammation we have exfoliation and degeneration of epithelial cells, a deposit of cholesterine and lime salts, which, with the addition of bile pigment, enter into the composition of gallstones. Thus we see that for the development of cholelithiasis it is essential to have a partial obstruction to the flow of bile and a mild infection of the gall-bladder. Whether or not other factors, such as heredity, a special diathesis, or a peculiar composition of the bile, due to faulty metabolism, have any bearing upon the development of gallstones, is not so well known. It is conceded by most observers that typhoid fever is one of the most important etiological factors in cholelithiasis, and the typhoid bacillus has been found in the center of gallstones many years after an attack of enteric fever.

Cholecystitis is a well known complication of typhoid fever; it is more common in women than in men, and is usually caused by the typhoid or colon bacillus. It may be serous, purulent, or perforating, and, according to Ashhurst (*American Journal of the Medical Sciences*, April, 1908), calculi are found only in 19 per cent. of the cases. It usually develops in the second or third week of typhoid, but may occur shortly after convalescence, as in the following instance:

Case I.—Hospital No. 21,262. Isaac B., 48 years old, was admitted to the hospital about six weeks after the onset of typhoid fever, from which he recovered in about four weeks. Nine days before admission, after a hearty meal, he was suddenly taken ill with severe pain all over the abdomen and chest, the pain being worse on the right side and radiating toward the back. The pain was paroxysmal in character, coming on every few minutes and lasting but a short time. He became jaundiced and his stools were clay colored. On admission his temperature was 102.4° F., pulse 110. Blood examination showed 28,800 white blood cells, with 85 per cent. polymorphonuclears. Jaundice was very marked. There was pain and tenderness and board-like rigidity of the upper right rectus muscle. The abdomen was distended and tympanitic. On account of rigidity a mass could not be felt. Operation revealed a distended gall-bladder, containing a glairy mucopurulent fluid, but no bile. Bacteriological examination of this fluid showed bacilli having the characteristics of the colon bacillus. Calculi were not found in the gall-bladder or ducts. Six days after cholecystostomy bile was present in the stools, his jaundice cleared up, and he left the hospital cured. The jaundice was probably due to a cholangitis, which was the result of the infection extending by continuity from the gall-bladder to the other parts of the bile tract. When cholecystitis, especially of the perforating variety, occurs during typhoid it may be very difficult to differentiate it from intestinal perforation.

That pregnancy plays an important rôle in the etiology is borne out by the fact that the disease is more common in women than in men, and that the majority of women who have gallstones have borne children. The disease is extremely rare in childhood, and more than half of the cases occur in persons past forty years of age. Gallstones are found in individuals in all walks of life, among the poor as well as the rich. The stones may be single or multiple, and in size range from fine gravel to that of a large egg. Where many concretions are present they are usually found in groups of different sizes, showing different periods of development; the largest calculus is usually near the neck of the gall-bladder. The color varies from a light yellow to almost black, depending upon the amount of bile pigment which enters into the composition; pure cholesterine stones are almost white in color. They are round or ovoid, smooth and faceted, or rough and irregular, as, for instance, the mulberry-shaped stones of recent origin, which are usually very dark and soft, and are composed mainly of bile pigment. Single stones are usually round and have a rough surface. The usual site of development is in the gall-bladder, and it is here that most of them are found, although they may be present in any portion of the biliary tract or in all combined. Calculi in the hepatic ducts are rare, and are usually found in connection with calculi in the common duct.

Gallstones may be associated with only very slight changes in the gall-bladder; there may be only a moderate degree of inflammation of the mucosa, and this may be present even though the calculi have existed for a long time. In most cases, however, the calculi sooner or later produce changes which are the result of irritation which they cause as foreign bodies or as obstructing agents to the normal flow of bile. As the result of irritation small erosions are produced which, in the presence of microorganisms, are points of lessened resistance, and thus inflammation of the gall-bladder or cholecystitis develops.

This may also occur if the normal flow of bile is interfered with by a calculus in the neck of the gall-bladder or by one trying to pass through the cystic duct. A calculus so situated may at first not interfere with the flow of bile, but may later by pressure cause edema of the mucous membrane and then suddenly block the edematous duct. The products of inflammation which result from this cannot escape, and the gall-bladder becomes distended with serum, mucus, or pus, depending upon the kind and degree of infection. Examination of the contents of the gall-bladder may show them to be sterile, even in the presence of pus, but this may be due to faulty methods of examination or to the fact that the infection resulted from microorganisms of lessened virulence. (Deaver, *American Journal of the Medical Sciences,* January, 1908.) Cholecystitis may be acute or chronic, serous or serofibrinous, purulent or gangrenous.

In acute catarrhal cholecystitis the gall-bladder is distended, its walls are at first thin, then become thick. The mucosa is red and edematous, and the serosa may be covered with fibrin. The bile is thick and dark and contains a good deal of mucus. If the inflammation subsides sufficiently to allow the escape of the products of inflammation, the gall-bladder grows smaller and returns to its former size, but this does not signify that the patient is cured. The pathological condition just described was present in a number of cases, but the following is a typical example:

Case II.—Hospital No. 22,886. Arthur S., 39 years old, was admitted five days afer the onset of his illness. He gave a history of typhoid fever at the age of 18, and an attack of colic seven years ago. Five days ago he was suddenly seized with crampy pains all over the abdomen, vomiting several times the same evening. The bowels were constipated. The pain became gradually localized to the right side of the abdomen, was less severe, but quite constant. On admission the temperature was 102° F., pulse 104. There was moderate pain, tenderness, and rigidity over the middle of the right rectus muscle. Operation revealed a distended, tense gall-bladder, with thick walls, containing inspissated bile and one nonfaceted calculus. Cholecystostomy was followed by uneventful recovery.

If the infecting agent is more virulent, the inflammation proceeds to pus formation and a purulent cholecystitis or empyema of the gall-bladder results. In this condition the gall-bladder is usually distended, the walls are decidedly thickened, the pus may be slight in amount, may be thin or thick, bile stained or not, and in some cases very foul, as in the following case:

Case III.—Hospital No. 19,967. Mary B., 70 years old, the mother of five children, was admitted to the hospital on August 24, 1907. She stated that about two weeks ago she had very frequent watery stools, accompanied by vomiting. The vomiting consisted of gastric contents, later on becoming slightly bile stained. Her bowels moved every thirty minutes, and she vomited four to seven times in the course of a day. A week ago she began to complain of abdominal pain, associated with extreme tenderness on the right side. About this time the diarrhea and vomiting ceased. On examination a distinct mass was felt in the right upper quadrant, of a very obese abdomen. The mass extended from below the costal margin nearly to the umbilicus. It was well circumscribed, round, and freely movable. Tenderness and rigidity were present, but not marked. The temperature on admission was 104° F., pulse 104, but before the operation she had a chill, followed by a temperature of 106.8° F. and a pulse rate of 144. Blood examination showed 14,500 white blood cells and 78 per cent. polymorphonuclears. Operation revealed a very much enlarged gall-bladder, bluish in color, and adherent to the omentum and colon. A large quantity of very foul pus and very dark, almost black, bile was evacuated, with 29 calculi, which were black in color, faceted, and smooth, the largest being found in the neck of the gall-bladder. Cholecystostomy was followed by recovery.

Empyema of the gall-bladder may develop in a contracted, a carcinomatous, or in a cystic gall-bladder, as in the following case:

Case IV.—Hospital No. 23,621. Emma M., 39 years of age, married, was admitted on October 10, 1908. One year ago she had an attack of sharp pain, localized over the region of the gall-bladder and accompanied by vomiting and constipation. The pain continued for almost two weeks. Three weeks ago she had a similar attack. This time the pain continued for ten days. Two days before admission she had still another attack, similar to the previous two. The attacks always began at night, and were never associated with jaundice. Her temperature was 100.6° F., pulse 112. The abdomen was very large and pendulous. There was moderate pain, tenderness, and rigidity in the right upper quadrant of the abdomen. A distinct mass was felt just below the right costal arch, moving with respiration. Operation revealed a distended, large, and tense gall-bladder, containing a mucoid fluid mixed with flakes of pus, and one large ovoid stone impacted in the neck of the gall-bladder. Cholecystostomy was followed by uneventful recovery.

Associated with empyema of the gall-bladder there may be cholangitis as well as localized or general peritonitis, with or without adhesions. If the infection is very virulent, the cholecystitis may be associated with ulceration, gangrene, or perforation. Ulceration may be slight or very marked. Necrosis may involve only the mucosa, or it may extend to the peritoneum, terminating in perforation and general peritonitis, even though there be but few calculi. The following two cases will serve as illustrations:

Case V.—Hospital No. 19,265. Mary V., 26 years old, mother of two children, was admitted on June 4, 1907, one day after she first felt an uneasy sensation in the upper part of the abdomen. This sensation gradually developed into pain, which grew steadily worse and radiated to the nape of her neck. She vomited twice on the first day and had chilly sensations. Jaundice was not present at any time. Her temperature was 102° F., pulse 120, and leucocytes 19,500. Tenderness and rigidity were very pronounced over the upper part of the right rectus muscle. Just below the right costal margin a distinct mass was seen to move up and down with respiration. Incision through the right rectus exposed a large, tense, and very adherent gall-bladder, which contained pus and a few soft mulberry-shaped stones. The greater part of the mucous membrane was necrotic, black, and loose, and was therefore removed. Cholecystostomy was followed by recovery.

Case VI.—Hospital No. 20,630. Ulysses K., 43 years old, was admitted to the hospital with a diagnosis of acute appendicitis. Four years ago he had an attack of illness similar to the present one, but not quite so severe. During the evening of the day before his admission he felt some distress after eat-

Number	Hospital No.	Name	Age	Sex	Married or Single	Duration and History of Disease	Symptoms
I	18,750	M. S...	29 yrs.	F.	M.	Recent; one child	Chill; pain; vomiting; rigidity; mass; temp., 101.4; pulse 112; W. B. C., 10,400.
II	19,240	Y. F...	28 yrs.	F.	M.	One month ago an attack; several children; youngest 3 weeks old.	Duration one day; colic; vomiting; tenderness; rigidity; temp., 98; pulse, 84.
III	19,265	M. V..	26 yrs.	F.	M.	Recent; 2 children	Chill; pain; vomiting; rigidity; mass; temp., 102; pulse 120; W. B. C., 19,500.
IV	19,967	M. B..	70 yrs.	F.	M.	5 children	1 week duration; diarrhea; vomiting; chill; pain; tenderness; rigidity; mass; temp., 106.8; pulse, 144; W. B. C., 14,500.
V	19,976	A. H..	33 yrs.	M.	M.	One year of abdominal pain; pyrosis	Tenderness.
VI	19,985	W. F...	45 yrs.	F.	M.	Five children; 2 years ago had an attack	Two weeks ago abdominal pain right side and shoulder, pain sharp in character; tenderness; rigidity; temp., 100.6; pulse, 104; W. B. C., 16,000.
VII	20,338	E. C...	42 yrs.	F.	M.	Five children; 4 to 5 attacks in 2 years; lost 50 lbs. in 6 months; jaundice.	Duration 2 weeks; pain, sharp cramp-like, radiating to scapula; vomiting; sl. jaundice; rigidity; tenderness.
VIII	20,416	H.....	38 yrs.	F.	M.	Several children	Duration 3 years, attacks of pain; vomiting; jaundice; tenderness; no mass.
IX	20,630	U. K..	43 yrs.	M.	M.	An attack 4 years ago	Duration 1 day; chill; pain; tenderness all over abdomen; gen. peritonitis; temp., 103; pulse, 130.
X	20,955 26,137	F. Sch.	33 yrs.	M.	M.	Recent	Duration 2 days; cramps all over abdomen; vomiting; tenderness; rigidity; mass; temp., 103.2; pulse, 124; W. B. C., 17,600.
XI	21,162	I. B...	48 yrs.	M.	M.	Recent typhoid	Duration 9 days; pain; tenderness; rigidity; jaundice; temp., 102.4; pulse, 110; W. B. C., 28,800.
XII	22,376 25,171	J. B...	50 yrs.	M.	M.	In 6 years had 12 attacks of biliary colic	Slight tenderness.
XIII	22,886	A. S...	39 yrs.	M.	M.	Typhoid at 18 years; 7 years ago had colic	Duration 5 days; pain; vomiting; tenderness; rigidity; mass; temp., 102; pulse, 104.
XIV	22,909	B. K..	26 yrs.	F.	M.	One year's duration; jaundice 9 weeks ago and 5 weeks ago.	Duration 3 weeks; jaundice disappeared; loss in weight; mass.
XV	23,295	K. F..	36 yrs.	F.	M.	Several children; pain in gall-bladder region and vomiting.	Duration 1 week; jaundice; clay-colored stools; tumor.
XVI	23,437	J. L...	25 yrs.	F.	M.	Three severe attacks in 11 months; lost 40 lbs. in 4 years.	Duration 4 days; colic; tenderness; slight pain; no rigidity.
XVII	23,456	M. G..	32 yrs.	F.	M.	Had 2 attacks in 3 years	Duration 2 weeks, pain.
XVIII	23,621	E. M..	39 yrs.	F.	M.	One year's duration; several attacks of biliary colic.	Duration 2 days; colic at night; pain; tenderness; rigidity; mass; temp., 100.6; pulse, 112.
XIX	24,027	M. B..	28 yrs.	M.	S.	Several attacks of severe colic and vomiting in 18 months.	Last attack 2 months ago; now has no pain, tenderness, rigidity, or mass.
XX	24,291	M. R..	32 yrs.	F.	S.	16 mos. ago colic at night; 4 attacks, constant pain for 9 months.	Had jaundice; clay-colored stools; slight tenderness.
XXI	24,738	Mrs. S.	61 yrs.	F.	M.	For 2 years had crampy pains	Duration 8 days; colic; vomiting large movable mass.
XXII	25,593	S. F...	26 yrs.	F.	M.	Duration 17 months; 3 months after childbirth; colic at night; vomiting; several attacks.	Two days ago had another attack; physical examination negative.
XXIII	25,652	H. H..	44 yrs.	M.	M.	For 6 to 7 years irregular pain in upper part of abdomen; nausea.	Attacks every month, lasting 2 to 3 days; some tenderness; nausea.
XXIV	25,759	E. G...	26 yrs.	F.	S.	Long history of frequent pain and vomiting; fullness of stomach.	Three weeks ago; cramps; vomiting; fever; rigidity; tenderness.
XXV	25,870	J. R...	31 yrs.	F.	M.	Several children; duration one year; vomiting; pain.	Duration 1 day; colic; vomiting; mass in gall-bladder region; tenderness; rigidity; temp., 101; pulse, 100.
XXVI	26,296	M. A..	42 yrs.	F.	M.	Two years' duration; several attacks every 10 weeks.	Almost daily pain for 5 weeks; tenderness in epigastrium.
XXVII	26,464	G. B...	45 yrs.	M.	M.	Abdominal pain for 5 to 6 months; radiating to right shoulder and back.	More frequent attacks in last 2 to 3 months; fever; some tenderness in gall-bladder region.
XXVIII	26,680	M. D..	32 yrs.	F.	M.	Several children; 9 months ago had pain; vomiting; jaundice.	Three weeks after child birth; 3 days ago; colic; vomiting; tenderness; rigidity; mass; temp., 103.6; pulse, 112.
XXIX	27,120	Mrs. W	58 yrs.	F.	M.	Four children; duration 3 weeks	Duration one week; fever; tenderness over gall-bladder region; temp., 105; pulse, 98.
XXX	27,313	R. W..	21 yrs.	F.	M.	Typhoid; baby 9 months old; 2 months ago colic; vomiting.	Duration 8 days; colic; vomiting; jaundice; tenderness; rigidity; temp , 100.2; pulse, 90; W. B. C., 16,000.

ing. Upon going to bed he had a severe chill, followed by vomiting and intense abdominal pain, which kept him awake the entire night. The pain continued the following day and was very pronounced when he arrived at the hospital. His temperature was 103° F., pulse 130. His face was drawn and anxious, typical facies Hippocratica. His abdomen was distended and very rigid. Tenderness was very pronounced all over the abdomen, but mostly so over the right half, from the epigastrium down to Poupart's ligament. Incision over the appendix was followed by the escape of a large quantity of bile-stained fluid, which was odorless. The appendix and intestine were coated with a fibrinous exudate. The appendix was thought not to be the cause of the peritonitis. The gall-bladder was therefore exposed and found to be covered with dark gray patches, one of which had perforated, allowing the escape of some dark, bile-stained fluid. The gall-bladder contained three small calculi and a quantity of tarry-looking bile; owing to the desperate condition of the patient, the gall-bladder was drained and

Pathology	Contents of Gall-Bladder	Treatment	Result	Remarks
Ac. cholecystitis	117 calculi	Cholecystostomy	Recovery	
Ac. cholecystitis	Calculi	Cholecystostomy	Recovery	
Ac. gangrenous cholecystitis	Calculi	Cholecystostomy	Recovery	Gangrene of mucosa; removed.
Empyema of gall-bladder	Very foul pus; 29 calculi	Cholecystostomy	Recovery	Biliary fistula for some months
Chr. cholecystitis	Several large yellow mulberry calculi.	Cholecystostomy	Recovery	
Empyema of gall-bladder	Few large calculi and pus	Cholecystostomy	Recovery	
Chr cholecystitis; small gall-bladder	8–9 calculi	Cholecystostomy	Recovery	Calculi in ducts; patient very stout.
Ac. cholecystitis	Bluish calculi	Cholecystostomy	Recovery	
Ac. perf. cholecystitis; gen. septic peritonitis.	3 calculi	Cholecystostomy	Died	
Acute cholecystitis	Few soft calculi	Cholecystostomy	Recovery	1st, drained bile; mucous fistula 18 months. 2d, curet. and cautery.
Post-typhoid cholecystitis	No calculi; glairy mucus	Cholecystostomy	Recovery	
Ac. cholecystitis; contracted gall-bladder.	26 calculi	Cholecystostomy	1st, recovery; 2d, died.	Calculus in cystic duct at 2d op'n; chr. muco-pur. fist'la; dr'd bile.
Ac. cholecystitis	1 calculus	Cholecystostomy	Recovery	
Chr. cholecystitis	6 calculi	Cholecystostomy	Recovery	
Carcinoma of gall-bladder	Many calculi	Cholecystectomy	Recovery	Liver metastases; died 4 months later.
Chr. cholecystitis	2 calculi	Cholecystostomy	Recovery	Impacted calculus.
Chr. cholecystitis	Many calculi	Cholecystostomy	Recovery	
Empyema of gall-bladder	Full of pus; one large calculus	Cholecystostomy	Recovery	
Chr. cholecystitis (non.-calculous)	Thick glairy bile-stained mucus	Cholecystostomy	Recovery	
Hydrops of gall-bladder	One large calculus	Cholecystostomy	Recovery	
Cystic gall-bladder	Many calculi, glairy mucus (no bile)	Cholecystostomy Cholecystectomy	Recovery Recoevry	Drained bile.
Chr. cholecystitis	36 calculi; glairy mucus (no bile)	Cholecystostomy	Recovery	Appendicectomy done
Chr. cholecystitis (non-calculous)	Thick bile and glairy mucus	Cholecystostomy	Recovery	Simultaneously, pyloric adhesions.
Chr. cholecystitis	many calculi	Cholecystostomy	Recovery	Dense adhesions.
Empyema of gall-bladder	Pus and 31 calculi	Cholecystostomy	Recovery	
Chr. cholecystitis	Few calculi	Cholecystostomy	Recovery	Adhesions to omentum.
Chr. cholecystitis (non-calculous)	Thick bile; (no calculi).	Cholecystostomy	Recovery	Adhesions to omentum.
Cholecystitis (perforating); pericholecystic abscess.	No calculi	Cholecystectomy	Recovery	
Acute cholecystitis	2 calculi	Cholecystostomy	Recovery	
Ac. empyema of gall-bladder	112 calculi	Cholecystostomy	Recovery	Pus contained staph. pyogenes aureus.

completely surrounded by gauze and a drain introduced into the pelvis. In spite of active stimulation, death resulted from general septic peritonitis within a few hours after the operation and within less than thirty-six hours after the onset of the pain.

Gangrene may be circumscribed and result in a pericholecystic abscess, as in the following case:

Case VII.—Hospital No. 26,680. Margaret D., 32 years old, the mother of several children, was admitted on August 9, 1909. Nine months ago she had a severe attack of epigastric pain, accompanied by frequent vomiting and jaundice, which persisted for five weeks. Three days before admission to the hospital, and a little less than three weeks after her last child was born, she had another sudden attack of epigastric pain. The following morning the pain recurred, and was accompanied by vomiting of much green material. The pain and vomiting persisted for the next two days, the pain radiating to the lumbar region and down toward her pelvis. On admission her temperature was 103.6° F., pulse 112. The entire right side of the abdomen was distinctly

tender, especially in the upper part. Rigidity was marked in the upper right quadrant and over the right flank. Under this rigid area a distinct mass was palpable. On opening the abdomen a mass of thickened omentum was exposed, which was adherent to the lower surface of the liver. Under this a pericholecystic abscess was found surrounding a very small contracted gall-bladder with thick walls. The fundus of the gall-bladder was gangrenous and perforated. On attempting to bring the gall-bladder, which was not more than an inch in length, to the surface, it broke away and left but a small portion in the depth of the wound. There were no calculi in the gall-bladder or in the duct. Drainage was followed by uneventful recovery. It is not unlikely that this patient passed a calculus through the common duct nine months ago, at the time of the attack which was accompanied by pain and jaundice of five weeks' duration.

Hydrops, or cystic gall-bladder, is the sequence of acute cholecystitis. It results after absorption of bile pigment from the inflammatory exudate, which cannot drain out of the gall-bladder because a calculus obstructs the cystic duct. In this condition the gall-bladder may be enormously distended, its walls may be thick or very thin, and it contains a clear mucoid fluid which, as the result of reinfection, may become purulent, resulting in empyema. The following case will serve as an illustration:

Case VIII.—Hospital No. 24,738. Mrs. S., 61 years old, mother of several children, gave a history of frequent cramp-like pains two years ago. Eight days prior to her admission she was suddenly seized with sharp, agonizing cramps and vomiting. The pain at first was in the region of the stomach and liver, and later became more diffuse, radiating toward her back and shoulders. At the time of admission it was localized over the right iliac and lumbar regions. A movable tender mass, the size of a fetal head, was felt in the right lumbar and iliac regions, and seemed to be continuous with the edge of the liver. A diagnosis of kidney tumor had been made in this case, but on account of the absence of any urinary symptoms and the history of cramp-like pains in the region of the stomach some years before, and the fact that during the early part of the present illness there was some febrile disturbance, a diagnosis of cystic gall-bladder seemed more appropriate. On opening the abdomen a very large distended gall-bladder was exposed, which contained many calculi and a clear mucoid fluid. The cystic duct was occluded by a firmly impacted calculus. Cholecystectomy was followed by speedy recovery, and she left the hospital in less than two weeks after the operation.

If the cystic duct is not completely occluded, the products of inflammation drain into the hepatic and common ducts, producing a cholangitis, which may be acute or chronic, and if the infection is very virulent, may terminate in multiple abscesses of the liver. Acute pancreatitis is another condition which may result from this spreading infection.

An acute attack of cholecystitis may be followed by chronic inflammation of the gall-bladder, a condition present in most gall-stone cases which are not associated with acute symptoms. In this condition the gall-bladder is usually contracted, the walls thick, there may be ulcers which may perforate into some neighboring organ, producing a fistula or an abscess. The cystic duct may become stenosed and the gall-bladder may have hour-glass contractions or diverticula. All forms of cholecystitis are associated with pericholecystitis, resulting in adhesions to contiguous structures. Such adhesions are most marked with the acute suppurative, but may be pronounced even with chronic noncalculous cholecystitis. The adhesions may involve the pylorus, stomach, duodenum, colon, or omentum, singly or all combined, and may produce obstruction in any one of the affected hollow organs. The following cases will serve as illustrations of chronic cholecystitis and pericholecystitis:

Case IX.—Hospital No. 19,976. Alfred H., 33 years old, was admitted on August 28, 1907. For the past year he has been subject to attacks of pain, localized to the upper part of the abdomen, which usually started four to five hours after a hearty meal, and which were relieved by vomiting. Bowels were constipated, and between the attacks of pain he had frequent pyrosis. He was never compelled to remain in bed, nor does he believe that he ever had fever during these attacks. On examination, slight tenderness was elicited on deep pressure along the right costal arch and in the epigastrium, but there was no rigidity, nor was a mass palpable. Incision exposed a tense gall-bladder with thickened walls, containing a dark, viscid fluid and several bright yellow mulberry-shaped stones, the largest of which was cylindrical, and was taken from the cystic duct. Cholecystostomy was followed by rapid recovery.

Case X.—Hospital No. 26,296. Mary A., 42 years old, mother of one child, was admitted on July 5, 1909. Two years ago she had an attack of sharp pain in the region of the stomach, radiating to both shoulders. The attack began in the middle of the night, and was accompanied by nausea. For one year following this she suffered from a dull pain in the abdomen, and then had a similar attack, but more severe. For the past year she has been having attacks about every ten weeks, most of them occurring at night. For the past five weeks she has been having pain almost daily, but never vomited until a few days ago. She had chills and fever with some of the attacks, but was never jaundiced. Appetite is very poor and bowels are constipated. There is tenderness in the epigastrium, but no rigidity or tumor. At the operation the gall-bladder was found adherent to the omentum, and contained a few soft calculi and some thick, tarry-looking fluid. Cholecystostomy was followed by uneventful recovery.

Case XI.—Hospital No. 25,759. Miss Emily G., 26 years old, was admitted to the hospital on May 12, 1909, and gave a long history of frequent attacks of pain and vomiting and fullness of the stomach. Three weeks ago she had a sudden attack of crampy pains in her abdomen, accompanied by nausea, vomiting, fever, and general malaise. Later the pain became most marked in the right side of her abdomen, and was constant. There was slight rigidity of the right rectus, and some tenderness just above McBurney's point. The gall-bladder was found buried in a mass of dense adhesions involving the liver, pylorus, duodenum, colon, and omentum. After considerable difficulty a small portion of the gall-bladder fundus was exposed and incised. The gall-bladder was contracted, had thick walls, hour glass contractions, and diverticula. It contained five large and a number of small calculi in thick, dark bile. The operation was extremely difficult, it being impossible to do anything but introduce a tube into the deep-seated and immovable gall-bladder. The operation was followed by marked relief of all her symptoms, although when last seen she still had a fistula discharging bile.

A calculus may pass from the gall-bladder through the cystic into the common duct, and from there into the intestine through the papilla. If the calculus is small this may readily occur, but if too large to pass the papilla it remains in the common duct, and may be associated with an inflammation of the duct, completely obstructing the flow of bile. As the inflammation subsides swelling of the mucosa will diminish, and the flow of bile will be reestablished. Reinfection of the bile passages is very frequent with calculi in the common duct, resulting in contraction of the gall-bladder. The common duct is dilated and the walls are thick; the hepatic ducts are also dilated and frequently contain concretions which form secondarily. Pressure of a calculus in the common duct will cause chronic pancreatitis, a condition which is not at all uncommon. Adhesions may develop between the common duct and duodenum, with perforation and escape of calculi. Large calculi which are occasionally passed per rectum have usually escaped through such a fistula. A very large calculus may produce intestinal obstruction. Other complications of common duct stones are cholangitis, liver abscess, usually multiple, pylephlebitis, and various manifestations of a general systemic infection. Calculi may be present simultaneously in different parts of the biliary system, and several of the pathological lesions described may be present at the same time. The number of such combinations of lesions is very large, as pointed out by Richardson (*Boston Medical and Surgical Journal*, June 17, 1909, Vol. CLX., No. 24, page 768).

Cholecystitis may occur without calculi, it may be acute or subacute, but usually is chronic and is associated with adhesions to nearby organs. The acute form may even be gangrenous or perforating, and may cause general septic peritonitis. The pathology of noncalculous cholecystitis is not unlike that described in speaking of the variety associated with calculi. The following is the history of a patient with chronic noncalculous cholecystitis:

Case XII.—Hospital No. 25,652. Hyman H., 44 years old, was admitted on May 4, 1909. Nine years ago he was operated upon for chronic appendicitis. For the past six or seven years he has had irregular pains in the upper part of the abdomen. During the last year he had attacks of sharp, sticking pain over the region of his liver and stomach. These attacks were accompanied by nausea and general weakness. The attacks occcurred about every month and lasted from two to three days. He never vomited, nor was he ever jaundiced. The present attack is of a week's duration. With the exception of some tenderness in the upper right quadrant and epigastrium, there were no other signs of significance. At the operation the gall-bladder was found adherent to the pylorus. The walls of the gall-bladder were decidedly thick; it contained a thick, dark, bile-stained fluid, but no calculi. Cholecystostomy was followed by recovery, which, however, was interrupted by another attack of pain four months after the operation, probably due to reformation of adhesions between gall-bladder and pylorus.

Benign tumors of the gall-bladder are extremely rare, and of these, according to Moynihan ("Gall-Stones and Their Surgical Treatment," 1905, page 131), papilloma is the most common. Cancer of the gall-bladder, which is more common, may be looked upon as the most serious result of chronic gallstone irritation. An overwhelming majority of cases of primary carcinoma of the gall-bladder are associated with calculi, while in cancer of the gall-bladder secondary to cancer of some other organ calculi are rarely found. The neoplasm is usually near the fundus, and may develop upon an ulcer, irritated for a long time by calculi. When the diagnosis is made the disease is usually too far advanced for complete eradication. Associated with carcinoma there may be a papillomatous mass in the gall-bladder containing many calculi in its meshes, as in the following case:

Case XIII.—Hospital No. 23,295. Katie F., 36 years old, the mother of several children, was admitted on August 31, 1908. As far as it could be ascertained, her illness began about three months ago with a dull and constant pain in the epigastrium. For the past two months she has had attacks of tearing pain in the region of the gall-bladder and crampy pains in the epigastrium immediately after eating. During this period she vomited several times. One week ago she became jaundiced following an attack of pain. Her stools were loose and white in color at different times. She lost about 20 to 30 pounds in weight in the past three months. At the time of the examination there was no tenderness nor rigidity in the region of the gall-bladder, but an oblong tumor mass was palpable below the right costal arch and under the upper part of the right rectus muscle, extending downward for about two inches, and being about 1½ inches wide. Incision through the right rectus exposed a hard and nodular gall-bladder containing calculi. Despite the fact that the liver was studded with a number of hard, yellow umbilicated nodules of metastatic nature, the gall-bladder was extirpated in the hope of relieving the pain, which was so pronounced a symptom. The gall-bladder was completely filled with a papillomatous mass, growing from the fundus, and containing many almost white, irregular calculi. The patient left the hospital about four weeks after the operation and died at her home several months later. On microscopic examination, the tumor was pronounced an adenocarcinoma.

From a study of the foregoing remarks it is apparent that gallstones may produce symptoms by irritation, migration, or obstruction. When calculi are present in a gall-bladder which is but slightly changed, the symptoms will rarely point to the gall-bladder, but rather to some disturbance of digestion which may manifest itself by distress or fullness in the epigastrium. Kehr ("Die Interne und Chirurgische Behandlung der Gallenstein Krankheit," München, 1906) claims that the so-called gastralgias are in 95 per cent. of cases to be attributed to gallstones. Infection of the biliary system is associated with most of the cardinal symptoms of inflammation, and the prominence of the symptoms depends upon the location of the lesion and the virulence of the infecting agent.

Pain is the most important and most constant symptom, and, according to Richardson, the absence of pain of any degree is incompatible with a diagnosis of gallstones. The pain varies in situation and degree; it may range from a dull, heavy, or burning sensation to the sharp pain of biliary colic which frequently starts abruptly in the middle of the night. The pain is in the upper part of the abdomen, radiating to the chest, back, or right scapula. It is usually very severe and agonizing, and may induce collapse. It may stop just as abruptly as it started. It may last from a few minutes to many hours, and be followed by pain of less degree, localized to the right hypochondrium. It may recur at intervals of weeks, months, or even years. Whether

or not biliary colic is caused by the mere passage of a calculus through the ducts or to infection of even a mild degree, as Kehr believes, or to both acting together, is still an open question. Certain it is that it is directly due to spasmodic contractions of the distended gall-bladder or ducts in their endeavor to expel some of their contents, whether they be calculi or the products of inflammation. So-called biliary colic may therefore occur in cholecystitis without calculi. Tenderness is not as constant a symptom as pain. It is most marked in acute infections, and its maximum point of intensity corresponds to a point slightly to the left and below the junction of the right ninth rib and its cartilage. It may be present all over the right hypochondriac and epigastric region. In cases without acute symptoms some tenderness may be elicited during inspiration by deep pressure below the free border of the ribs. With pain and tenderness there is usually rigidity of the upper part of the right rectus muscle; the extent and degree depend upon the degree of inflammation; it may be diffuse in the earliest stages of infection, and then become more localized, and be most marked in the region of the gall-bladder. It is most pronounced in the severe forms of acute cholecystitis, with diffuse peritonitis, and is usually absent in the chronic form.

With biliary colic the temperature may be normal, but if there is a rise in the temperature it quickly returns to normal with the end of the attack. With the onset of cholecystitis the temperature may reach 101° or 102° F.; in suppurating and gangrenous cholecystitis it may be preceded by a chill and reach as high as 103° to 105° F., although it may be but slightly above normal, even though the gall-bladder be filled with pus. The reasons advanced by Mayo ("Keen's Surgery," Vol. III., page 997) for the absence of marked systemic reactions in infections of the gall-bladder are that the gall-bladder has few lymphatics and no lymph glands, and that the products of inflammation are under slight tension in an easily distensible organ. In chronic obstruction of the common duct there is frequent reinfection of the biliary ducts, resulting at times in cholangitis and multiple abscesses of the liver. The temperature, therefore, shows an abrupt rise to a high degree, 105°-107° F., preceded by a chill, associated with profuse sweating and followed by a marked drop to normal or subnormal. These exacerbations recur at varying intervals, and may continue for several weeks. With a rise in the temperature there is a corresponding acceleration of the pulse rate and leucocytosis.

Nausea or vomiting is present with biliary colic, which it frequently relieves. Vomiting may be present at the onset of acute cholecystitis, and is then usually the result of reflex irritation; it may be a symptom of chronic gallstone disease, especially where pyloric obstruction results from adhesions between the gall-bladder and pylorus or duodenum.

A swelling or tumor may be present if the gall-bladder is markedly distended by calculi or the products of inflammation. In acute cholecystitis, hydrops, or empyema, the gall-bladder may attain a very large size and the tumor may extend down into the right iliac fossa. It is usually pear-shaped, continuous with the edge of the liver, and moves with respiration. In very thin patients it may be visible and movable from side to side. In some cases of acute cholecystitis a tumor cannot be felt either because the swelling extends inward and backward under the liver or because tenderness and rigidity interfere with satisfactory palpation. With stone in the common duct the gall-bladder is usually contracted and cannot be felt. In carcinoma the gall-bladder is enlarged and presents a large, firm, nodular tumor, especially if the liver is involved as well. In many cases of gall-bladder disease there is a tongue-like projection of the liver, known as Riedel's lobe. The liver is enlarged when cholangitis is present, but in the average gall-stone patient there is no reason for enlargement.

Jaundice is not a constant symptom. Contrary to a widespread belief, gallstones may be present without jaundice, although the absence of this symptom has long been construed as an indication of the absence of gallstones. According to most observers, it occurs only in a small percentage of cases. It may be very marked or so faint that only the sclera are stained. It may be persistent or temporary, or may be intermittent; at one time it may be very pronounced, while at another it may be hardly perceptible. When it is present it is usually associated with bile pigment in the urine and itching of the skin. Jaundice is due to an obstruction to the natural flow of bile, caused by inflammatory swelling of the mucosa of the hepatic or common ducts. Obstruction to the flow of bile may also be caused by a plug of inspissated mucus and bile, an impacted calculus in the hepatic or common ducts, a tumor of the papilla, pressure of a tumor from without, or by torsion of the ducts caused by adhesions. With a stone in the gall-bladder or cystic duct, jaundice need not be present, but when it does appear it is usually due to an inflammatory swelling of the common and hepatic ducts, which results from an extension of infection from an existing cholecystitis, or from pressure upon the hepatic or common ducts by a large calculus in the cystic duct. With calculi in the hepatic duct, jaundice may or may not be present. Calculi in the common duct are associated with jaundice in about two-thirds of the cases. The jaundice is marked if the calculus is impacted, and intermittent or slight if it acts as a ball-valve. In carcinoma of the gall-bladder jaundice may or may not be present; when it occurs it is due to secondary involvement of the hepatic and common ducts, and is pronounced and progressive. In carcinoma of the common duct or papilla, jaundice occurs very early and is very pronounced. Marked jaundice is usually associated with clay colored stools, owing to the failure of bile to reach the intestine.

In cases without acute symptoms a careful history often reveals the fact that the patient had typhoid fever at some time in the past. A woman may state that her first symptoms or first colic occurred soon after childbirth. There may be a history of chronic indigestion, eructations of gas, nausea, or vomiting, which did not yield to the usual therapeutic measures. There may be a history of repeated attacks of abdominal pain, possibly coming on at night, which were diagnosed as gastralgia and were associated with slight jaundice, biliousness, and flatulence. Many of these symptoms are due to adhesions between the gall-bladder, on the one hand, and the stomach, duodenum, or colon, on the other, and may be present even with noncalculous cholecystitis. To enable one to make an intelligent prognosis, it is very important to diagnose the exact pathological lesion or lesions which are present; therefore we will briefly consider the clinical picture presented by the various complications of gall-stones.

Acute cholecystitis, with or without calculi, usually starts with abdominal pain which may have

all the characteristics of biliary colic. Pain may be preceded by a chill, especially in the suppurating or gangrenous variety, and be followed by a rise in the temperature and pulse rate. The temperature varies, being only slightly elevated in the mild, but may reach 107° F. in the more acute cases. In mild cases it quickly returns to normal; there is usually hyperleucocytosis, nausea, or vomiting, and obstinate constipation. With pain there is diffuse tenderness and rigidity. A few hours after the onset of symptoms tenderness and rigidity are localized to the gall-bladder region. At this time a tumor or swelling may be palpable which may be the distended gall-bladder, with or without adhesions or a Riedel's lobe. The tumor may reach to or below the level of the umbilicus, and usually moves up and down with respiration. When cholecystitis occurs during the course of typhoid fever the symptoms are apt to be masked by those of the primary disease. In acute cholecystitis jaundice is only present if the infection spreads to the hepatic or common duct or by pressure upon these ducts. When a complicating cholangitis is present, jaundice is very pronounced.

Chronic cholecystitis, with or without calculi, is characterized by symptoms referable to the stomach or duodenum. Temperature and pulse are usually normal. As a rule there is no palpable tumor, but there may be some tenderness in the region of the gall-bladder on deep pressure. Jaundice is usually absent, but may be present to a slight extent. There is some soreness or a sensation of fullness in the epigastrium. There may be a history of previous attacks of colic, nausea, eructations of gas, occasional vomiting, and flatulence.

The most characteristic symptom of stone in the cystic duct or of hydrops of the gall-bladder is a tumor in the right hypochondriac region, which may be very large, tender or not, and is usually freely movable. There is a history of previous attacks of pain. Jaundice is rarely present.

The symptoms of a calculus in the common duct depend upon whether the obstruction is complete or not, or whether there is an acute infection present. In either case there is a history of previous colics or pain. When obstruction is complete—a condition which is rare—jaundice is very pronounced and constant. If infection is present, the temperature shows the characteristic features described above. The abrupt rise of temperature is preceded by pain and chills, is associated with profuse sweating and followed by an abrupt drop to normal or subnormal. These paroxysms recur at varying intervals, and are accompanied by symptoms of systemic infection Nausea or vomiting and marked loss of weight and strength are usually present. The gall-bladder is contracted; therefore a tumor is not present. If there is a tumor in the region of the gall-bladder, with deep jaundice, it usually indicates malignant disease, and not calculi, especially if there is a history of previous attacks of pain, or if the tumor were present before jaundice appeared. With calculi in the common duct the stools are clay colored and the urine contains bile pigment.

In carcinoma of the gall-bladder there may be a history of gallstone disease. A tumor develops which may not be associated with pain because the cystic duct becomes obstructed gradually or not at all. Loss of weight, cachexia, metastases, and ascites are usually present.

Biliary colic and acute cholecystitis may be simulated by renal colic, Dietl's crises, lead colic, the gastric crises of locomotor ataxia, acute appendicitis, perforation of a gastric or duodenal ulcer, acute pancreatis, intestinal obstruction, or epigastric hernia. In renal colic the pain usually radiates down the ureter toward the scrotum, vulva, or thigh, and there are urinary symptoms, such as painful or frequent micturition, hematuria, or pyuria. Tenderness is usually most pronounced in the costovertebral space.

With Dietl's crises a movable kidney is palpable, and there may be urinary symptoms. The history and well-known condition of the gums will aid in the diagnosis of lead colic; likewise a good history and other well-known symptoms will readily point to the gastric crises of locomotor ataxia, although there is no reason why a tabetic patient might not have gallstones. Acute appendicitis might simulate acute cholecystitis, especially if the appendix or some part of it is situated high up under the liver, but in appendicitis, the initial pain, as a rule, does not radiate to the back or right shoulder, and is usually less severe. Tenderness and rigidity are at a lower level, while in cholecystitis they are most pronounced over the upper part of the right rectus, even if the gall-bladder is very much below its usual site.

Appendicitis is always associated with a rise in the temperature, while in biliary colic there may be no systemic disturbance. In fact, acute appendicitis, as a rule, is associated with more marked constitutional disturbance than cholecystitis, unless the latter be of the gangrenous or perforating variety. In perforation of a gastric or duodenal ulcer, the pain may come on just as suddenly and be quite as excruciating as in biliary colic, but a history of previous gastric hemorrhage or blood in the stools, as well as pain after eating, will point to the stomach or duodenum. The abdomen will be scaphoid, and tenderness as well as rigidity, at first most marked in the epigastrium, will later become most pronounced in the right iliac fossa. These signs may be associated with entire absence of liver dullness.

In acute hemorrhagic pancreatitis there is very pronounced collapse, violent pain in the epigastrium, radiating to the back, and cyanosis of the skin, with very pronounced constitutional symptoms. The obstinate constipation present at the onset of acute cholecystitis may simulate intestinal obstruction, but in the latter condition the pain is rarely in the gall-bladder region; vomiting is more frequent and persistent and constipation does not yield to the usual medical treatment. Epigastric hernia can be recognized by the presence of a small bulging in the upper part of the recti muscles.

Tumors of the gall-bladder may have to be differentiated from movable kidney, renal tumors, echinococcus cysts or other neoplasms of the liver, and carcinoma of the colon or pylorus. A movable kidney can be recognized by its position, outline, and the fact that it can be replaced into its normal position. Renal tumors have the outline of a kidney, are usually in the lumbar region, and, as a rule, do not move with respiration, and are more deeply situated than gall-bladder tumors. The history is very different, there may be hematuria or pyuria and bulging in the flank. Tumors of the liver are rarely preceded by the symptoms suggesting gallstone disease. Carcinoma of the colon is associated with symptoms of obstruction, a different history, cachexia, and at times wih ascites. Car-

cinoma of the pylorus is characterized by obstruction to the passage of food from the stomach, cachexia, hematemesis, and the presence of lactic acid and stagnating particles of food in the stomach contents.

Stone in the common duct, which is usually associated with jaundice and fever, may have to be differentiated from catarrhal jaundice, hypertrophic cirrhosis, carcinoma of the liver, malaria, pyelophlebitis, chronic pancreatitis, or tumors of the pancreas. In catarrhal jaundice there is a history—possibly the result of indiscretion in diet—of an acute gastrointestinal inflammation, not preceded by pain, and associated with slight systemic disturbance. It occurs in young persons, and at times is epidemic. In hypertrophic cirrhosis, the size of the liver, the long duration of the disease, the enlarged spleen, with but little pain and slight systemic disturbance, all point to the liver as the seat of the disease.

Carcinoma of the liver, usually secondary, causes a nodular tumor, ascites, cachexia, and none of the febrile symptoms so well known with stone in the common duct. The chills, high temperature, and sweats of malaria occur with more regularity. In malaria jaundice is not so pronounced, the stools are not clay-colored, hyperleucocytosis is absent and the plasmodium may be present. There is no history of pain, and there is usually splenic enlargement present.

Pyelophlebitis is a condition usually secondary to some intraabdominal infection, the liver is enlarged and tender, jaundice is not so deep and is not preceded by colics, nor are the stools clay colored. The differential diagnosis between calculus in the common duct and chronic pancreatitis is very difficult, and, at times, is impossible. The presence of the Cammidge reaction may simply point to involvement of the pancreas secondary to cholelithiasis. Carcinoma of the pancreas is not preceded by a history of colics or pain, is not associated with rigors or sweats, but by rapid and marked emaciation, persistent and deep jaundice, clay-colored stools, a distended gall-bladder, large liver, cachexia, and possibly ascites.

Gallstone disease is very common, but in a very large proportion of cases is only recognized after it has produced lesions, some of which are of very grave consequence. The diagnosis, in a typical case, characterized by all the cardinal symptoms, is simple, but the diagnosis of the exact location of the calculi, and the nature of the lesions produced secondarily, is frequently very difficult. Furthermore, the multiplicity of lesions which may exist in an individual case makes an exact diagnosis even more difficult.

A correct diagnosis can result only from a good history, accurate observation, and proper interpretation of the symptoms and signs. In the diagnosis of obscure cases a good clinical history is more valuable than any other factor. It should be taken with patience and care, for many times it sheds more light upon the case than even a painstaking physical examination.

Finally, in the obscure cases of long standing, when all available means of diagnosis have been exhausted and all reasonable therapeutic measures have failed to relieve, exploratory laparotomy, in the hands of the experienced surgeon, is a justifiable procedure, which frequently results in speedy and permanent relief.

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END RESULTS FOLLOWING OPERATIONS FOR PROSTATIC OBSTRUCTION.*

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In attempting to discuss with you the end results of prostatectomy, with the purpose of gaining an unbiased opinion for the enlightenment of the profession at large as to the dangers, complications, and permanent results of this important operation, it is desirable that we should if possible, evolve a general theory of current opinion and a basis upon which we can fairly draw conclusions. Otherwise, we may approach this subject from so many points of view that the result must lead to uncertainty and confusion, and some of our reports be over- and others undervalued. Could we reach definite views in this matter, they would be extremely useful to us. To this end I would suggest the omission of such generalities as "50 successive and successful operations upon the prostate without a death," or "the selection of an operation is determined by the rate of its mortality"; or, as one surgeon phrased it in a flight of oratory, endeavoring to favor the perineal method of approach as against the suprapubic, that "it was needless to get into a house by way of the roof when it was possible to enter by the front door."

End results, on the whole, are good, bad, and indifferent: a good result in one case might be a bad result in another, and *vice versa*. Death follows operation as a result of the gravity of the operation, plus the inability of the patient to sustain it. The unexpected existence of cancer may be a determining cause of death in some of our prostatic operations. The occurrence of septic thrombosis and pulmonary embolism may close the scene abruptly and carry off an otherwise promising case. The condition of the kidneys has an important bearing upon the chances of any patient who is about to undergo a severe surgical procedure, and is of maximum importance in the case of operations upon the urinary organs.

Such after-complications as swollen testicles, stone in the bladder, incontinence of urine and fistula, and a persistence of a large amount of retained urine, necessarily bring discredit upon the operation, and sometimes render the second state of the patient worse than the first; and the frequency and cause of their occurrence call for careful investigation in the consideration of the subject under discussion.

The operation is performed primarily for prostatic obstruction and the resultant conditions of cystitis, retained urine, and urinary sepsis are overcome only when this primary condition is successfully remedied by operation. When these unfavorable conditions are abolished, the operation is a complete success, but when the after-result is accompanied by the development of any of the complications mentioned, the satisfactory result of the operation is materially affected. Yet, a good end-result is necessarily relative, and should be estimated according to condition before operation and the features peculiar to that particular case. Thus, a patient who has two kidneys irreparably damaged

*Read at a meeting of the Surgical Section of the New York Academy of Medicine, March 4, 1910.

to an advanced degree, who, on account of complete or incomplete retention of urine, is compelled to rely upon the use of the catheter, may have to be operated upon on account of his inability to introduce the catheter when otherwise operation might be considered inexpedient. Such a case should not be considered as a bad result, even though there was a continued necessity for the use of the catheter following operation, due to the existence of a chronically inflamed, thickened, and trabeculated bladder. The greater our experience becomes, the more we appreciate the bearing of these various features upon the question of a successful issue in any one case.

On consulting my available records I find a collection of 100 operations for prostatic obstruction. From these are excluded several cases of cancer of the prostate in which only a conservative operation was attempted, with the knowledge that the cancer involved not only the prostate, but the floor of the bladder as well. I have included three cases of cancer (two of which proved fatal), because at the time of operation the malignancy appeared to be confined to the prostate alone in two of them, and in the other it was discovered afterwards, when the rectovesical wall gave way and a large rectovesical fistula resulted prior to death. In examining the histories of these 100 cases I find much of interest from my own personal experiences—too much, indeed, to dwell upon here, as it would consume an unlimited length of time. I will confine myself, therefore, briefly to those facts which have a direct bearing, so far as these records are concerned, upon the dangers, complications, and results accompanying the different methods of operation by which the 100 cases were treated.

I am frank to state that these records, which cover a period of about ten years, reveal an evident change of ideas and practice with respect to the methods adopted in operating, and suggest the resemblance to a man who is unsettled in his religious belief and changes his faith several times. Thus, I started as a Methodist, later became a Presbyterian, and have now settled down as a Universalist. In other words, most of my early operations were done by the galvanocautery technique; later, the cases were divided between this and perineal prostatectomy, according to the indication for one or the other of these methods. In recent years, however, the cases have been divided between various methods of operation, including that of suprapubic prostatectomy, which is undoubtedly the method of choice in some cases.

These 100 cases represent all types of prostatic obstruction, from the prostatic bar and concentric collar to the symmetrically enlarged prostate, anterior to the bladder, and intravesical enlargement, median and bilateral. Among these 100 cases there have been eight deaths, and I have included in these all fatalities which have occurred within eight weeks after operation. Two of these deaths were patients with cancer of the prostate, and the operation performed was perineal prostatectomy. Both of these deaths occurred within three weeks after operation. One death occurred from pulmonary embolism in a case of suprapubic prostatectomy during the third week following operation, when the patient was apparently convalescing and sitting up out of bed. Two deaths occurred from septic thrombosis, one of which followed a perineal prostatectomy six weeks after operation, when the patient had left the hospital, and the other a galvanocautery prostatotomy, within the two weeks following the operation. Two deaths, from shock and severe hemorrhage, followed closely after the operations, which were suprapubic prostatectomies. One patient died from renal insufficiency following galvanocautery prostatotomy.

The rate of mortality favors perineal prostatectomy as compared with suprapubic, but a more careful analysis of the cases is required to demonstrate this fact indisputably. I believe this conclusion is in keeping with the consensus of opinion, although the rate of mortality of the high operation, like that of the perineal, is being lowered by improved technique and more rapid operating. The question of mortality cannot be intelligently discussed in reviewing any one man's records, or by comparing such records with those of several other men, unless a careful analysis and fair comparison of the different types of cases be made. And this, I understand, is not the principal topic to be discussed in the subject before us.

As to final results, I have believed for some time past, and still believe, that the galvanocautery operation is ideal for certain types of prostatic obstruction: namely, stenosis of the vesical orifice as a result of old, chronic inflammation of the urethra and bladder, and kindred types of concentric prostatic obstruction of the collar or bar variety, which cannot be enucleated with the same degree of facility as a lobular enlargement of the gland anterior to the bladder neck or an intravesical growth.

I will not consume time in discussing the question of galvano-prostatotomy through a perineal opening, as I now believe that this operation is limited in its field to special cases of the type already named. In earlier days I was inclined to use this technique more generally, but have found that it is not suitable for prostatic enlargement of symmetrical hypertrophy, or bilateral and median growths, except in a very limited way. And yet, in looking over my records, I find some early cases of very considerable prostatic enlargement that were treated by galvanocautery prostatotomy through a perineal opening, that are among the best results. I recognize, however, that these are the exceptions and not the rule, and should not be cited in favor of this technique in that particular class of cases.

I find one striking case that was operated on in June, 1901. The patient, 66 years old, had a considerably enlarged prostate, a bilateral intravesical growth, the two lobes being about the size of birds' eggs. The patient was in very bad general physical condition, and was not considered a good subject for prostatectomy. Cystoscopic observation revealed a pyelonephritis on one side, and a large jet of pus could be seen exuding from one ureter. This patient made a remarkable recovery as a result of the galvanocautery operation through the perineum. He is alive to-day, being 75 years old. He completely empties the bladder, and the pyelonephritis has subsided to the extent of not impairing to a marked degree his general health. His weight increased after the operation some 15 or 20 pounds, and he has retained ever since his improvement in general condition. This case, in spite of its favorable outcome, does not prove the utility of this technique in the class of cases in which there is much enlargement of the prostate, as several other cases of the same type did not present such favorable end-results; and I will dispose of the question of galvano-prostatotomy for prostatic obstruction by summarizing the cases as follows: 10 per cent.

presented tuberculous involvement of the prostate or bladder, and all of these were unimproved; 90 per cent. had residual urine, varying from one ounce to complete retention; 10 per cent. had no residual urine; but all the cases presented complete stenosis of the neck of the bladder to the extent of not allowing the entrance of the finger. All of them presented the usual symptoms of prostatism, namely, dysuria, urgency, frequency, difficulty or precipitancy of urination.

Exclusive of the tuberculous cases, 85 per cent. have been cured or much improved, and 15 per cent. only partially improved. This refers to the dysuria, the disappearance of the residual urine, and the elongation of the urinary intervals or the facility or greater ease of urination.

As to the complications, swollen testicle has occurred in about 10 per cent. of the cases, and this almost invariably in patients who gave a history of one or more previous attacks of the same trouble; incontinence of urine in about 10 per cent., amounting to a slight dribbling in about 5 per cent., and to a more or less continual flow in 5 per cent., these latter being the early cases, when the galvanocautery incision was not properly gauged and was carried too far beyond the internal sphincter, encroaching upon the external. Stone in the bladder has occurred in none of these cases, and perineal fistula in none except the tuberculous cases and the cancer case already referred to.

I have been able to follow many of these cases, the earliest ones dating back to 1900 and 1901, up to the present day, and in all the cases reported as "improved" or "cured" that have been traced, the result has been permanent, except in those in which there existed prostatic enlargement anterior to or behind the vesical outlet, in which relapses have occurred, and subsequent prostatectomies been performed, either by myself or other surgeons.

Of the perineal prostatectomies, the end-results have been relatively satisfactory so far as the functionating power of the bladder, the elimination of residual urine, and the elongation of the urinary intervals, are concerned. Of course, in all such cases the result after operation must be compared with the previous condition of the patient, and in those cases in which the bladder has been clean before operation, where the kidneys are in fairly good condition, the result naturally has been very much better than in cases with extensive and deep bladder inflammation and damaged kidneys.

It is difficult to state exactly what the end-result has been in such a miscellaneous collection of cases, without a proper analysis of each one, and, therefore, we can better consider the question by referring to the particular untoward occurrences that have resulted in some cases.

So far as the residual urine is concerned, I believe in the vast majority of cases, as shown by these personal records, as well as by those of others, that when the prostatic obstruction is removed completely, whether it be by the perineal or suprapubic route, that the functionating power of the bladder is returned. Inflammation, however, may remain for an indefinite period, and with permanent contracture of the bladder, cause an undue frequency of urination, and sometimes a continuation of dysuria, which, however, is more or less controlled by bladder lavage and after-treatment. Incontinence of urine has occurred as a mild dribbling in about 4 per cent. of the cases. There has been no instance of post-operative calculi in any of these cases.

There have been three cases of rectovesical fistula, one cancerous, that died within three weeks following the operation, and in the other two the rectal fistula persisted over six months after operation, and one of the patients, a feeble old man over 70 years of age, succumbed to the operation for relief of his after-condition. One case of simple perineourethral fistula was permanently cured by a slight operation. Swollen testicle occurred in about the same percentage (10) as in the galvanocautery operation, and notably in patients who had had previously the same trouble.

In the suprapubic cases there have been about the same percentage of postoperative swollen testicle as followed the perineal operations, and here, again, there was invariably a previous history of similar trouble. In several cases with such history, when that precaution was taken to do previously or simultaneously a double vasectomy, no complicating orchitis followed the prostatic operation.

As to incontinence of urine, there has been no case among the suprapubic operations of my records, except where the suprapubic operation followed a previous perineal prostatectomy. There were two such cases, and the incontinence of urine ensued owing to the fact, I believe, that the integrity of both the internal and external sphincters of the bladder were impaired by the double operation. No case of stone in the bladder is recorded as having followed any of the suprapubic operations. No rectal fistula has resulted, and no suprapubic fistula has persisted beyond a reasonable period. The end results in all of the surviving cases, so far as the functionating power of the bladder, the elongation of the urinary intervals, and the complete emptying of the bladder are concerned, have been generally satisfactory.

There is something to say of interest in this discussion with regard to the cases of other operators that fall into our hands. It is quite natural that one's bad results do not find him out directly, but often are discovered in the hands of another surgeon. This has been my experience with a number of cases, and I doubt not that some of my own unsatisfactory results have been revealed to others. On this point I have taken some account of the cases that have drifted in my direction, having been operated upon elsewhere. I have seen within the past year fully a half-dozen cases of incontinence of urine operated upon, all of them by perineal prostatectomy; two cases of stone in the bladder, one a suprapubic and the other a perineal prostatectomy; a case of perineal prostatectomy that combined all of the complications of swollen testicle, incontinence of urine, perineal fistula, and stone in the bladder; a case of rectovesical fistula following perineal operation; a patient operated on by the perineal route from whom both lateral lobes had been removed, and who still had complete retention of urine requiring the removal, suprapubically, of a large middle lobe the size of a walnut. This is the case already referred to that suffered from incontinence of urine following the latter operation.

As to the question of virility as applied to all of the different operative procedures, I cannot make any very definite statement, as it seems that some patients claim that they still retain their sexual powers and others lose them. In these latter, in some instances their powers have already declined prior to the operation.

To summarize briefly these personal experiences and resulting convictions: The operation of pros-

tatectomy, perineal or suprapubic, is a complete operation, attended by excellent results in favorable cases, and relatively good results in less favorable ones, according to the condition existing before operation.

The mortality rate is, on the whole, not high, and is being lowered by improved methods of treatment before and after operation and better technique. The mortality rate may favor somewhat the perineal route, but the excellent after-results following the suprapubic method cannot be excelled. And it would seem that certain of the untoward after-complications, namely, those of recto-vesical fistula and urinary incontinence, occur in a certain percentage of the perineal operations, and seldom, if at all, after primary suprapubic operation. The other complications, swollen testicle and stone in the bladder, occur about equally in a small percentage following all the different methods.

Residual urine entirely disappears when the prostate is completely removed and the vesical orifice cleared of obstruction. The continued existence, after operation, of subjective symptoms, such as dysuria and urinary frequency, depends upon the condition of the bladder before operation, and such persistence is determined by the nature and extent of the bladder lesion.

On the whole, few operations in surgery can show a better progress in the last decade than can that of prostatectomy when its limitations and results are fairly regarded.

If caution is called for, it is to discourage too much operative fervor in favor of any one method to the extent of overlooking the existence of different types of prostates and the favorable results attained by other methods, and to condemn undue haste in disturbing the peaceful lot of some aged patients, whose conditions are too satisfactory to warrant the risk of surgical intervention.

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TWENTY-FOUR, FORTY-EIGHT, AND SEVENTY-TWO-HOUR PNEUMONIAS IN CHILDREN.*

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When at the last meeting of this society, I discussed the excellent paper of Dr. Hills and remarked that "lobar pneumonia might be of very short duration in childhood, ending by crisis within seventy-two, forty-eight, or even twenty-four hours" the writer thought that he was stating a somewhat generally accepted truth. However, the pains and labor with which my discussion was discussed gave rise to the birth of this paper.

The onset of a disease is frequently so characteristic that this becomes an important factor in the diagnosis. This is especially so in the case of lobar pneumonia. The fact that a child in perfect health is attacked suddenly with vomiting and a chill or chilly sensations, which is accompanied by a rapid rise of temperature to 103° F. or over, is suggestive of pneumonia. And if after a few hours, the child is visibly ill with a dry, hot skin, flushed cheeks, and a much accelerated respiration, it is much more than suggestive. But however suggestive such a symptomatology might be, it is the minuter consideration of the individual symptoms and their association that concerns us.

In the presentation of the clinical reports which are used to elucidate my points, it is only fair that the writer bring to you a more or less intimate knowledge of what he considers the symptoms of the onset of the disease and also to acquaint you with his own estimate of the particular value of each. The three cardinal symptoms of chill, pain in the side, and rusty or red sputum which occur in the adult, may all be absent in children. Therefore, the early diagnosis of the disease in childhood must be made from an intimate knowledge of the first symptoms, an appreciation of their individual values, and repeated and frequent examinations of the chest.

The onset is almost always accompanied by vomiting and this vomiting has been said to take the place of a rigor, but of this I am doubtful for in practically every instance in which vomiting has occurred it has also been accompanied by some condition which approximated a chill, as coldness of the extremities and cyanosis which is most marked about the lips. That these latter are not directly connected with the vomiting is shown by their persistance even after that act is completed. In older children, the cause of vomiting is often traceable to an error in diet at the onset of an elevation of the temperature and therefore such a type of vomiting would have no direct connection with the disease in question. This uncertainty should be settled at once and in this the character of the vomitus will aid us; first, by the detection of undigested or indigestible articles of food; and secondly, by the time at which the vomitus was expelled in relation to the last meal. This gives a clue as to the efficiency of digestion.

A somewhat common feature of the onset is drowsiness which does not last for more than twenty-four hours and then disappears entirely or is replaced by a mild delirium. In children this delirium is easily overlooked as it often does not declare itself clearly but may only be evidenced by the vacancy of expression and an unnatural and restless attitude. Even when delirium is present the eye remains clear and bright.

Cough during the first forty-eight hours is a rather insignificant symptom and we do not attach much importance to its presence or absence during this period. Expectoration is only seen frequently in children when they have reached the age of ten or over; in those younger its occurrence is rare and under the age of four years is practically never encountered. However, occasionally blood may be early detected in mucus which has been swallowed and then ejected from the stomach by vomiting.

Headache and diffuse muscular pain are fairly constant if the child be one that is old enough to locate pain of this character intelligently. The characteristic pain, however, is pleuritic and may be referred to regions outside of the chest. In young children such pain is referred to the loin, the epigastrium, or to any situation to which the intercostal nerves are distributed. However, the characteristic of this pain is, that it is never definitely located by the child. Thus if in a very young child, we observed the evidences of abdominal pain with vomiting, the probability of pneumonia should be thought of, for at this period of life gastric disturbances are rarely accompanied by *early* abdominal pain.

Prostration is early and characteristic; the child

*Read before the Pediatric Section of the Medical Society of the County of Kings, February 23, 1910.

is visibly ill. This is out of all proportion to the symptoms present. Paleness of the face, which is apt to exist during the first few hours despite the fever, soon gives way to unilateral flushing of the cheeks, but this flushing is in no way indicative of the site of the disease. We have frequently demonstrated that it depends largely upon the posture of the child, the more dependent cheek being the one affected.

The respiration is always accelerated and has a jerky character often. There may be expiratory moan which when present is very distinctive. This moan is not very evident during rest but is exaggerated by crying or speaking. The pulse is at the onset full, strong, and frequent.

But it is the ratio between pulse and respiration which is of prime importance. The writer has never felt that much dependence could be placed upon increased respiration alone, but that to be of diagnostic value there must occur a marked increase and a disturbance of the ratio between pulse and respiration.

Thus if the normal ratio of approximately 1 to 4 was so disturbed that it was nearly 1 to 2 and the child exhibited other constitutional symptoms of the disease with or without definite physical signs in the chest, the diagnosis of lobar pneumonia can be presumably made.

A blood examination is not always feasible and as F. C. Wood says,* "As an aid to the diagnosis, blood cultures are of comparatively slight value except in the penumonias of old people where the physical signs are obscure and the pneumococcus frequently invades the blood in considerable numbers. A frank case of pneumonia can be diagnosed much more quickly and certainly from the physical signs than from a blood culture." However, as there is always present a polynuclear leukocytosis (except in grave cases) the rise of which occurs with the chill, this would have a distinct diagnostic, as well as prognostic value.

Since Sternberg demonstrated pneumococcus in his own saliva in health, many others have done the same. Netter took several hundreds in rotation and demonstrated it in over 20 per cent. of healthy persons. The New York commission's per cent. even exceeded this and their investigators show from 46 per cent. to 85 per cent. Buerger's study showed similar percentages but also demonstrated that the percentage was much higher in children than in adults. This renders the examination of the sputum an unnecessary as well as a useless measure.

In a consideration of the physical signs of the onset, we must be mindful of the occasional irregularity of the disease, an irregularity which while not confined to childhood seems to be much more common to that period. The following case will serve to illustrate this point:

Harriette M., age 12, was stricken with pneumonia on February 6, 1910, five days after the onset of the disease in her brother, aged 6. The disease ran a typical course until February 10, when the signs of commencing resolution were marked. The temperature remained high, however (never lower than 103° F., nor higher than 104° F.), and the mild delirium which was an early feature of the disease continued. The blood was taken for examination the following day and a Widal done by the Department of Health proved negative. On the 12th the signs of resolution were more marked, but temperature and delirium remained as before. On the 14th the temperature dropped in ten hours from 103.2° F. to 96.4° F. and a few hours later all evidences of the delirium had disappeared. From this time the girl made an uneventful recovery. Here, then, was an instance in which the stage of resolution was evidenced four days before the occurrence of the crisis. (This case will be reported at length at another time.)

*"Chemical and Microscopical Diagnosis;" Wood.

The earliest percussion signs which we look for are those which are due to congestion. As a consequence of this less air gets into the affected area and more is forced into the other portions of the lung, so that there is diminished resonance over the affected portion and exaggerated resonance elsewhere. The absence of this sign, however, is not evidence that pneumonia does not exist for percussion may fail to outline the affected area, either because it is limited in its extent, is covered by healthy lung, is deep seated, is masked by a gas distended stomach or intestine, or is situated in some part inaccessible to examination, as in the apex where covered by the shoulder and along the posterior border at the vertebra.

The earliest auscultatory signs are a feeble respiratory murmur over the affected portion, with rather high pitch, while the healthy portions of lung show exaggerated sounds. In addition to this there may be crepitant râles which are somewhat strictly localized to a small area. These are hard to find because of their temporary disappearance after the act of coughing and therefore the search for them involves diligence and patience and when found they are the strongest auscultatory evidence of lobar pneumonia.

Briefly, then, the symptomatology which the writer considers as absolutely essential to the diagnosis of the disease during the first twenty-four hours is: 1. A sudden onset, with immediate and sustained high temperature and a dry, hot skin. 2. Early prostration to the extent that the child will give up and show the visible signs of his illness. 3. Markedly increased respirations, with a decided disturbance of the ratio between pulse and respirations. 4. The exclusion of all other possible causes for the symptoms. Aside from these, however, there are symptoms which are corroborative, as: 1. Definite physical signs in the chest. 2. Initial vomiting. 3. Chill or something which approximates it. 4. Primary paleness of the face, with subsequent unilateral flushing. Of still less value, but still of some import, are the character of the pulse, cough, and possible expectoration. It is all right to theorize about the early symptomatology of this disease and to place our estimate upon the values of certain individual and associated symptoms, but the main question is, "Does it work?"

The following histories are submitted to your consideration:

Case I.—Girl, age 11. Attacked Monday noon. History of onset: Sudden attack of vomiting, not repeated, but accompanied by high temperature and marked headache; no chill, but chilly sensations. Examination at 2:30, T., 106°; P., 124; R., 68. Skin dry and hot, tongue slightly coated in center. Percussion at 7:30 showed nothing abnormal; auscultation, feeble respiratory murmur over most of the right lower lobe, increased murmur over other parts of chest. Diagnosis of pneumonia made at this time. Course, typical with crisis on seventh day.

Case II.—Girl, age 4. Attacked Monday at 5 P.M. History of onset: Repeated vomiting for half

hour, with high fever and slight cough. Examination at 8 P.M., T., 104.5°; P., 140; R., 59. Skin dry and hot and tongue much coated except at margins and tip. Percussion, very slight dullness over a small portion of the left upper lobe. Auscultation, feeble respiratory murmur, and a few very fine râles over large portion of same lobe; murmur intensified elsewhere over lung. Diagnosis made at this time. Three hours later, all physical signs more marked and with increase in respirations to 68; pulse and temperature remaining as before. Course, typical with crisis on sixth day and followed by empyema.

CASE III.—Boy of 6. Attacked Sunday at 7 P.M. History of onset: Tried to vomit and only succeeded in bringing up small amount, but had high fever and what seemed like a chill; cried to be put to bed. Examination at 8 P.M., T., 104°; P., 134; R., 62. Physical examination revealed no signs in chest. Face quite pale. Diagnosis of pneumonia made on symptoms present and by exclusion. Four hours later the condition remained practically the same. Seven hours later (twelve hours after the onset) examination showed feeble respiratory murmur over a small part of left lower lobe; percussion negative. Course, typical with crisis on eighth day, on ninth day sudden rise to 105, with final crisis fourteen hours later.

CASE IV.—Boy, age 2 years. Attacked Saturday at noon. History of onset: Slight convulsion, followed by vomiting and diarrhea and accompanied by high temperature. Examination at 3 P.M., T., 105.2°; P., 160; R., 73. Some very fine râles localized at one point near right apex; no other signs. Diagnosis made at this time of pneumonia. Nine P.M., respiratory murmur much weakened over most of the right apex and slight dullness over about an inch area. Next day, diarrhea had entirely disappeared without treatment (diet restricted, of course); physical signs in chest much more marked. Course, typical with crisis on sixth day.

CASE V.—Boy, age 6. Attacked Monday at 9 P.M. History of onset: Sudden attack of vomiting, accompanied by high temperature and preceded by chilliness and some headache. Severe pain in the right side of the abdomen, apparently crampy in character. Examination at 11 P.M. (having been called by the attending physician to confirm his diagnosis of appendicitis), T., 104°; P., 137; R., 63. Tongue slightly coated in center. Percussion, small area of scarcely appreciable dullness over middle right lobe. Auscultation, enfeebled respiratory murmur over most of the lobe and very fine râles localized to small area near center of the lobe. Diagnosis made of lobar pneumonia; appendicitis excluded. Attending physician preferred to withhold diagnosis for a time. Twelve hours later, signs in chest unchanged, T. P. and R. same. Pain in abdomen less severe. Unilateral flushing of check. Course (after first two days) typical with crisis on seventh day.

CASE VI.—Boy, age 3. Attacked Thursday at 5 P.M. History of onset: Vomiting and diarrhea with high temperature, chilliness, and very pale face; lips bluish. Had been to afternoon party and eaten freely of cakes and candies. These were in the vomitus. Examination at 9 P.M., T., 105°; P., 122; R., 57. Tongue coated in center; abdomen tympanitic. Percussion revealed nothing; auscultation, feeble respiratory murmur doubtful over small area of lower right lobe. Diagnosis of pneumonia made at this time. Next morning at 8, no detectable signs on percussion or auscultation. T., 104; P., 134; R., 61. Tongue much more coated, diarrhea stopped, abdomen flat. Same day at noon, percussion showed small area of dullness over center of lower right lobe; auscultation, much enfeebled respiratory murmur over whole lobe and intensified murmur elsewhere. Course, typical with crisis on seventh day.

The writer has purposely avoided elaborating upon these histories, for to conserve the purpose of this paper, it is only necessary to mention the few salient points which have a direct bearing upon the question. And for our purpose, the submission of six recent reports is as serviceable as the histories of sixty.

It is perfectly logical to assume that if by certain symptoms and their association with one another, the clinician is able to diagnose a disease and to predict its probable course and such diagnosis and prediction is confirmed by the typical course of the disease in later days, that by a similar process of reasoning and deduction under similar circumstances he should be able to diagnose the disease even though his prediction that it will follow the usual course be upset by an unusual course of the disease. The essential thing is not that the prediction of a typical course be borne out in all instances, but that the typical course follow such a large proportion of such predictions that it indicates that the scheme of early diagnosis is the right one and that it is possible to diagnose the disease in question by such means. In other words, if it is possible to diagnose lobar pneumonia upon the first day of the disease and have all doubt as to error dissipated by the subsequent typical course of stages of congestion, hepatization, and resolution, it is possible by the same signs to diagnose pneumonia, even if the disease be arrested some time during the first stage.

Enough of the former cases have been submitted to show that such an early diagnosis of this disease is feasible. It remains now to submit to you, the following histories of instances in which by similar methods a positive diagnoss was made, although the disease later exhibited the unusual course.

Because of the lack of time, I feel that we can fairly pass over the consideration of the seventy-two-hours types of the disease, for in these short duration pneumonias there is little if any difference from the ordinary type, except in the length of their course. The physical signs are as well marked as are those of any mild pneumonia, and they clearly indicate that the disease is passing through the usual stages, although the length of each stage is much shortened. And then again, if we are convinced from our clinical studies of the disease that a much shorter duration may exist and that the disease may end within forty-eight or twenty-four hours without having gone through all of the usual stages, it is not necessary to elaborate upon the longer-coursed disease.

CASE I.—Boy, age 7. Attacked Monday noon. History of onset: Severe vomiting attack with high temperature and slight cough. In the vomitus there was blood-streaked mucus. A slight chill had occurred with the vomiting. Examination at 2 P.M., T., 104°; P., 142; R., 61. Skin dry and hot; tongue much coated except at margins and tip. Percussion, very slight dullness over part of right lower lobe. Auscultation, feeble respiratory murmur over larger part of same lobe, but intensified elsewhere. Diagnosis made of pneumonia. Six P.M., T., P. and R.

practically the same; signs in lung more marked. Ten P.M., no apparent change in the conditions, except tongue is cleaner. Next morning at 7, no change, except that signs seem slightly more marked. One P.M., T., 103; P., 136; R., 49, marked improvement in signs in chest. Five P.M., no dullness, auscultation shows very slightly enfeebled respiratory murmur; T., 101°; P., 121; R., 32. Nine P.M., T., 98°; P., 86; R., 23; no signs detectable in chest, cough persists. Course, nothing further abnormal, except cough for two days.

Case II.—Boy, age 10. Attacked Thursday at 7 P.M. History of onset: Chilliness and headache preceded a sudden attack of vomiting with high temperature. Examination at 10 P.M., T., 104°; P., 135; R., 60. Tongue slightly coated, Percussion, a hardly detectable dullness over a portion of the left lower lobe with auscultation showing slightly enfeebled respiratory murmur over a considerable portion of that lobe and crepitant râles localized at one small area. Diagnosis made at this visit. Examination at 7 next morning, T., 103.2°; P., 140; R., 56. Percussion signs the same; auscultation signs much more marked, but apparently over a somewhat smaller area. Two P.M., T., 100°; P., 116; R., 36. Dullness entirely disappeared, respiratory murmur almost normal over whole of chest. Five P.M., no physical signs apparent in chest, except a few fine râles localized over small area of left lower lobe; T., 99°; P., 110; R., 35. Ten P.M., T., 98°; P., 86; R., 22. Course normal, except for localized râles which persisted for thirty-six hours.

Case III.—Girl, age 9. Attacked Tuesday 4 P.M. History of onset: Sudden attack of vomiting, not repeated, but accompanied by considerable headache and high temperature and chilly sensations. Examination at 7 P.M., T., 105.2°; P., 130; R., 62; skin dry and hot, face pale, tongue slightly coated. Percussion, nothing abnormal. Auscultation, feeble respiratory murmur over small part of right lower lobe, intensified elsewhere. Diagnosis, pneumonia. Examination at midnight, T., P. and R. practically the same. Auscultation signs slightly more marked and very slight percussion dullness over same area. Localized crepitant râles quite evident. Examination at 9 A.M. (next day), T., P. and R., no marked change. Signs in chest practically as before. At noon, at 6 P.M., and at 11 P.M. there was no appreciable change in the conditions. Thursday at 8 A.M., dullness seemed to have become more restricted in area, auscultation the same. T., 104°; P., 142; R., 56. At noon, child had profuse sweating and examination at 2 P.M. showed T., 97.2° P., 140; R., 27. Abundant râles over about one-half of the area of the right lower lobe. Course, normal, except for rather free expectoration for two days. Pneumococcus present.

Case IV.—Boy, age 2½ years. Attacked Sunday at 3 P.M. History of onset: Vomiting and diarrhea with high temperature, chilliness, and bluish lips. Considerable pain apparently in ear. Examination at 7 P.M., T., 106°; P., 134; R., 66. Tongue coated in center, abdomen distended with gas. Percussion, negative. Auscultation, feeble respiratory murmur over very small area of lower left lobe. Diagnosis of pneumonia. Eleven P.M., all physical signs much more marked; T., P. and R. about the same. Seven A.M. Monday, no change, except that dullness is more marked. Noon, 8 P.M. Monday, and 8 A.M., noon and 4 P.M. Tuesday, conditions without practical change. Tuesday 11 P.M., T., 104°; P., 124; R., 48, but without changes in chest. Wednesday 6 A.M., T., 100.2°; P., 132; R., 34. Wednesday noon, T., 99°; P., 110; R., 26, but still no change in chest. Course, Wednesday 6 P.M., T., P. and R. normal and appreciable improvement in signs in chest. From this time everything was normal, except that râles persisted over part of affected area for three days, progressively becoming less and less marked.

Case V.—Girl, age 9 years. Attacked Saturday at 5 P.M. History of onset: Slight headache preceding a sudden attack of vomiting and high temperature and quickly followed by stitchy pain in the right side of chest. Examination at 10 P.M., T., 103°; P., 122; R., 57. Tongue clean. Percussion and auscultation revealed nothing, although the respirations were jerky in character. Diagnosis was deferred until later, but a presumptive diagnosis of pneumonia was made. Eight A.M. Sunday, T., 104.3°; P., 136; R., 63, but no appreciable signs in the chest. One P.M., no change. Diagnosis positively made at this time. Nine P.M., T., 103°; P., 124; R., 61. Feeble respiratory murmur over large part of right middle lobe and very slight dullness still more limited over same area. Seven A.M. Monday, pain in side entirely gone. Dullness disappearing, auscultatory signs more in one small portion of lobe, but still evident over most of lobe. T., 101°; P., 112; R., 48. Three P.M., T., normal; P., 106; R., 31. Fine râles somewhat indistinctly heard over affected area Course, T., P. and R. normal at 9 P.M. and followed by expectoration of rusty sputum for about fourteen hours and scanty expectoration and slight cough for one day.

Case VI.—Boy, age 11. Attacked Thursday at 9 P.M. History of onset: Decided chill following slight headache which persisted for about six hours. Sudden attack of vomiting, violent for about fifteen minutes then subsiding. High temperature and flushed cheeks. Ten P.M. examination, T., 104.2°; P., 134; R., 58. Respirations were jerky and accompanied with decided expiratory moan. Diagnosis pneumonia. Seven A.M. Friday, T., 105°; P., 146; R., 56. No signs in chest, but child very ill. Flushing unilateral on cheeks. Skin very hot and dry. Mild delirium. Friday noon, no change in condition. Six P.M., T., P. and R. remained practically the same and thorough search did not reveal any signs in chest. All other possibilities excluded. Blood examination showed polynuclear leukocytosis. Eleven P.M., no appreciable change. Saturday morning at 7, T., 97.3°; P., 108; R., 24. Course, normal from this hour on.

My own interest in this question is great, so great that one year from now I shall seek to bring before you a further study of this problem. In this I invite the cooperation of every one present, and any clinical reports which are brought to my attention will receive the fullest recognition.

42 Gates Avenue.

CONCEPTUAL FACTORS IN VERTIGO AND NYSTAGMUS:

A STUDY OF BALANCE REACTIONS.

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Intellectual concepts and judgment play an important rôle in equilibrium, as might be expected from the fact that balance is an adjustment of the entire organism to criteria of ideal space and direction, and that in the interests of a maximum factor

of safety for the organism, this adjustment is mediated by a number of sensory organs acting in association. Thus, concepts of vision, eye position and innervation, tactile and muscle sense, static and dynamic stimulation from the labyrinth, unite to produce a composite but uniform impression, which is referred by the sensorium to the memory-pictures, the "local signs," of similar previous impression complexes. The modification or even complete suppression of one of these components would not inevitably and necessarily disturb balance or cause the illusion of disequilibrium and motion which we call dizziness. Thus blindness, astereognosis, or destruction of the labyrinth, alone may be compatible with fairly good balance and subjective well being. A discrepancy or incongruity, however slight in the total impression, may be prevented by subconscious and vicarious adjustment on the part of the unaffected component. On the other hand, a slight disturbance or modification of a single sensory factor might be followed by marked disequilibrium and violent motor reactions, in case the conditions were such as to interfere with the correcting factor usually supplied by other organs. This is a matter of great practical and clinical, as well as theoretical, importance. That there are such conditions, in heath and disease, can, I think, be shown, and the conception of vertigo and nystagmus as balance-confusion and balance-correction respectively, seems to be in accordance with the data to be adduced. The fact, demonstrated by Nagel, that there is a whole series of dizziness forms, ranging from one extreme of purely visual confusion to the opposite of mechanical rotational disturbance, would indicate that vertigo is not a simple sensation. Again, as our ideas of balance and position are demonstrably dependent on judgment of sensory impression-complexes, it is natural to assume that confusion of these impressions cannot be a simple sensory reaction.

A single instance from the physiology of vision may be instructive in this connection. Verticality in external objects is judged largely by correspondance with the vertical meridian of the cornea and retina, which adjusts itself automatically, by torsion movements, to compensate for and correct minimal inclination due to alterations of head position which are too slight to be noticed subjectively. This correction is unconscious and automatic, and is replaced, for high degrees, by the gravity reaction of the static labyrinth, which is connected with a very definite conception of altered verticality. Now, we are all familiar with the apparent alteration of verticality in objects situated along the banked curve of a railroad when seen from a car window; an illusion which has been very widely experienced, carefully studied, and explained without contradiction as due to the actual inclination of the observer and not, as was incorrectly supposed, due to a combination of centrifugal force and gravity with a resultant pull on the static terminals. This inclination of the observer's own body and head is obscured by the simultaneous impressions of translational and rotational movement in rounding the curve. As soon as we become conscious, by any means, of the actual alteration of position in our own body, the illusion disappears, although the labyrinthine stimulation, with the actual position change which induced it, evidently persists. It suffices merely to look well out of the car window to see the trees and telegraph pole resume their normal verticality, and v. Cyon has shown that it is the inclination of the window frames, doors, and floor of the car which misleads us and causes us to overlook our own actual tilt. As soon as these visual factors of position-judgment are corrected, we recognize our own defection and deflection, and cease to attribute them to objects in the outer world. An interesting corollary of this observation is the fact that actual inclination of marked degree in rounding curves in such exercises as skating, bicycling, riding, is never attended with illusions of tilt in external objects. This is logically explainted according to our view, by the fact that we are actively conscious of the inclination of our own body, the more so as it is mainly or exclusively the result of our own conscious and intended effort to maintain the upright position and keep up speed in turning in opposition to centrifugal force, and not, as in the railway car, a passive alteration. A comparison of these sensations with those observed on inclined railways shows that similar errors in judgment of verticality occur, and these, too, disappear spontaneously as soon as we become aware of the actual inclination of our own body. Where there is no subjective inclination at all, as in gravity railways whose cars have banked seats, there is illusion of tilt. Numerous observations all admitting of the same interpretation, might be cited from every day life and well known laboratory data, but enough has been adduced, I think, to show quite clearly that judgment of verticality is neither a visual nor a labyrinthine sensation but a judgment reaction to these, and possibly other factors.

An example from clinical otology will now show that labyrinthine dizziness and its reactions are the direct analogues in pathology, and that they too can be reasonably explained only as judgment-disturbances or confusion and a compensation of disequilibrium. We know that irritative lesions of the labyrinth, and especially those in Ménière's disease are attended by extreme vertigo and intense violent nystagmus. Post-mortem examination has shown and the pathogenesis of this affection would indicate that the actual extent of histological change, of hemorrhagic effusion, and of resulting compressive irritation of the ampullæ is by no means marked. Why are the sensory disturbance and motor reaction so extreme when compared with the corresponding sequelæ of rotational stimulation? We know that the most extreme stimulation of the canals in whirling, waltzing, somersaults, and other gymnastic feats, does not necessarily lead to vertigo. Is it not logical to infer, comparing these reactions with those of vertigo ab aure læsa, labyrinthine apoplexy, that in the latter case the absence of the usual visual, tactile and fixational components of actual rotation and the consequent absence of correcting sensations and judgments intensifies the confusion? We might put it thus paradoxically that in one case the patient is dizzy because he knows he is not moving, and feels that he is, and in the other case is not dizzy because he knows he ought to be dizzy from the motion which he intended and distinctly senses.

These observations may also be applied to the much-discussed relationship of dizziness and nystagmus, and show, I think, quite clearly that the confusion is not directly caused by the motor reaction. There is nystagmus without dizziness, as in looking out of a car window or carrousel, and dizziness without nystagmas, as in looking at objects reflected in an

unsteady mirror, causing double images by means of prisms, and so on. These examples again corroborate what we have noted above. So long as the sensations of disturbed vision or of ocular motion (as in correcting the diplopia) are correctly attributed to their causes in the external world and in subjective effort, respectively, there is no confusion and no dizziness. Where this subconscious explanation is lacking, dizziness immediately ensues. This, it is worth noting, usually takes place with very slight alterations, very weak prisms which cause an almost imperceptible diplopia, and so on. As before, we might say, we know we are seeing double and are not confused, or are aware of a muscular effort which results in correction of the double vision and for the same reason, again, understand the reaction and are guarded against confusion. It is interesting that when more than one sensational component is concerned, very slight degrees of discrepancy will cause illusions of disequilibrium and are immediately followed by marked dizziness. This can be observed most beautifully in the vertigo and nausea caused by looking at the image of an object which is mirrored in a trembling glass or a swinging pane. The conceptual element, however, is not lacking even in this instance. Small amounts of trembling or displacement which escape ordinary observation immediately, and according to our theory naturally, cause dizziness. As soon as the oscillations of the mirror are gross enough to be seen and understood we realize, one might almost say, expect, that our visual impressions will be irregular. We are prepared for and allow for the sensory disturbance and judgment of subjective position is not confused. There is no dizziness unless, on the other hand, the motions of the reflecting surface become so violent and irregular that the mind can not cope with them on any basis of past experience and habit-memory. Personal experience has convinced me that the same conceptual factors are active even in so apparently mechanical a form of dizziness as that connected with sea sickness. The difference of susceptibility in individuals would indicate this. Again, it is striking that nausea comes on more easily below decks, where there is less visual evidence of the vessel's motion. This is usually attributed to deficient ventilation, the varied smells of ship board, and so on, but as these factors are almost entirely eliminated in certain cases, particularly in sailing vessels, where the same variation is noted, they must play a subordinate rôle. Voluntary concentration of attention and strong emotional stimuli also inhibit nausea. I know of numbers of individuals who do not suffer during stormy, windy, rough weather and succumb when the tempest subsides and the ship rolls lazily. I have seen a fishing party get sick when a calm came on and the fish stopped biting.

The conceptual element in sensations of disequilibrium is paralleled closely by similar factors in the various motor reactions which have been variously explained as purely reflexed, or as compensatory and corrective. This is particularly striking in the most uniform and typical reaction of nystagmus. The analogy can be understood more thoroughly if we preface an analysis of this phenomenon with a consideration of the visual and fixational concepts in normal balance. It is beyond doubt that the conception of our relations to verticality and ideal space depend largely on ocular impressions, not only retinal space and position, data of a purely visual character, but innervation states, sensation of eye balance, and of position, all of which are eventually connected with local signs acquired in the course of time by the habitual exercise of ocular fixation. The fixational element of balance and of control and judgment of this function is so traditional, although largely subconscious and automatic, that it becomes an integral part of the entire function and is exercised in the absence of all visual impressions and appears as a reflex of purely labyrinthine stimulation. The conceptual feature in balance relates to regular progression of objects in the outer world across the field of fixation and vision, a form of motion which corresponds to rotation of space and also to subjective rotation. The form of fixation observed under physiological conditions is that of a clonic spasm of the associated muscles for lateral rotation of the globe. The resulting motion of the eye-ball is composed of a rapid fixation leap in the direction of the approaching object, and a slow motion in the opposite direction, as if the eye were carried along by the object it fixes. In marked contrast to non-equilibrational forms of nystagmus, of which clinical ophthalmology recognizes a number, this form is not an oscillation about a central point of rest with equally rapid and extensive motions to either side. Fixational nystagmus could be represented graphically by a curve which reaches but never passes to the opposite side of a base line. This curve would show waves of equal length, but very unequal rising and descending limbs. The first portion of each wave would be short and almost vertical, the descending second portion long and gradual, the whole suggesting the pulse wave. The ascending limb, representing the rapid aiming or correction leap ("Einstellung" of the Germans) indicates the direction of fixational nystagmus which is identical, as all observers agree, with labyrinthine and cerebellar nystagmus. The purpose of this physiological fixation clonus is the retention of clear vision of objects in regular motion. It is to be noted that we have no knowledge of the motion of the eyeball during this reaction, and cannot see it even if we look into a mirror while studying the phenomenon. The sensation of eye motion is externalized in accordance with habit and memory, and rises into consciousness as subjective motion only when the reaction is markedly abnormal and hence incongruous with previous psychical experience. At such times even slight ocular motion may produce marked discomfort and induce vertigo, as in overcoming a prism held in front of the eye. The factor of diplopia can easily be excluded, and it is rather significant that, in ocular palsies, widely separated double images do not cause dizziness, but this comes on when the images are so close together as to be fused with an effort, or to remain partially separated and cause visual confusion. The vertigo in miners' nystagmus is similarly explained most rationally by unusual and prolonged muscle strain in the effort to fix, under abnormal conditions of eye-position and of illumination.

The recognition of the purposive character of labyrinthine nystagmus and of the conceptual elements in its function is facilitated by our knowledge of a specific character in the mode of irritation and in the centripetal stimulus originating in each semicircular canal. Stated broadly, the stimulation of a given canal or associated set corresponds with the stimulation physiologically afforded by actual rotation of the subject in the plane of the canal in question. Thus, rotation to the right causes irritation

in the ampullar terminals of the right external horizontal canal, is accompanied by a sensation of subjective motion to the right, often to the point of illusion of loss of balance, and is followed by a series of motor reactions all of which have as their object a compensation for the actual or sensed change in position or direction. Increased tonus of the muscles of the extremities and trunk on the right side tends to counteract the actual or apparent loss of balance; innervation of these muscles tends to restore equilibrium and to regain the original position, as it is only by extension of limbs and trunk on the right side that we can move to the left. The apparent discrepancy in the head motion, which turns to the left, is explained away, at once, if we consider that correction of the head position is accomplished by the lateral rotators of the head to the left. The oculomotor reaction, consisting of fixation clonus toward the irritated ampulla, *i. e.*, toward the direction of actual or sensed subjective motion, which is also the direction from which objects in the external world appear to be moving, has the same correcting purpose, if we now bear in mind the importance of the visual or optical impressions acquired under physiological conditions, that were noted above. The muscles concerned in this ocular reaction are the associated lateral rotators (homonymous adductor and crossed adductor) which again, like all of the muscles mentioned, are under control of the cerebellar centres of the irritated side. Incidentally, this evidently purposive character of nystagmus, as well as its regularity and uniformity, tend to disprove the widely accepted theory of Purkinje that nystagmus is the cause of dizziness. Considering the well-known irregularity of action in the various muscles and the striking lack of power in the entire system in any marked condition of vertigo, the ocular reaction would, on this hypothesis, form a striking and inexplicable exception and anomaly. The interpretation of vertigo as an illusion, as an incoordination of sensory impressions of balance and direction, and of nystagmus as a purposeful reaction for the correction of this disturbance by fixational support, in accordance with definite local signs of previous ocular motion, will, I think, simplify a study of the entire subject of labyrinthine reactions, and facilitate the logical interpretation of the varied data which clinical neurology and otology are gathering on a basis of definite functional tests of the non-acoustic labyrinth and of its static and dynamic components.

60 East Fifty-eighth Street.

A CASE OF HIP-JOINT DISEASE.

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I report the following case for the reason that it shows a perfect restoration of function after a well-marked attack of morbus coxarius which required careful and persistent treatment for nearly three years.

Noel P. H., the only child of parents, both of whom were in good physical condition, was born December 25, 1894. At three years of age he had a severe attack of diphtheria which left him partially paralyzed for about a year. All symptoms of paralysis disappeared at the end of twelve months, after which time the child walked well and seemed to be in perfect health.

At the age of six he fell from a balcony about 12 feet high, striking upon his head and shoulders. He suffered no marked inconvenience from this accident, and in three or four days was as lively upon his feet as ever. Six weeks later the mother first noticed a slight hitch in his gait, which soon developed into a decided limp. She also observed about this time that in standing he began to favor the left leg, and to complain of pain in the left hip and knee when walking.

When I examined him, there were all the evidences of beginning hip-joint disease. The gluteal fold of the left side was less accentuated than on the right. Upon placing the child flat on his back on a hard table, while the right leg could be brought down until the popliteal space touched the table

without any elevation of the spine, when this was done with the opposite member the spinal column was immediately raised. As pointed out by Professor Lewis A. Sayre, this is one of the most important symptoms of hip-joint involvement.

A long Sayre extension hip splint was applied at once, and was worn night and day practically without interruption for three years. The child soon became accustomed to it, and did not seem to be inconvenienced by sleeping in the instrument. By constant care and watchfulness on the part of his mother, no sores were developed, and the treatment was thoroughly carried out. At the end of three years the instrument was discontinued.

The patient is now fourteen years of age, and on May 1, 1909, won the second prize of a Junior Marathon race, a distance of five miles, run in a

driving rainstorm over a rough country road, the boy's time being 32½ minutes. The professional record for that distance, I am told, is 24 minutes. As there were twenty contestants, several of whom were from three to five years older than this patient, the record of endurance is the more remarkable.

DUODENAL ULCER WITH PERFORATION ACCOMPANIED BY CHRONIC APPENDICITIS.

OPERATION TWELVE HOURS AFTER PERFORATION OF DUODENUM FOR REMOVAL OF APPENDIX AND CLOSURE OF PERFORATION; RECOVERY.

By SURGEON H. W. AUSTIN, U.S.P.H. and M.H.S.

The noteworthy features in this case are the complication of diseases making early diagnosis difficult, and the favorable result of an operation twelve hours after perforation of the duodenum.

W. B. T., aged 25 years, nativity New York, oiler on Steamer *Relief*, was admitted to the United State Marine Hospital, New York, September 20, 1909, with the provisional diagnosis of acute gastritis and probably ulcer of the stomach. The following notes are taken from the clinical record of the case.

Family history: Mother died of consumption of throat. Father died of dropsy. Has had the usual diseases of childhood, measles, mumps, whooping-cough, and chicken-pox. Since adult life he has enjoyed good health, with the exception of occasional attacks of stomach trouble for the past seven years. Has had three attacks of gonorrhea, one very recently from which he is not entirely recovered. Never had syphilis.

Day of admission: Patient complains of pain in stomach and nausea. Has to produce vomiting after meals to get relief. Pain comes one hour after meals. No blood in vomited matter. Bowels usually constipated. Tongue coated. Breath foul.

Physical examination: Temperature normal. Heart and lungs negative. Rigidity of abdominal muscles. Marked tenderness over epigastrium. Palpation negative except showing tenderness in epigastric region. Body poorly nourished.

Analysis of stomach contents: Total acidity, 75; combined HCl, .005475 per cent.; free HCl, .021 per cent.; mucus and bile, but no blood.

The attacks of stomach trouble would last about a week and recur at intervals of six weeks, for which no cause could be ascertained. Patient states that these attacks come on at such regular intervals he can know the day they will occur. The present attack is more severe than the previous ones. Has no eructation of gas, but pyrosis, vomiting, and great distress in the stomach, particularly about one hour after midday meal. Stomach washed with solution of soda bicarbonate gave some relief. Rice water diet prescribed, this being rejected rectal alimentation was resorted to. This, with daily washing of the stomach with a mild alkaline solution of soda bicarbonate, constituted the treatment for several days. The patient's condition somewhat improved for several days. It was noticed, however, that there was considerable tenderness on pressure over McBurney's point and occasional pain in this region, but there was free evacuation of the bowels and no rise in the patient's temperature. On the evening of September 28 the patient was seized with acute pain in the abdomen. The pain was so severe that the patient fell back in bed with a cry. The attention of the medical officer in charge of the ward was called to the case about an hour later. Tenderness over the abdomen, especially at McBurney's point and over the epigastric region was marked, and the pulse was becoming more rapid and the respirations more frequent. Morphine to relieve pain was ordered and a close watch of symptoms directed. The patient had a comfortable night.

September 29: This morning the patient is suffering considerable pain in the abdomen and there is again general rigidity of abdominal muscles with tympanitis. Pulse rate increased (96). Temperature normal. It was evident that the patient had a general peritonitis, and it was decided to operate at once.

The patient having been prepared a median incision about four inches in length was made extending to a little below the umbilicus. The intestines protruding through the wound were congested to a dark red and covered with lymph. A cloudy serous fluid was found in the abdomen and a fecal odor observed. The appendix was searched for and found closely adherent to the cecum its entire length. The mouth of the appendix was firmly blocked by a hard fecal mass about the size of an English walnut which was with much difficulty dislodged. The appendix was inflamed, but not perforated. I performed an appendectomy, which owing to the many adhesions due to an earlier inflammation, was tedious. I then examined the stomach for perforation or for ulcers and found nothing abnormal. Next I examined the duodenum and in manipulating, the gas from the bowels could be heard distinctly passing through the perforation. There was found a perforation in the upper posterior wall of the second part of the duodenum. The ulcer was about the size of a penny and the perforation about the size of a lead pencil. The perforation was closed by Lembert sutures, the edges of the ulcer being well turned in.

I was preparing for a gastroenterostomy when the patient showed signs of so much shock (pulse 180) I concluded it would not be safe to prolong the operation. The abdomen was wiped out without flushing and closed with two rows of sutures, a drainage tube being inserted. The administration of strychnine and 600 c.c. of normal salt solution by hypodermoclysis was ordered and the patient put to bed in Fowler's position surrounded by hot water-bags. Normal salt solution by hypodermoclysis was again administered after the patient was in bed, which brought the pulse rate down to 140, and improved the volume. Patient reacted from the anesthetic rapidly and the pulse gradually became slower and stronger. Vomited a few times the evening of the day of operation, the vomitus being slightly streaked with blood. Strictly rectal feeding was ordered—peptonized milk given in doses of one-half pint. The patient made a rapid recovery. The wound was closed perfectly October 9.

Rectal feeding continued for one month and then the patient was allowed milk and other light diet per orem. He gained weight rapidly and was discharged in perfect health December 30.

He is now employed again upon his ship and when he called at the hospital February 4 he had grown so stout I hardly knew him.

Cases of this character are most encouraging, but the results I have had in perforation in typhoid cases are not so. However, I believe many of these cases will recover and shall continue to give them the chance.

ELECTRIC ANESTHESIA.*

By MARCUS M. JOHNSON, M.D.,

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That electricity is at last no longer a theory but a practical realization for operative procedure on mankind was recently most conclusively proven by Dr. Lonise G. Robinovitch, of New York, editor of the *Journal of Mental Pathology*, and a skilled operator on the electrical methods of resuscitation of lower animals, before a large assemblage of Hartford's most prominent physicians and surgeons.

On the night of January 24, 1910, Dr. Robinovitch electrocuted a rabbit by her own electrical equipment before the Hartford Medical Society, and after permitting one of the physicians present to listen for the extinct heart beats of the animal, again restored the heart and vital organs to their normal functions by reversing the current, the animal promptly getting up and running about the hall. On the following day she demonstrated, for the first time in the annals of surgery, the uses of electricity for anesthetic purposes on man.

The operation was performed by Dr. Marcus M. Johnson, assisted by Dr. Edward Herr, at the St. Francis Hospital, upon a young Austrian patient, John C., age twenty-three years, who had entered a few days previously complaining of frozen feet. Subsequently gangrene ensued and amputation was agreed upon on four toes, including the two great ones. Dr. Robinovitch arranged her electrical device upon a long table in the operating room. From the storage batteries of an automobile stationed without, a wire was led through a window to the operating room and connected with a rheostat for governing the current, and two meters, one for voltage and the other for ampèrage. Finally, a small make and break switch was inserted in the circuit and the equipment on the long table was complete. The patient now blindfolded, but otherwise unrestrained, was brought in on the operating table and placed in a position alongside and parallel to the long table. The negative rheophore, a zinc electrode covered with moistened cotton, was placed over the sacral vertebræ; another roller hand cathode, moistened in saline solution, was placed over the site of the anterior crural nerve at its entrance into Scarpa's triangle. A third metallic cotton-covered electrode was bound down over the posterior tibial nerve just behind the internal malleolus, and a fourth similarly cotton-covered electrode was fixed over the anterior tibial nerve at a point just external to the crest of the tibia, and eight inches above the ankle joint. The latter two electrodes were anodes.

Immediately upon the making of the current anesthesia of the limb below the electrodes was complete and incision was promptly made. Apparently, no pain was experienced by the patient. Following the amputation of the great toe of the right foot, the electrodes were transferred to the left leg. Here the great, second, and third toes were amputated and flaps sutured over. During the operation, which was of forty-five minutes' duration, the patient laughed and conversed freely with Dr. Robinovitch and nearby surgeons, expressing himself as utterly unconscious to any sensation in the limb being operated upon, even when liberal incisions into the normal tissue were made for flaps and the bone was separated by bone forceps. Two hours following the operation patient was found sitting up in bed in an evident cheerful frame of mind.

The advantages of this method of anesthesia are obvious. Incision is allowable immediately on the closure of the circuit, thereby saving time for the operator. The frequent, and often times serious, after effects of ether were totally absent, *i.e.* vomiting, gastric distress, and more remote complications of ether pneumonia and nephritis were surmounted. In their places the patient showed little, if any, concern of having had an operation performed.

The type of current utilized by Dr. Robinovitch is the same as is used by her for purposes of resuscitation, whether it be coma from electrocution, opium, or other narcotics.

The current used is a direct current from storage batteries, capacity one hundred ampères each. The current is interrupted 6,000 to 7,000 times per minute, period of passage of the current being 1-10 of entire time. The current passes from the periphery centrally. The direct current was interrupted with Dr. Robinovitch's model of interrupter. The meters registered 54 volts and four milliampères of current coursing through the patient's body locally. Electrodes used: lumbar, 12×25 centimeters; roller electrode, 2x2; leg electrodes, each 4x8 cm.

*Report presented at the February meeting of the New York German Medical Society, held at the Academy of Medicine.

Sore Nipples.—Among the numerous remedies recommended for sore nipples the compound tincture of benzoin is probably one of the best, as a local application. —*The Southern Clinic.*

Considerations on the Technique of the Conservative Cesarean Section as Practised After the Old Method.—A. Couvelaire has performed fourteen cesarean sections and observed all the sections made at the Baudeloque since 1901, and on these bases his opinions on the technique of this operation. To secure hemastasis it is not necessary to throw around the uterus an elastic ligature; we may depend on the tonic muscular action of the uterus itself, fortified by a preventive dose of ergotin, given hypodermically just before the operation. In case of atony a careful hemostatic suture is important, which will coaptate the entire thickness of the uterus, and be solid enough to resist powerful uterine contractions. Hemostasis should be so perfect as to render abdominal drainage unnecessary, but uterovaginal drainage should be provided for. The inclined position and exteriorization of the uterus should be provided, for protection of the field of operation. Only a careful selection of cases will provide against autoinfection. The section leaves behind it a cicatrix, which is always a weak point. We cannot depend on its holding in a following labor. The conservative section demands in most cases prevention of repeated labor by sterilization.—*Annales de Gynécologie et d'Obstetrique.*

The Work Cure in Tuberculosis.—F. Dumarest contrasts the rest cure, so frequently used in tuberculosis, with the newer method of treatment used in England, which may be called the work cure. In some English sanatoria a system of graduated labor is made use of, originated by Paterson, which has been quite successful. In applying this system we think less of the physical signs than we do of the general condition of the patient. When a patient shows fever he is put to bed until this has passed away. After this he is given a small amount of labor equivalent to the lifting of a certain amount of weight. As he is able to do this it is gradually increased. The work is, as far as possible, performed in the open air, being for the men gardening, carpentering, painting, wood-cutting, etc. All these trades are carried on so as to be of value in the maintenance of the sanatorium. The women cultivate garden vegetables for the table, and care for poultry. The coming on of slight fever in such persons is considered a favorable sign rather than otherwise, and as indicating the formation of a power of resistance to the disease. It is a reaction such as occurs when tuberculin is injected. Under this system 80 per cent. of the patients are cured. Work is considered a part of the cure, and those who are not willing to perform it are not admitted to the sanatorium.—*Le Bulletin Médical.*

MEDICAL RECORD.

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THE SEWAGE POLLUTION OF STREAMS.

THE now almost famous address delivered by Prof. W. T. Sedgwick of the Massachusetts Institute of Technology before the recent annual conference of the sanitary officers of the State of New York has, perhaps, effected its object, or at least partially effected its object. Certainly, the facts pointed to in the address have aroused the attention of those interested in sanitary matters not only in New York State but throughout the continent of North America and in Europe. Needless to say it is well that this should have been so, for if an abuse is to be removed, it must be constantly discussed in the journals, in order that public opinion may be properly aroused on the matter. There is little doubt that the privilege of sewage disposal is abused in this country, or rather that the laws regulating the disposal of sewage are in many cases evaded. New York State, too, the premier and richest and one of the largest States of the Union, is a particularly bad offender in this respect. As Prof. Sedgwick stated, Niagara Falls is, at the present time, one of the worst plague spots in the United States owing to the negligence of State and municipal authorities in disposing of its sewage. But there are many other places in the State besides Niagara Falls which can be pointed at with the finger of scorn on this account. Even New York City itself is by no means free from the reproach of disposing of its sewage in an ineffective and inadequate manner. However, these are truths that he who runs may read, and the purpose of this article and like articles is to persuade the people of the State that it would be better for all concerned if radical changes were introduced in existing methods of getting rid of sewage.

It is obvious, or should be, to any intelligent person that to discharge sewage into streams, in addition to being a gross offence against æsthetics, is more frequently than not a distinct and flagrant menace to the public health. In the instance of Niagara Falls it is assuredly both. The Falls are more than a national property, they belong to the world, and to permit the beauty and grandeur of the scene to be marred by the sight of ugly iron pipes discharging foul matter into a most picturesque part of the river is an act of vandalism. It is a menace to the public health in that the thousands of visitors who come from all portions of the globe are exposed to the danger of infection. This has been proved by results. As said before, Niagara Falls, although the most conspicuous, it but a single example of the indifference of the people of New York State to the pollution of its streams. A considerable amount of this *laissez aller* policy is due to ignorance. The ordinary individual does not realize the extent of the danger.

Prof. Sedgwick has drawn attention to what he deems to be, to a large extent, a popular delusion. He is of the opinion that the once universally held dictum that "running water purifies itself" must be accepted with many modifications. To rely upon this statement is to lean upon a broken reed. It has been disproved times without number. True, if given sufficient time running water will purify itself, but before it has done so it may spread infection near and far. Indeed, a strict adherence to this view is dangerous, and more than one large epidemic of typhoid fever or cholera has been disseminated by faith in this sanitary fallacy. A remarkable instance, or what seems to have been a remarkable instance, of the fallacy of trusting to this theory has been exhibited in the case of Montreal. Here is a city of not more than 500,000 people, who take the greater part of their water supply at a distance of six or seven miles from the city from one of the largest and apparently one of the cleanest rivers of the world and yet typhoid fever, on a large scale, is at more or less frequent intervals breaking out in the city. The St. Lawrence is a fairly rapid river, but it seems unable to purify the upstream sewage of no great mass before it reaches the intake. It would be a mere waste of time to multiply examples of this kind, they abound everywhere. If it be desired to obtain a pure water supply from a running stream, either sewage must not be discharged into it, or such sewage must be effectually rid of its noxious and offensive qualities ere this is done. After all, this is the crux of the problem of how to procure a pure water supply from a stream.

AN IMMUNIZING SERUM FOR ANTERIOR POLIOMYELITIS.

DURING the past two years, owing to several extensive epidemics of anterior poliomyelitis, both in America and Europe, opportunities have been offered for a considerable amount of systematic investigation into the etiology and nature of this disease. That these opportunities have not been wasted is evidenced by the large number of articles which have appeared in the medical periodicals during the past few months, reporting, link by link, the chain of discoveries made by Flexner and Lewis in this country and by Landsteiner, Römer, and others in Europe. The infectious nature of the disease was shown by inoculations into monkeys and the possibilities of study were enormously increased by the ability to transmit the disease from monkey to monkey. Much has been learned as to the nature of the virus, its permeability to bacteria proof filters, and its viability under various conditions. Among the more recent disclosures as to the disease is the fact that one attack renders an animal immune to a second infection, that a monkey which has sur-

vived a mild attack of poliomyelitis may receive further inoculations with an active virus without showing renewed signs of the disease.

Another step of importance has been taken recently by Römer and his coworker, Joseph, and reported in the *Münchener medizinische Wochenschrift* for March 15, 1910. Having obtained three monkeys which had been inoculated with an active virus, and had had typical attacks of the disease, but had survived, their immunity was proved by repeated injections. Blood was then drawn from these three monkeys, and also from a control animal, which had previously received no inoculation. The sera from these four blood specimens were then mixed with active virus of poliomyelitis, and the resulting mixtures, after standing one hour at 37° C. and twenty-three hours at 15° C., were inoculated into fresh monkeys. The animal receiving the mixture of virus and normal serum promptly developed the disease, became paralyzed, and died, while those which were given the mixture of virus and serum from the immunized animals remained perfectly well. These experiments, in so far as one is warranted in drawing conclusions from such a small series of tests, show the possibility of obtaining an active antitoxic serum from the blood of immunized monkeys which has the power of protecting the normal animal against the virus of anterior poliomyelitis.

At the rate at which the advance in our knowledge of the cause and prevention of this dread disease in childhood, as occurring in the monkey, has been made within a few months, it would cause but little surprise to learn at any time that the bridge between experimental research and practical therapeutics had been crossed, and that an actual cure, or at least a preventative against the disease, had been obtained. The work on poliomyelitis in man and the monkey gives promise of standing forth like that on cerebrospinal meningitis as a brilliant justification in the eyes of the world of the inestimable value of animal experimentation and laboratory research in the prevention and alienation of suffering and disease.

Polar Hygiene.

Among the most harrowing chapters in the writings of explorers, a few decades ago, were those describing the sufferings which they and their companions underwent, as a result of disease. This was especially so in the works of the men who for so many years have risked their lives in the search for the North Pole, who have been separated from civilization for months or years at a time, and have been obliged to live during the long Arctic nights huddled together in quarters which at times reached the acme of insanitation, in the cabins of ice-bound ships or closed huts built upon the desert of ice. It is not surprising that these explorers, wasted by scurvy, by bad nourishment, and by fevers, were year after year forced to turn back from their quest, and to return to civilization, but mere shadows of their former selves. Each year, however, as a knowledge of hygiene in general and of hygiene under these especial conditions has increased, the explorers returning from the frozen parts of the earth have reported that they have come nearer and nearer to their goals, until last year it was stated that they had at last reached the North Pole and had come within almost one hundred miles of the South Pole. To one looking upon the health conditions of such expeditions a few years ago, and comparing them with the article by A. Forbes Mackay, surgeon to Lieutenant Shackleton's Antarctic expedition, which has appeared in the *Edinburgh Medical Journal* for March, 1910, one explanation of the recent successes of Peary and of Shackleton is strongly suggested. In reporting upon the health of the party of fifteen during their sojourn of fourteen months within the Antarctic circle, the surgeon of the expedition is obliged to confine himself to the consideration of frost bites, snow blindness, and chapped lips. His remarks upon these subjects are interesting, but far more instructive is the fact that returning from such an expedition he has no other cases of illness to report. To quote Mackay's own words: "We had not a trace of scurvy, no coughs or colds, no anemia, zymotic diseases, no rheumatism. Some members of the party suffered slightly from dyspepsia during the winter, but this might be ascribed to large appetites and little exercise. We felt none of that depression of spirits of which gruesome pictures are painted by some polar explorers. This was due mainly to the hearty feeling of good-fellowship kept up by the old hands, and soon copied by the new. Besides this, our hut was so small that there was nowhere for a man to go and sulk, and outside it was too cold." Without in any way detracting from the credit due to the leaders of the recent exploring parties, it seems highly probable that the steady advance in polar exploration is largely due to the modern appreciation of hygienic laws, and their careful application to the existing conditions by the surgeons who accompany such expeditions.

Skunks as Transmitters of Rabies.

Dr. John C. Janeway, assistant surgeon U. S. A., published, in the Medical Record, March, 1875, a paper in which he reported ten fatal cases of rabies from skunk-bite, on the then Kansas frontier. Since that time several cases of rabies from skunk bites have been recorded in Arizona. C. E. Yount of Prescott, Ariz., read before the eighteenth annual session of the Arizona Medical Association, May 20, 1909, a paper on the subject, which was published in the *Southern California Practitioner*, March, 1910. In this paper it is shown that from May, 1907, to May, 1909, eighteen individuals were bitten by skunks, of which number five developed rabies and died. All the cases but one were treated. One was treated by permanganate injection, three had no Pasteur treatment, while twelve were treated by the Pasteur method. Of those who died, one was not treated, three had no Pasteur treatment, while one had Pasteur treatment. The skunks attacked the persons bitten, generally when sleeping in tents or in the open, and the writer is inclined to regard this fact, taking into consideration the usually timid habits of the animals, as *a priori* evidence of rabies and as an indication for Pasteur treatment. Yount reviews the methods of treatment and points out that in all circumstances, whenever an individual is bitten by a dog or other animal, cauterization should be resorted to at once, and if the wound is upon an exposed portion of the body, the patient should be subjected to the Pasteur treatment whenever possible and as quickly as pos-

sible. The object of treatment by this method is to establish an immunity, and this is why the employment of the serum of an animal highly immunized is advised in badly bitten and late cases so as to establish a passive immunity pending the acquirement of a more lasting immunity resulting from the inoculation of rabies virus. Antirabic serum, in fact, is likely to be of limited benefit, allowing that in rabies the virus is a germ and not a toxin, and in consequence assuming that the serum of an immune animal is antimicrobic rather than antitoxic, as said before its use is to establish a passive immunity, until by the regular Pasteur treatment an active immunity can be obtained. In any event, prompt treatment should be the watchword. In the United States there is a considerable amount of rabies always present, and in most districts the disease can be abolished in time by muzzling and shutting up dogs. But when, as in Arizona, the disease is conveyed by skunks, the only effectual means of eradicating it is by doing away with the cause, that is by destroying the skunks. If this is not practicable, then a Pasteur institute should be forthwith established in Arizona, as although there is yet much to learn concerning rabies the evidence is sufficient to establish the fact that the Pasteur treatment is to a great extent effective.

Action of the Products of the Tubercle Bacillus on Lymphatic Organs.

In the laboratories of the State Department of Health of Pennsylvaniia, experiments have been undertaken recently to observe the effect of repeated injections of the products of the tubercle bacillus on lymphatic organs. The reason for these experiments was that the condition of the spleen in guinea-pigs after treatment with tuberculin or some product of the tubercle bacillus suggested that this organ might be the seat of some pathological change caused by these injections. The first animal experimented upon was a healthy cow, into which was injected six times, two weeks apart, 400 milligrams of old tuberculin under the skin. She did not react at all, and when killed, two weeks after the last dose, at the autopsy appeared to the naked eye to be a healthy animal, no areas of necrosis or focal development suggesting tubercles being found in the lymph nodes; the glands in some instances were somewhat hyperemic, but the spleen showed no distinct changes nor did the liver. In fact, the results of this experiment demonstrated that the treatment produced no distinct focal necroses. There was, however, a tendency to hyperplasia of the endothelium, which went on to vacuolization and necrosis. This was more diffuse than usually seen in guinea-pigs' spleens, and affected frequently the sinus and endothelium. In both the cow and guinea-pigs the endothelium suffered, but Dr. Dixon and his coworkers attribute this degeneration to great proliferation incident to the toxemia. In a broad way it may be said that the effect of tuberculin on normal guinea-pigs, either in one or two large doses or in many small ones, is seen especially in the lymphatic follicles. In guinea-pigs primarily injected with tubercle bacilli and treated with tuberculin, the process is very rapid. The tubercle bacillus toxin injected into healthy animals in minute or large doses has little effect upon lymphatic organs. The essential effect of all the products injected was a stimulation of endothelial cells, the stimulation varying with the products employed.

News of the Week.

Health Conditions in the Canal Zone.—The February, 1910, report of Col. Gorgas of the Isthmian Canal Commission shows an annual average per thousand of deaths from all causes among employees of 8.75, as against 9.42 for the corresponding month of last year and 12.80 for February of 1908. The death rate per thousand for the entire population of the Canal Zone and the cities of Panama and Colon was 17.50, as against 18.59 for the corresponding month of last year and 21.40 for the month of February, 1908. No cases of yellow fever, plague, or smallpox originated on or were brought to the isthmus during the month.

A National Milk Investigation Proposed.—A resolution was offered in the House of Representatives by Representative Parsons of New York, recently, calling attention to the spread of tuberculosis and typhoid fever by means of milk, and asking that an immediate investigation of the subject be undertaken by the House Committee on Agriculture.

Cold Storage Investigation.—A resolution has been offered by Senator Heyburn in the United States Senate to the effect that the Committee on Manufactures be authorized to have hearings to ascertain the quantity of meat, eggs, and other food held in cold storage, and to discover the effect of cold storage upon these foods.

Immigration Laws Waived.—The immigration laws forbidding the entrance into the United States of an alien suffering from tuberculosis were set aside recently in the case of an Englishman who was coming to this country with his wife and family in search of health in Colorado. The entire family was taken to Ellis Island where they were detained for several days until the order for their release arrived from Washington. The patient was allowed to proceed after giving bond that he would remain in Colorado and would not become a permanent resident.

A Gold Medal for Dr. Robert Fletcher.—The Royal College of Surgeons of England has awarded a gold medal to Dr. Robert Fletcher, principal assistant librarian in the library of the Surgeon-General's office in Washington, in recognition of his services in connection with the publication of the catalogue of the Surgeon-General's library and the editing of *The Index Medicus*.

Dental Clinics in England.—An anonymous philanthropist has offered the sum of $100,000 to found dental clinics in England where the poor may receive treatment at a small cost.

A Board of Inebriety for New York City.—The New York State Assembly has passed a bill, prepared by Assemblyman Lee, empowering the Board of Estimate of New York City to authorize the appointment of a board of seven men to be known as the Board of Inebriety. Two members of the board are to be physicians and the Commissioner of Public Charities and the Commisioner of Correction shall be members *ex officio*. The board is given authority to purchase a site for a hospital and industrial colony for the care and treatment of inebriates within or without the city of New York. If outside, provision is made for a reception hospital within the city limits. General provisions are also made in the bill for keeping track of persons arrested for intoxication.

A Dinner to General Wood.—A dinner was

given to Gen. Leonard Wood, in Havana, on April 13, by Dr. Guiteras and other sanitarians who worked under him when he was Governor-General of Cuba. In a speech Dr. Guiteras congratulated Gen. Wood upon being "the pioneer warrior to establish health in the tropics."

Dr. George H. Knight of Salisbury, Conn., has been appointed by Governor Weeks to fill the vacancy on the State Tuberculosis Commission caused by the death of Dr. J. P. C. Foster of New Haven.

Philadelphia Hospital.—Dr. Hubley R. Owen has been appointed visiting surgeon in the place of Dr. J. Chalmers Da Costa resigned.

The Northern Medical Association of Philadelphia held its tenth annual banquet on the evening of April 11. The event was made the special occasion for the celebration of the fiftieth anniversary of the entrance on the practice of medicine of Dr. J. Solis-Cohen, honorary professor of laryngology in Jefferson Medical College and at one time President of the Association.

Dinner to Dr. William H. Welch.—A dinner was given in Baltimore, on April 2, in honor of Dr. William H. Welch. It was attended by 500 friends and former pupils, and was the occasion for the subscription for a medallion, designed by Mr. Victor D. Brenner.

An Organization of Children's Clinics Proposed.—A proposition was offered by Dr. Goldwater of Mount Sinai Hospital before the Section on Public Health of the New York Academy of Medicine, recently, that an organization of all the children's clinics in New York City be founded, the new organization to be closely associated with the New York Milk Commission and the various societies which are working for the betterment of the children of the city.

A Strike in a Medical School.—Thirty students of the Medical Department of Washington University went on strike recently as the result of the suspension of a student for smoking in the library. When the strikers attempted to return to their studies they were informed by the dean that by their action they had severed their connection with the school and could be reinstated only by application to the faculty.

Attempted Burglary in a Hospital.—Robbers recently broke into the office of the German Hospital in San Francisco and attempted to crack the safe. They were frightened away before they had secured anything of value.

A Mother at the Age of Ten Years.—In the Cook County Hospital a few days ago a girl baby was born to a mother herself said to be only ten years of age. The case is being investigated by the Juvenile Court.

Physicians Suspended from Bellevue.—As a result of the newspaper stories published recently complaining of the poor food served to the house staff in Bellevue Hospital, two of the house staff who were concerned in having the reports published have been suspended by the superintendent pending the action of the Board of Trustees. It is a rule that internes shall not talk with interviewers or others on matters pertaining to the management of the hospital.

A New Tuberculosis Camp in Topeka, Kan.—The Topeka Provident Association has secured fifteen acres of wooded land in North Topeka for the establishment of a temporary tuberculosis camp. The land was rented for one year, with the privilege of using it for five years if needed.

Alive at 110 Years.—A colored woman, an inmate of the Home for Aged and Infirm Colored Persons in Philadelphia, has just celebrated what is claimed to be her one hundred and tenth birthday. The record of her birth is in a family Bible.

The Simon Baruch Bath.—The new public municipal bath opened recently in Chicago has been named after Dr. Simon Baruch of New York in recognition of his active work in advocating public baths throughout the country.

A New Hospital for the Catholic Protectory.—Plans have been filed for a new two-story hospital building for the use of the inmates of the New York Catholic Protectory.

The Junior Sea Breeze Hospital, which has been in existence for four years on the grounds adjoining the Rockefeller Institute for Medical Research, and has been supported entirely by Mr. Rockefeller, will open for its fifth season in the middle of May for the care of sick infants. The hospital has accommodations for sixty infants. The attending physicians are Dr. Philip Van Ingen and Dr. Royal S. Haynes.

A Vivarium at Princeton.—A new addition to Princeton University which will soon be completed is a "vivarium." This building will belong to the biological department, and in it will be kept live mammals, birds, insects, fish, and the lower forms of animal life for the purposes of study and investigation. A greenhouse and botanical garden are also included in the plan.

The Drake Medical School, which recently absorbed the Keokuk Medical College, is to go out of existence at the end of the present term, according to a recent vote of the faculty, as it has been decided that it is impossible with their present finances to keep up to the standard required of a medical college. Efforts are being made by students and alumni to raise sufficient money to avert this necessity.

The Undergraduate Medical Research Club of Tulane University of Louisiana is a new organization whose name describes its purpose. Mr. Waldemar Metz has been elected president.

A Failure of the Emmanuel Movement.—The experiments which have been carried out at St. Luke's Hospital in San Francisco with the Emmanuel movement have been discontinued. The reason which has been given for the failure of the experiments is that the depressing effects of a general hospital makes it impractical to carry out the Emmanuel method of treatment in a ward connected with such an institution.

State Hospital Notes.—Dr. William L. Russell, formerly first assistant physician at the Willard State Hospital and for nearly seven years medical inspector of the New York State Commission in Lunacy, has been appointed superintendent of the Long Island State Hospital at Brooklyn to succeed the late Dr. Oliver M. Dowing. A promotion examination open to first assistant physicians will be held on April 27 to secure an eligible list from which another medical superintendent and a new medical inspector shall be chosen.

Rabies at White Plains.—Three dogs belonging to the pack of the Westchester Hunt Club developed rabies recently and bit several other dogs in the kennels. The entire pack, valued at $2,000, was killed at once.

Mount Sinai Hospital.—A gift of $130,000 has been made to Mount Sinai Hospital by Mr. Adolph Lewisohn toward the erection of a pathological laboratory to be known as the Mount Sinai Pathological Laboratory. Adolph Lewisohn Foundation. Mr. Lewisohn has previously given $70,000 to the pathological laboratory of the hospital.

The Henry Hobart Mason Memorial Hospital is to be built in Great Barrington, Mass., as the result of a bequest of $500,000 from the late Mrs. Mary A. Mason of Great Barrington.

Charitable Bequests.—By the will of the late William Hyams of New York the following institutions were among those receiving bequests: Mt. Sinai Hospital, $1,000, and Beth Israel Hospital, $5,000. At the death of Mrs. Hyam the Mt. Sinai Hospital will receive $5,000, the Montefiore Home, $5,000, and the Lebanon Hospital, $1,000. By the will of the late Maria Snyder of Philadelphia the sum of $3,000 is bequeathed to the Methodist Hospital.

The Canadian Medical Association will hold its forty-third annual meeting in Toronto, June 1 to 4, 1910. The president of the association is Dr. Adam H. Wright, and the general secretary is Dr. George Elliott, 203 Beverley street, Toronto. The address on medicine will be delivered by Dr. Herringham of London, England, and the address on surgery by Dr. Murphy of Chicago.

The American Medical Editors' Association will hold its annual meeting at the Planter's Hotel, St. Louis, on June 4 and 6, 1910. The president of the association is Dr. W. A. Young of the *Canadian Journal of Medicine and Surgery*, and the secretary-treasurer is Dr. Joseph MacDonald, Jr., of the *American Journal of Surgery* of New York City.

The National Association for the Study of Epilepsy and the Care and Treatment of Epileptics.—The next meeting of this association will be held at Baltimore, Md., on May 7, 1910. The meeting is held there by invitation of the Maryland Psychiatric Society. Further information may be obtained from the secretary, Dr. J. F. Munson, Sonyea, N. Y.

The New York Society of Radiology and Physical Therapeutics will hold its next meeting at the Academy of Medicine, April 29, 1910, at 8.30 P.M. The subject will be "A Symposium on the Treatment of Tuberculous Adenitis."

Pennsylvania Society for the Prevention of Tuberculosis.—At the annual meeting, held April 13, Dr. James Tyson was selected president for the ensuing year in succession to Dr. Chas. J. Hatfield.

The Interior Medical Society of Mexico, at a meeting held at Mexico City, March 30, 1910, elected the following officers for the coming year: *President,* Dr. Antonio Loaeza; *Vice-President,* Dr. Octavio Gonzalez Fabela; *Secretary,* Dr. Jose Escalona; *Treasurer,* Dr. Everardo Landa; *Second Secretary,* Dr. Demetrio Lopez.

The Hartford County (Conn.) Medical Association held its 118th annual meeting April 5, 1910. The following officers were elected: *President,* Dr. Hermann Strosser of New Britain; *Vice-President,* Dr. Harmon G. Howe of Hartford; *Secretary and Treasurer,* Dr. Frederick B. Willard of Hartford; *Councilor,* Dr. O. C. Smith of Hartford.

The Hillsborough County (N. H.) Medical Society, at a meeting held in Manchester, April 6, elected officers for the coming year as follows: *President,* Dr. John H. Gleason; *Vice-President,* Dr. H. L. Smith of Nashua; *Secretary and Treasurer,* Dr. Ella B. Atherton of Nashua.

The New London County (Conn.) Medical Society held its 119th annual meeting at New London, April 8, 1910. The election of officers for the year 1911 was as follows: *President,* Dr. Patrick J. Cassidy of Norwich; *Vice-President,* Dr. E. C. Chipman of New London; *Secretary and Treasurer,* Dr. E. Oliver Winship of New London; *Censors,* Dr. Rush W. Kimball of Norwich and Dr. F. M. Braman of New London.

The Connecticut Society of Alienists held a meeting at Bridgeport, March 29, 1910, under the presidency of Dr. D. W. McFarland of Greens Farms.

The Butler County (Neb.) Medical Society held its annual meeting April 6, 1910, at David City. The following officers were elected: *President,* Dr. F. J. Swoboda; *Vice-President,* Dr. E. D. Sanghardt; *Secretary and Treasurer,* Dr. H. E. Marselus.

The Golden Belt Medical Society held its annual meeting at Salina, Kan., April 8, 1910. The following officers were elected: *President,* Dr. O. D. Walker of Salina; *Vice-Presidents,* Dr. W. D. Whitmer of Abilene and Dr. J. D. Colt of Manhattan; *Secretary,* Dr. L. O. Nordstrom of Salina; *Treasurer,* Dr. W. S. Harvey of Salina.

The Late Dr. A. H. Smith.—At a special meeting of the Board of Directors of the New York Post-Graduate Medical School and Hospital, held on April 11, 1910, the following resolutions were adopted and spread upon the minutes: *Whereas,* Andrew Heermance Smith, M.D., LL.D., Vice-President of the New York Post-Graduate Medical School and Hospital since March, 1895, was removed by death from our midst on April the eighth inst., we, his colleagues and fellow laborers desire to record our tribute of affection and high esteem for him as a man, a friend, a teacher of medicine, and an executive officer, and, *Whereas,* his character was a noble one; his principles of the highest order; his loyalty to duty and to his friends sincere; his attainments those of a scholar, and he was laden with the honors of his chosen profession, the welfare of this institution was ever uppermost in his heart, and he ever lent his best efforts to promote its interests, be it therefore *Resolved;* That we mourn him as a great man among men, and while expressing to his widow and family our deep sympathy in their bereavement, we court the privilege of addressing to them a copy of this resolution.

Obituary Notes.—Mrs. HUNTER ROBB died in Cleveland, O., on April 15. As Miss Isabel Hampton she was the first superintendent of nurses and thus the founder of the training school of the Johns Hopkins Hospital, and since her marriage she has been chairman of the training school committee of the Lakeside Hospital in Cleveland. Mrs. Robb was also one of the founders of the Society of Superintendents of Training Schools for Nurses, and the Nurses' Associated Alumnæ of the United States, and was influential in the formation of the course in hospital economics in the Teachers' College of Columbia University.

Dr. JONATHAN E. TEFFT of Springfield, Mo., died at his home, March 25, 1910, aged 74 years. He was a graduate of the Medical College of Ohio in 1865, and was in charge of the Federal Hospital at Cassville, Mo., during the Civil War. He was a member of the Greene County Medical Society,

the Mississippi Valley Medical Association, and the American Medical Association, a former president of the Missouri State Medical Association. Dr. Tefft was senior surgeon to St. John's Hospital from the date of its foundation.

Dr. JEROME KEELEY of Georgetown, Pa., died on April 4 of pneumonia at the age of 84 years. He was a graduate of the Medical Department of the University of Pennsylvania and he was engaged in the practice of his profession for a number of years in Lionville and Atglen, Pa.

Dr. JOHN L. WARREN of West Chester, Pa., died of pneumonia on April 8 at the age of 72 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1856. He was a direct descendant of General Warren of Bunker Hill fame.

Dr. FRANCIS W. WATSON of St. Louis, Mo., died at his home, March 28, 1910, aged 67 years. He was a graduate of the Rush Medical College in 1866, and practised in Eureka, Kan., until retiring two years ago.

Dr. THOMAS NEAL MCLEAN of Elizabeth, N. J., died at the Johns Hopkins Hospital in Baltimore on April 8, 1910, aged 67 years. He was a graduate of Yale University in 1866 and the Yale Medical School in 1871. He was a member of the Union County Medical Society and of the Medical Society of New Jersey.

Dr. SAMUEL PIERPONT LADD of Moosup, Conn., died suddenly April 6, 1910, aged 62 years. He was a graduate of New York University in 1879.

Dr. JAMES O. PINGRY of Millbrook, N. Y., died at his home, April 10, 1910, aged 66 years. He was a graduate of the College of Physicians and Surgeons of New York in 1868, and was a member of the Alumni Society of Bellevue Hospital, the Dutchess County Medical Society, and the Medical Society of the State of New York.

Dr. HENRY SHAW of Boston, Mass., died March 28, 1910, aged 80. He was a graduate of the Harvard Medical School and began practice in Upton in the late fifties. In 1861 he was elected to the Legislature and in 1862 entered the navy. After the war Dr. Shaw practised in Bedford, but retired thirty years ago to devote his time to charitable work. He was for many years Clerk of State Aid at the State House.

Dr. GARDNER PERRY POND of San Mateo, Cal., died March 19, 1910. He was a graduate of the medical department of the University of California in 1893, and practised for several years in San Francisco. He was a member of the San Mateo County Medical Society, the Medical Society of the State of California, and the American Medical Association.

Dr. WILLIAM JACOB POINTS of Harrisburg, Mich., died at his home, March 24, 1910, aged 78 years. He was a graduate of the Washington Medical College in Baltimore in 1852. He however gave up the practice of medicine in 1865 and studied law, since which he has held many government positions.

DR. WILLIAM W. COLEMAN of Mount Washington, Ky., died at his home, March 30, 1910, aged 56 years. He was a graduate of the Medical Department of the University of Louisville, in 1883, and was a member of the Bullitt County Medical Society and the Kentucky State Medical Association.

Dr. WILLIAM RUSSELL of Minneapolis, Minn., died recently, aged 68 years. He was a graduate of the University of Michigan, 1877.

Correspondence.

DR. MELTZER'S LETTER ON MY PARTICIPATION IN THE SYMPOSIUM ON THORACIC SURGERY.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Dr. Meltzer's letter, published in the MEDICAL RECORD of the 2d inst., has been read. Its tone comes as a surprise to me and is greatly regretted. My regard and esteem for Dr. Meltzer as a colleague and scientist are too great to permit me to enter into a discussion with him on the basis of this letter. The proper answer to it would be none, were it not that certain of his allegations, if left uncontradicted, might be accepted as facts by those not familiar with the circumstances. In justice to myself, therefore, it becomes necessary for me to make a reply.

It would take another paper to set aright all of Dr. Meltzer's many misinterpretations and misconstructions of words, phrases, and arguments contained in my article, "Avoidance of Apparatus Complicating the Operation a Paramount Requirement in Thoracic Surgery" (MEDICAL RECORD, March 19, 1910), in which is discussed the continuous intratracheal insufflation method advocated by Dr. Meltzer. I thought I had to discuss it at some length, as well as a participant in the symposium which was the outgrowth of Dr. Meltzer's announced paper, the title of which became the topic of the evening, as also as a general surgeon, deeply interested in everything pertaining to thoracic surgery. Moreover, Dr. Meltzer, many months before reading his paper, had invited surgeons with whom he came in contact "to judge for themselves whether and when his method might be applied to human surgery." In order to arrive at any conclusion regarding the value of a method, a critical examination into all of its features is necessary and should be welcomed by its author rather than give rise to unkind feelings toward the critic. I am satisfied that I have advanced my criticisms with the greatest moderation and with due regard for Dr. Meltzer's feelings.

What appears to have irritated Dr. Meltzer more than anything else is my use of the designation "blowpipe method" for the rather long name of "Meltzer-Auer continuous intratracheal insufflation method." Obviously, the latter was too cumbersome an expression for frequent repetition. I therefore tried to find a suitable abbreviation. "Insufflation method" was considered inappropriate because that would have included the old style intermittent insufflation; "intratracheal insufflation method" would have included Kuhn's, with which I wished to contrast Dr. Meltzer's. It became necessary, therefore, to find some other expression, and the short substitute used by me seemed to me most to the purpose. I have to confess that I did not look up the meaning of the word in the Century Dictionary, as Dr. Meltzer did, but the use of a word in one discipline does not prohibit its use in a different sense in another branch of science, if properly explained. Moreover, it will be noticed that the abbrevation "blowpipe method" is employed only in the text of my paper, while in headings and in the conclusions the full name is always used, which alone might have been sufficient to convince Dr. Meltzer that no discourtesy was intended.

Dr. Meltzer next accuses me of inaccurate quoting, and finds it in a footnote where I quote from memory. The alleged inaccuracy is contained in my saying dust had been deposited on the wall of the trachea, when Dr. Meltzer has it that the dust was blown out of it. But I there argued on the *direction* in which the dust traveled, as indicative of the direction of the air current. In this respect Dr. Meltzer's statement and mine are identical. For the point under discussion it is quite immaterial and irrelevant where the dust settled, and *not*, as Dr. Meltzer says, "quite essential," so that his accusation falls to the ground. Another alleged inaccuracy refers to my remark: Dr. Meltzer had said in a discussion at the International Congress at Berlin, in 1890, that "with the glottis open, as in intubation, aspiration of foreign matter into the lung was impossible," in reply to which Dr. Meltzer says in his letter: "What I said was that pneumonia, etc., cannot develop while the glottis is open, and not that no aspiration can take place." In the discussion from which I quoted in my paper and which deals with aspiration pneumonia, Dr. Meltzer places in opposition the inhalation of foreign bodies

by aspiration when the glottis is open—which he denies—and by a back-current (Ruecklaeufiger Strom) when the glottis is closed—which he affirms. I fail to see any difference between what I quoted him as having said and what, according to the official report, he actually did say, so that in this instance again his accusation is without foundation.

In his letter Dr. Meltzer states I had raised the objection that "intubation was a difficult procedure." At no place in my paper nor at any other place have I made that general statement. What I did say is that intubation requires experience, and further, under the heading of "Difficulties of Intubation and Contraindications" (p. 485, line 14), that cases are met with in which intubation is a physical impossibility, and others in which it is contraindicated.

Furthermore, Dr. Meltzer would have the readers of his letter believe that it had been my intention to "choke off the life" of the method he has worked out, "while it is still in its infancy." Just the contrary is the fact. Not only is it stated in my paper that I was contemplating the use of Dr. Meltzer's method myself in certain cases, when sufficiently perfected apparatus should be available for practical use on the human being, but in addition to that I have tried, from the standpoint of the general surgeon, to point out the direction which such improvements should take, in order to make the apparatus thus available and in order to give to the surgeon employing it something approaching the confidence he feels in his apparatus, when using one of the larger differential-pressure chambers in this difficult and responsible work. I did not concern myself with the possible broader aspects of continuous intratracheal insufflation, but only with its application to thoracic surgery on the human being.

Dr. Meltzer's treatment of my physiological discourse has in no way shaken my conviction that continuous intratracheal insufflation is a positive differential-pressure method. Surgeons, making use of it, can therefore work with positive pressure only. On the other hand, it has been one of my aims in connection with the work that I have been permitted to do at the Rockefeller Institute to develop apparatus based on the recognition of the fact that the question of whether negative and positive pressure have the same effect upon patients in the various thoracic diseases is still an open one, apparatus which renders possible the application of both kinds of pressure during one and the same operation without interruption. This work was undertaken *after* a careful study of all the then existing apparatuses as well as the literature on the subject, and when it came to publishing my results due credit was given to all who had worked previously in the field.

In conclusion I wish to say again that I have replied to Dr. Meltzer only to set myself right in the eyes of the readers of his letter. I must decline to take up the discussion of a scientific subject by open letter. For my part this correspondence is herewith closed.

WILLY MEYER, M.D.

April 14, 1910.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

SURGERY IN ABDOMINAL DISORDERS—FORMS OF ARTHRITIS—SPINAL ANESTHESIA—SIR A. KEOGH—CASE OF HYDROPHOBIA—OBITUARY.

LONDON, April 1, 1910.

WE are still talking about abdominal surgery in what have long been considered medical cases. Gastric, duodenal, enteric, and even appendicular dyspepsia are phrases you may hear when doctors casually meet and even in set discussions at societies. The physicians still claim that functional indigestion is something which the operating surgeon has not yet completely explained, and general practitioners mostly agree with them and profess familiarity with hyperchlorhydria, achylia, biliary disturbance, reflex irritation, and numerous other causes of deranged digestion. Everyone admits that organic disease of any part of the alimentary canal, of any degree of severity, is met with under various conditions and is sometimes rather difficult to differentiate. Have not the surgeons often been called to operate too late in perforated ulcer, and are they not right to demand early diagnosis and early operation? Exploratory opening of the abdomen has come to be regarded as practically a safe proceeding. At the same time caution is to be inculcated in presence of the fact that operations have been performed on insufficient indications and no lesion discovered. Even if we take the most easy view of this error, it must seem less excusable to the patients. Statistics of success are too often carelessly quoted and are in some senses meaningless. Thus it was argued the other day that one surgeon had had such a percentage of appendix dyspepsia, to which the answer was that he was the chief operator of a large hospital and that the physicians to it were all on the lookout since the question had been raised and turned over such cases to him. His experience, then, could be no indication of the frequency of such cases, and a senior general practitioner said it was idle to talk of percentage when he had had thousands of patients with dyspepsia and only one with a symptom suggesting an appendicular origin, and that one had not proved to be such.

Opinion seems to be settling down in favor of operation when there are definite indications of a lesion of the stomach or duodenum, which are sufficiently distressing to induce the patient to consent. That without such definite signs operation is not to be undertaken. In all cases where the abdomen is opened and the expected lesion is not revealed it is only reasonable after the recent statements of experienced surgeons to examine the appendix, latent disease of which appears to be more common than has been supposed and capable of simulating lesions in other parts of the abdomen.

If the surgeons have ascribed so many dangers and inconveniences to be due to the retention of the appendix, and therefore urged its frequent removal, they have on the other hand shown that its possession may be utilized by the physician and their readiness to operate in this direction. In colitis, for example, an appendicostomy enables the bowel to be more thoroughly flushed than it can be by irrigation per rectum. In a discussion on this disease on the 14th ult. at the Medical Society of London this treatment was considered. It is certainly less formidable than colostomy, which, however, seems sometimes the only chance of prolonging life. It is very rare that a cure is effected by this last with a closure of the opening. For flushing all usual liquids may be used. One Fellow had used sour milk in this and every other way, but had never seen any result. For drugs he relied on calomel and opium and remarked that calomel was well borne for long periods. Others recommended castor oil, liquid diet, injection of air, on the supposition that the cause was an anaerobic organism, etc. Obviously cases of less severity, though very tedious, might not be inflammatory and should not be called colitis; they would never call for appendicostomy flushing.

The Section of Balneology and Climatology (Royal Society of Medicine) has begun a discussion on arthritis, but so extensive a subject could not be concluded in one evening and an adjournment has taken place until the 20th. Meantime you may be interested in some of the points put forward. The discussion was opened by one of our spa physicians, Dr. Llewelyn Jones of Bath, who under the title of "Arthritis Deformans" spoke of three groups of cases, viz., (a) rheumatoid arthritis, (b) osteoarthritis, and (c) infective arthritis. As to (a) he regarded its frequent association with an infective or toxic element as a strong point in favor of the view that it was of a similar origin to (c). The early changes affected the synovial membranes and periarticular tissues. Later the cartilages were involved and eventually atrophy of these took place, as well as of other tissues leading to ankylosis. Clinically he defined it as a progressive symmetrical polyarthritis, which might be met with in an acute or chronic state, but always showed remissions and exacerbations, and was accompanied by various collateral phenomena, e.g. vasomotor symptoms, pigmentation, localized sweats, muscular atrophy, splenic and glandular enlargements. As to (b), osteoarthritis was more a joint disease and often connected with trauma, and the primary changes were in bone and cartilage, which hypertrophied, but without ankylosing. Bony outgrowths, however, were found at the articular ends. The synovia was secondarily affected.

In infective (c) arthritis the constitutional symptoms were severe, splenic and glandular enlargements, leucocytosis and anemia, though at first only a few joints were attacked, mostly the larger, the distribution being erratic instead of symmetrical, in this contrasting with (a) as well as in absence of collateral phenomena. Any toxic disorder (typhoid, etc.) might be followed by

arthritis, so might local discharges (otorrhea, etc.), and should be carefully distinguished from acute rheumatoid arthritis. The previous history was of value, as well as existing conditions, from a diagnostic standpoint.

Dr. Fortesque Fox did not think classification founded on the commencement in cartilage or synovia of much use. The disease was degenerative and due to various causes. An infective element was common in early life, in middle life a gouty state, and in late life trauma was frequent.

Dr. Preston King of Bath held that rheumatoid arthritis was the result of various infections rather than a distinct disease.

Dr. Buckley of Buxton admitted that the types put forward were met with, but they were often mixed. Hypertrophic cases he thought were late atrophic ones and showed an attempt at repair and so far a measure of the resistance of the system.

Dr. Hale White held rheumatoid arthritis to be a distinct disease, though its bacteriology was unknown. If similar symptoms were produced by a recognized organism its name should be given to the rheumatoid disease.

Dr. Gardner of Bournemouth was impressed with the importance of soil and the relation to tubercle. Cases often followed arrested tuberculosis and others were followed by ascending degeneration of the spinal cord.

Dr. Gordon Watson recognized two classes, synovial or rheumatoid and bony or osteo, the former infective and the latter traumatic, of which he had seen many cases in young patients following injury to a joint.

Dr. Solly of Harrogate ascribed all cases, whether called rheumatoid, osteo, atrophic, or hypertrophic, to a mixed infection, and the variations of symptoms to the combination of microbes and the proportions present in the different cases. Arthritis often cleared up after the cure of some trivial septic malady.

Dr. Ackerley of Llandrindod Wells would name all cases simply arthritis, regarding that as one manifestation of the disease, and endeavor to find out its origin in each instance. He admitted all forms of sepsis, slight or not, but asked what was it that determined an arthritis in one patient and not in another? He doubted whether any real distinction existed between acute and chronic cases. A smaller dose of toxin or a weaker personal resistance were probable factors.

Treatment was very slightly referred to by the speakers, but will perhaps be more considered at the adjourned meeting. Dr. Humphries, however, made some remarks on the use of electricity and Dr. Middleton said his experience was greatly in favor of continuous counter-irritation. He related a case complicated by exophthalmic goiter.

The miniature hospital for research at Cambridge has for some time been the scene of very earnest work on arthritis. This institution, with only four or five beds, was established for the investigation of chronic diseases, and is under the direction of Mr. Strangeways, lecturer on special pathology in the university, who with his colleagues has seen an immense variety of arthritic cases apart from in-patients. The last Bulletin of the committee contains a careful study of the arterial blood-pressure in arthritic disease and of facts as to the coexistence of infective foci with rheumatic arthritis. Such coexistence is so common that it seems doubtful whether it can be regarded as a mere coincidence. Whether it should be used to set up a distinct variety, as some maintain, is another question. On this and other points we may look for light from the zealous workers at Cambridge.

Unjustifiable statements as to the absence of all danger from spinal anesthesia have been made in some quarters. Deaths have occurred even when strychnine has been given with the anesthetic, as advised by Jonnesco. One is reported by Mr. Milward of the Birmingham Hospital, who was about to operate for acute intestinal obstruction. He had previously operated under this method, in a precisely similar case, without a single untoward symptom, and he very properly suggests that every fatality should be reported. Major Gambett recorded a death in the *Indian Medical Gazette* of last month, as he was about to operate for elephantiasis scroti. He also had employed the Jonnesco method in several cases with complete satisfaction. He attributes the result to the action of the strychnine inducing spasmodic interruption of the respiration. I have heard of some other fatalities, but have not obtained particulars. You will have heard of those on the continent from your other correspondents.

Surgeon-General Sir Alfred Keogh, K.C.B., H.K.P., who last year completed his term as Director-General of the Army Medical Service, has accepted the position of rector of the Imperial College of Science and Technology. He has also joined the Royal College of Physicians.

A coroner's inquest on Saturday last found that the death had been due to hydrophobia coming on six months after the bite of a rabid dog. The victim and another were bitten at Gibralter, where they were serving in the army. They were sent to Paris and underwent treatment at the Pasteur institution. The comrade of the present victim died of the disease about a month after the treatment and his fate seems at times to have preyed heavily on the mind of the later sufferer.

Dr. W. B. Cheadle died on March 25. He had long held a prominent position. He had served the full time as physician to St. Mary's Hospital and become consulting physician. He was a Cambridge graduate, M.A. and M.D., 1865, in which year he joined the College of Physicians as member, and of which he was elected Fellow in 1870. There he gave the Lumleian lectures in 1900. He had previously delivered the Harveian. Both were published, as were various lectures and other contributions. He was also consulting physician to the Hospital for Sick Children and a leading authority on their diseases. He had served as examiner at the college, as well as at Cambridge University.

Another Children's Hospital physician and well-known authority, Dr. George Carpenter, M.D. Lond. 1890, M.R.C.P. 1889, editor of *Pediatrics*, has died at the age of only fifty-one. His "Congenital Affections of the Heart" reached a fifteenth edition, and he was a constant contributor to the societies and journals.

Dr. J. Allan Coutts of Waterfoot, Manchester, died on March 23, aged sixty-six. He had long suffered from heart disease and a year or two ago retired, leaving his son to carry on his practice.

The death is also reported of Dr. Henry Charles Proctor, who held for some time a leading practice in South Africa. During the Zulu war, 1880, he was in charge of invalids from Natal to England. He had served as district surgeon at Harrismith and at Ladysmith and had charge of the Natal Government Railways. He was M.R.C.S. Eng. and L.R.C.P. Ed. and M.D. Brussels.

OUR CANADIAN LETTER.

(From Our Special Correspondent.)

MEETING OF THE CANADIAN HOSPITAL ASSOCIATION—TOPICS DEALT WITH—HOSPITAL ACCOUNTING—SOCIAL SERVICE—NOISE—DEMONSTRATION GIVEN OF A ROOM IN A PRIVATE RESIDENCE ARRANGED FOR CONDUCTING AN OPERATION—VISIT TO THE GENERAL HOSPITAL—PAPER AND DISCUSSION ON HOSPITAL CONSTRUCTION—OTHER PAPERS RELATING TO HOSPITALS—VISIT TO INSANE ASYLUM.

MONTREAL, April 2, 1910.

On Monday, March 28, the Canadian Hospital Association opened its fourth annual conference in the Royal Victoria Hospital, Montreal. Mr. H. E. Webster, Superintendent of the Royal Victoria Hospital, presided. At all the sessions there was a satisfactory attendance, the larger part of the gatherings being ladies. Dr. Guerin, a well-known Montreal physician, who is now Mayor of the city, was present at the opening meeting, and welcomed the delegates in felicitous terms. After Mr. Webster had delivered a brief presidential address, the first paper was read by Dr. Edith Beatty, Toronto. The paper was entitled "The Relation of the Training School to the Hospital Deficit Problem," and was written by Miss Charlotte Aikens, Detroit. The next paper read was of quite exceptional interest. This was by Dr. R. W. Bruce Smith, Inspector of Hospitals, Ontario, and dealt with "Hospital Accounting." It is a fact only too well known to those responsible for the conduct of a hospital that it is extremely difficult to manage a hospital efficiently upon economical lines. It is also a notorious fact that institutions of the nature should be run with as little expense as is compatible with thoroughly effective service. On the one hand there must be no extravagance, while on the other there must be no undue economy. The happy medium is the objective desired. To attain this result entails the expenditure of a good deal of thought, and premises the possession of considerable power of organization on the part of hospital superintendents. As Dr. Bruce Smith

pointed out, subscribers to hospital funds had a right to know how the money was used, and he declared that there ought to be a uniform system of accounting in hospitals. A hospital must be managed as a public trust. Over three million dollars were expended last year on hospitals in Canada, but as there was no uniform system of accounting the position of one hospital could not be readily compared with that of another. It was in the interest of the hospitals to be fair with the public. Dr. Smith gave a description of the manner in which hospital accounting was done in the General Hospital, Toronto, and this description was amplified and explained in detail by Dr. J. U. E. Browne, Medical Superintendent of the General Hospital, Toronto. The system is what is known as the triplicate system. Every order for provisions or other goods is made out in triplicate, so that the superintendent is able at any time to lay his finger on any apparent extravagance in ordering, and thus is able to inquire into the matter, and, if necessary, to countermand the order or to insist that no such error occur again. In fact, it is an excellent check system, and the nurses and shopkeepers soon learn that they must be careful in ordering and in providing, for if they are not they will certainly get into trouble. The system has been so successful in the Toronto hospital that Dr. Browne stated that since its introduction thousands of dollars had been saved to the institution. By the way, the system was borrowed from the New York Hospital in Sixteenth street.

A demonstration was given of a room in a private residence arranged for conducting an operation. This transformation was excellently depicted, but does not lend itself very well to description.

At the afternoon session Dr. Helen MacMurchy of Toronto gave an address on "Social Service"—that is to say, how to assist those who have been discharged from a hospital, but have no position to which to go. The nurse was not necessarily an expert in character, and that was what was needed for this work. They must have people who were willing and able to put their patients in touch with those who could be of real assistance to them. Work in this direction was commenced in Johns Hopkins Hospital, but has been more fully developed in the Massachusetts General Hospital.

Another most instructive and pertinent paper read was that by Dr. H. A. Boyce, Superintendent of the Kingston General Hospital, on "Noise." There is perhaps no matter in connection with hospitals which requires discussion and ventilation more than this one of noise. In these days, if a hospital be situated in a city, it is indeed a difficult matter to avoid noise. In most cases it is impossible, and the only thing to be done is to endeavor to reduce outside noises to a minimum and to insist absolutely that in the interior of the building all unnecessary noises shall be strictly tabooed. Of course, as Dr. Boyce said, the position of the hospital should be so chosen as to be apart from the noise of the city traffic, but this desirable situation is not always attainable. There are old hospitals in cities which cannot well be removed, and in those circumstances zones of silence should be formed in the surrounding streets. The ringing of car bells should be prohibited, street hawking and other city noises should be as far as is possible interdicted.

As to the absence of noise in the building itself, much can be done to bring about this happy condition of affairs by the coöperation of the medical and nursing staff. Further, why should not the wards of hospitals be constructed in such a manner that noise from outside or from other parts of the building is deadened? Colleges of music resort to this procedure. No sound, for instance, is more terrifying and distracting to patients than to be compelled to listen to the moans of another patient recovering from the effects of an anesthetic. Dr. Boyce complained of bells in a hospital, and suggested in their place a system of electric flags. There can be no doubt that noise militates greatly against the recovery of a patient, and especially against the recovery of a neurotic or neurasthenic patient, of which, unfortunately, at the present time there are so many. Any steps, therefore, tending to reduce noise in hospitals should be welcomed.

The members of the conference paid a visit to Montreal General Hospital, which is in process of reconstruction, and saw much to interest them.

In the evening Mr. J. H. C. Parke, Superintendent of the Montreal General Hospital, explained by means of diagrams the plans for the reconstruction of the institution. The hospital is situated in the heart of the slum district of Montreal—and Montreal has her slums—and the problem before those concerned with its reconstruction is by no means easy. It is intended to build, or to add, on the present site, which is on different levels. The resolution has been come to to build to a considerable height. The center new building will be nine stories high, and the wings each seven stories. The basement will be utilized for cold storage purposes, as, unlike most hospitals, which buy their provisions from week to week, at the General Hospital large quantities are bought at one time, which necessitates a good deal of space for cold storage. A special feature of the construction of the new buildings is that the entire floor will be employed as an outpatients' department. The medical and surgical divisions will be kept apart on either side of a large entrance, and the waiting hall placed in the center. On the first floor will be the semi-private wards, with a gallery at the end. The administration rooms and operating theaters, which will be together, will be situated at a distance from the wards, the elevators being between them. On the floor above will be the private wards, thirty-nine in number, and of varying sizes. The remainder of the building will be taken up with public wards except that on the eighth floor of the center building will be the dining-room. On the top floor is to be the kitchen. The buildings throughout will be fireproof. The whole structure will be 317 feet long and 135 feet high, which is the city limit. The total number of beds will be 450.

Mr. Meyer J. Sturm of Chicago, hospital architect, gave an address in one of the operating theaters on "Practical Idealism in Planning Hospitals."

On Tuesday morning, March 29, Dr. J. U. E. Browne gave a graphic description, aided by illustrations on the screen, of the magnificent hospital which is to be built in Toronto.

Dr. C. K. Holmes of Cincinnati, Ohio, gave an address on "The Hospital Unit." This was both a practical and idealistic address, and was most instructive. In Cincinnati a new hospital is to be erected, and Dr. Holmes has inspected with the eye of an expert and with great enthusiasm all the principal hospitals of the world, in order to obtain ideas for the Cincinnati building. He certainly has collected a vast fund of information relating to hospital construction. There is no space here to discuss at length the wealth of information given by Dr. Holmes. On the matter of ventilation he holds some very decided views. He is absolutely opposed to the plenum system of ventilation—that is, by downward draught, and stated that the magnificent maternity hospital erected by J. Pierpont Morgan on Sixteenth street and Second avenue, New York, did not use the elaborate plenum system of ventilation which had been installed, but used the primitive method of ventilating by means of the open window. Dr. Holmes showed on the screen specimens of hospitals, old and new, from almost all parts of the old and new worlds, and managed to convey to those present vivid ideas of what these institutions were like. Other papers read were "Hospital Management from a Visiting Surgeon's Standpoint," by Dr. Chipman of the Royal Victoria Hospital, Montreal; "The Treatment of Patients with Abnormal Mental Symptoms, and of Such Insane Cases as May Necessarily Require to Be Retained Temporarily in a General Hospital," by Dr. W. U. Barnhardt of the Central Islip Hospital for Insane, New York. A "Question Drawer" was conducted by Miss Louise Brent of the Hospital for Sick Children, Toronto.

In the afternoon the Insane Asylum at Long Point was visited.

The meeting was most successful from the social standpoint, as well as from the point of view of instruction. Much of the credit for these results must be given to the President, Mr. Webster, and to the indefatigable secretary, Dr. J. U. E. Browne.

FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

(From Our Regular Correspondent.)

MANILA, P. I., March 8, 1910.

THE first biennial meeting of the Far Eastern Association of Tropical Medicine held its opening session in the administration building of the new Philippine General Hospital on the afternoon of March 5, 1910, at 3 P. M.

Owing to the absence from the city of His Excellency, Governor-General Forbes, the foreign delegates and members were welcomed by the Hon. Gregorio Araneta, Secretary of Finance and Justice, on behalf of the Insular Government, and for the city of Manila by the mayor, Felix Roxas. The former in a short felicitous address, which he stated was the first he ever attempted in the English language, spoke of the value and stimulus the medical men, as well as the community in general, would receive from exchanging ideas and coming into contact

with so many illustrous exponents of tropical medicine from the different countries of the Eastern Hemisphere. He was followed by Dr. Paul Freer, the president of the Association, who chose for his subject "The Tropical Sunlight." He reached no definite conclusion, but pointed out a line of research on this subject which offered much promise. He did express the opinion, however, that from the evidence available it seemed most improbable that chemical action, and especially that of the actinic rays, was different in this latitude than that of Chicago, for instance. He also laid particular stress upon the high ionization of the air in Manila, the same amounting to 45 volts per hour during the day time, which was much higher than that observed in temperate climates.

The following countries were represented: *China*—Dr. Francis N. Goddard, Shaohsing; Dr. Henry S. Houghton, Wuhu; Dr. Mary Fulton, Canton. *New Zealand*—Dr. J. S. Purdy, Auckland. *Madras*—Major C. Donavan, I. M. S. *Hong Kong*—Dr. Francis Clark, Dr. John M. Atkinson. *India*—Sorab K. Engineer, Bombay; Major A. Hooton, I. M. S. *Straits Settlements*—Dr. Gilbert E. Brooke, Singapore. *Netherlands Indies*—Captain H. M. Neeb, Dr. J. de Haan. *Java*—Dr. W. T. de Vogel, Semarang. *Imperial German Government*—Dr. Staby, Tsingtau. *Federated Malay States*—Dr. H. Fraser, Kuala Lumpur. *Siam*—Dr. H. Campbell Highet. *Japan*—Dr. Gorosaku Shibayama. *Ceylon*—Dr. Aldo Castellani.

It will, perhaps, be remembered that this Association is the outgrowth of the Philippine Islands Medical Association and had its birth at the annual meeting of the latter two years ago at a time when the majority of the Oriental countries were represented by delegates. The Association had the support of the Philippine Government from the beginning, an appropriation being made to defray the expenses of the first meeting. Practically all the countries in the Eastern Hemisphere have given it official sanction by sending delegates to the first meeting, no less than eighteen being present.

The official opening was followed by a reception in the evening at the University Club. This function proved to be most popular and gave the delegates an opportunity to become acquainted with one another and with the local members as well as others of Manila.

Sunday, March 6, was taken up by a trip to Cavite to visit the United States Naval Hospital at Cañacao. A special steamer took a delegation over at 10.30 A. M., and returned at 3.30 P. M. This trip was most instructive, especially on account of the fact that the new hospital wards for the accommodation of two hundred patients, constructed with the view of making them suitable for the tropics, had just been completed. A new laboratory building and a new operating room have also just been added. After the visit of inspection was completed, Dr. Stitt, the medical officer in charge of the hospital, tendered the delegates a lunch.

It is proposed to have the scientific meetings of the Association begin at 9 o'clock each day and hold only one session, which will probably end about 1 o'clock. In this way the delegates will be given an opportunity in the afternoons to visit such points of medical interest as they may desire, and also will avoid the hot hours of the day for scientific work. The sessions to take place in the administration building of the Philippine General Hospital every day until Saturday, March 12, at which time the Association will transfer its place of meeting to Baguio, the summer capital, where a special meeting upon climate, hygiene, and sanitation and kindred subjects will be held. The trip to Baguio will afford the delegates an opportunity to make a 130-mile railway journey through the heart of the Island of Luzon, and a 20-mile automobile journey over the famous Benguet highway, which winds its tortuous course up a narrow, rocky cañon to a height of 5,000 feet above sea level, and furnishes what is probably one of the finest short scenic automobile trips in the world.

From a scientific standpoint, the meeting starts out with much promise, because it will probably be at this meeting that the etiology of beriberi will be placed upon a definite and firm basis. Dr. Henry Fraser, who has been engaged in this work in the Straits Settlements, will be present to read a paper. Professor Aron of the Philippine Medical School coincidentally has reached almost identical results working along independent lines, which, of course, gives considerable additional hope that the etiology of this disease will be firmly fixed.

The officers for the current year are: *President,* Paul C. Freer; *General Secretary-Treasurer,* Francis Clark, Hongkong; *Secretary-Treasurer,* Samuel C. Gurney, Manila, Philippine Islands.

Progress of Medical Science.

Boston Medical and Surgical Journal, April 7, 1910.

Pain Relieved by Manual Therapy.—E. C. Thompson says that pain may arise in any structure of the body and may be classified roughly into inflammatory and non-inflammatory, and then again may be subdivided into functional, vascular, articular, nervous, and mechanical in various combinations. He refers to manual therapy among the ancients, and mentions its value in sprains, bruises, fractures, acute multiple arthritis, gonorrheal arthritis, myalgia and lumbago, neuritis, sciatica, neurasthenia, frost bite, intestinal colic, flat foot, cramps, erythema nodosum, and locomotor ataxia. The chief work falls on the thumb and finger tips, the palmar surface of the fingers, and the thenar and hypothenar eminences. The movements (always concentric) vary from the lightest effleurage to the most thorough petrissage and tapotement, followed frequently by active, passive, assistive, and resistive movements, or various combinations. All these manipulations should never cause any pain in their application, but should be followed by relief of pain or tension, and a general feeling of lightness and well being. On the other hand, too rough or violent manipulation will defeat the object in view and cause increased pain, bruising, and general aggravation of existing symptoms.

Tetanus; Seat of Infection in the Uterus.—A case is reported by F. W. Johnson of a woman who had aborted eight days previously and was living in filthy surroundings. Following the abortion there was profuse flowing for which, on two occasions, the vagina had been packed with sterile gauze. Soon rigidity of the neck muscles appeared with slowly increasing contractions, clonic, and frequent tonic spasms. During the next night opisthotonos came on and later general convulsions, in a third of which she died. Autopsy was refused. On the morning of the day of death, the uterus was curetted. From these curettings tetanus bacilli were grown.

Uterine Constriction Bands Complicating Labor.—J. C. Hubbard refers to Bandl's ring versus the constriction or retraction ring. Authorities have described the latter as due to the circular fibers alone and most common around the neck of the child, although it may occur in any horizontal zone of the uterus. In the discussion of the origin of the band weight is laid on the character of the cells lining the lower uterine segment of the uterus. If they are of the type of the cervical cells, then the band becomes Bandl's ring; if decidual in character the ring is then a constriction ring. In the author's mind it makes no clinical difference by what name the band is called when it or the accompanying conditions prevents the proper progress of the labor. It is more frequently found in cases in which the presenting part has stopped while the latter is still high in spite of apparently good uterine action. Even with the patient under ether ready for delivery, the band might be overlooked unless the interior of the lower portion of the uterus was explored. Among the causes which produce bands the books mention mechanical obstructions to labor. The uterine muscle tries ineffectually to force the baby past this obstruction and finally becomes completely or in part tonically contracted. The band is thus a secondary result of the delayed labor. The author believes that in many cases at least the reverse is true, for the band, to his mind, develops first through irregularity of the action of the uterine muscle and thus directly prevents progress. The occurrence of the ring has seemed to him to be more common in private than in hospital practice, and he has wondered whether the condition, as he now sees it in the "over-civilized" young woman, was only a tendency to ring formation which might correct itself if the patient were allowed to have the long labor formerly so common in hospital practice. Personally he does not feel that this is true and he feels that his cases would have gone from bad to worse if left alone. The most probable explanation seems to him to be the generally highly strung make-up of his private patients. In them the uterus does not pass through its various stages in a more or less mechanical manner as in an animal, but takes part in the over-development of the nervous system of the woman, and after a short time begins to act irregularly with the result of an early ring formation. The presence of a ring is an absolute indication for delivery. The earlier one operates in such cases the less the mortality. The latter should be nil. Several clinical histories illustrate the points made by the author.

New York Medical Journal, April 9, 1910.

Relationship Between Rectal Diseases and Those of the Female Pelvic Organs.—J. P. Tuttle says that disease of the rectum and female pelvic organs may affect functionally or sympathetically any portion of the body. The propinquity and anatomical relationship between these parts would naturally lead one to anticipate a close relationship in their pathological affections. Traumatisms of one are likely to invade the other. Inflammations from one are liable to extend to the other directly or through vascular connection. The chief symptoms to which attention is called are pelvic and sacral pains, irregularity of function, inguinal or iliac tenderness, pains shooting down the legs, reflex pains, digestive disturbances, and mental and nervous affections. Many of the pains from which women suffer are due neither to rectal nor pelvic lesions, but to strain, inflammation, or rheumatism of sacroiliac joints. Removal of hemorrhoids or the stretching of an anal fissure may relieve pain in the eye, constant headache, and facial neuralgia. Rectal conditions may cause dysuria, vaginismus, dysmenorrhea, stricture, fissure, cryptitis, or inflammation of the crypts of Morgagni. Pain shooting down the legs occurs in both rectal and pelvic lesions. The leg in which the pain is situated is of no significance as to the seat of lesion. Left leg pain is not of diagnostic significance as to the rectum being involved. Adhesions of the gut through inflammation of the uterus and its appendages are common causes of interference with the intestinal functions. It is a common assumption that tenderness or pain in the iliac regions made worse by walking, deep pressure, or palpation through the vagina is due to tubal, uterine, or ovarian diseases, but such pain and tenderness are frequently associated with inflammation of the sigmoid, or angulations of the bowel, with a fecal accumulation above, and pressure upon the female pelvic organs. These same conditions have been found to account for the dragging pains associated with and often falsely attributed to "falling of the womb."

A Case of Banti's Disease.—The report of the case is made by O. Lerch, whose patient was a woman of thirty-two years, who was first seen by him thirteen years after her first symptoms had begun. He says of the case that in a healthy individual after an infectious disease, that may or may not have been malaria, no history of typical malarial paroxysms, no blood examination was made. The disease was contracted in the settled portion of the city, with paved streets and good drainage. Continuous general malaise and ailing pointing toward a general intoxication continued for two years, when enlargement of the spleen, large liver, and ascitic fluid were first noticed. As two years had passed after onset of the disease before the changes in spleen and liver were noticed, it was impossible to say at this time whether the changes in the spleen had been primary or whether they had been simultaneous with the liver changes. It seemed rather more probable that the latter had been the case. The condition was marked by its chronicity and its remissions. The patient's weight had not varied for ten years. She was of rather slight build. Face, back of hands, and forearms were covered with large, bronzed spots, finger nails pale, also lips and other mucous membranes. The sclerae were slightly icteric, the tongue coated, the teeth healthy and in good condition. The neck showed bronzed spots on both sides. The general appearance was cachectic and waxy. The arteries were easily compressible; pulse 80, regular; heart borders normal, hemic murmur. The lungs were normal. The abdomen was distended with gas; no ascitic fluid could be made out. The liver measured 4½ inches in the right mammary line, its border was palpable, smooth, and hard. The spleen was enormously enlarged and reached below and beyond the umbilicus, the borders of the organ were smooth and it had preserved its form. The urine was normal in every respect. The only abnormal feature of the blood was a diminution of the red cells, 4,000,000, and its low percentage of hemoglobin, 60.

Journal of the American Medical Association, April 9, 1910.

Iliopsoas Tumor.—T. S. Cullen gives the history of a case in which he was called in consultation on account of a tumor, the patient complaining that every time he put his weight on his left leg something slipped in his hip. There was a firm oval mass, 8 x 10 cm., occupying the left iliac fossa and extending beyond the median line. This was continuous with a smaller mass which passed below Poupart's ligament and extended to the left of the hip joint anteriorly. Operation revealed a cystic tumor containing a viscid yellowish fluid in which five large irregularly cartilaginous masses floated free and a sixth was found fastened down beneath Poupart's ligament. The pelvic sac was dissected free and cut away and the wound healed up, leaving some discomfort in the leg and a slight lameness but no pain in the hip joint. The walls of the sac were fibrous tissue containing cartilaginous and bony masses, some of them being quite conspicuous. The origin of such tumors is discussed. They develop from the iliopsoas bursa, one of the largest, if not the largest, in the body. The subject has been well discussed by Zuelzer and the cases collected by him are reviewed. Zuelzer points out that these growths may be of various sizes and may extend under Poupart's ligament half way down the thigh In some cases they may be so tense or thick in the walls as to suggest a solid tumor. The pain is what might be expected from pressure on the crural nerve under which the growth develops. The leg is held in position causing the least tension on this nerve, *i. e.* in abduction, outer rotation, and slight flexion of the hip. As a rule, the hip joint is normal and there is no shortening. The majority of these cases follow injury, though syphilis and rheumatism are also supposed to be contributing factors. Cases similar to the one reported require complete removal of the sac and under no circumstances should irritants be injected. The surgeon cannot usually determine definitely before operation whether these bursæ communicate with the joint or not.

Surgery of the Hypophysis.—J. Montgomery West analyzes the different methods of approaching the hypophysis and points out how the experience of the rhinologist may be of service to surgeons in reaching this organ. He proposes a surgical method following a transnasal route diagonally through the nose, roughly parallel to Zuckerkandl's line, to the sphenoid sinus, removing as much as is necessary of the turbinates, the entire anterior walls of the sphenoid sinuses, a quadrilateral piece from the nasal septum, including the septum sphenoidale and finally attacking the sella turcica. This takes advantage of the space afforded by the natural nasal passages and permits the sella turcica to be opened up with the least possible destruction of tissue. He thinks, moreover, that the greater part of this operation can be done under local anesthesia. With the use of adrenalin the nasal passages can be made so patent that in most cases the anterior walls of the sphenoid sinuses can be seen over a considerable area by inspection through the nostril. The nasal surgeons have developed the technique already to the point of opening up the sphenoid sinuses and it seems an easy step to cross these and attack the sella turcica. He thinks this method would be specially available for partial removal of the lower and posterior part of the hypophysis and also would be better as causing less disfigurement.

Fracture of Long Bones in Children.—W. P. Coues calls attention to the importance of a class of fractures of long bones in children which may pass unrecognized without the use of the *x*-ray. The subperiosteal fractures may be lacking in crepitus, abnormal mobility and swelling and ecchymosis may be absent. Careful examination, however, may give valuable information. There is localized tenderness along the site of fracture which is increased by the classic test of lateral traction above and below the site. In long fissures or linear fractures, rotation will always give the most pain. Several cases are reported. Treatment of these cases should be the simplest that is adequate to maintain fixation until solid union is obtained and a permanent anatomical and functional result may be expected. Rough manipulation and forcible testing for crepitus should be avoided in diagnosis, and an anesthetic is not required. These children often complain of pain and trouble at points distant from the fracture and the *x*-ray examination should not be confined to the part complained of but should include the neighboring long bones as well.

Trachelorrhaphy.—W. L. Wallace, after referring to the frequent unsatisfactory results of trachelorrhaphy and the tendency to substitute for it amputation of the cervix, says that the trouble is that the site of the repair is apt to be so thin that it cannot possibly withstand the strain of another labor. The poor result, he thinks, is brought about by the faulty method of through and through stitching by which the side of the cervix is compressed to thinness, the ligature drawing so tight. A repair of the cervix he thinks should follow the method of layer suture so successfully used in closing the abdomen. He uses a continuous suture in two layers, the deeper suture being carried deeply back and forth into the muscular layer of the anterior and posterior lips, and pulling up each stitch as the operation proceeds broadly approximating the depths of the wound. Then it is carried up to the edges after hav-

ing crossed the tear and the superficial stitch is taken continuously by running back the same continuous suture coming out opposite the point of starting with the deeper one, where the two ends are tied together. He uses No. 1 chromic catgut, no tension being required. The method is very simple and rapid and the result has been very satisfactory in his experience. The article is illustrated.

Unusual Epileptic Aura.—Alfred Gordon reports the case of a boy of 12, suffering with essential epilepsy at irregular intervals since his second year, who for about forty-eight hours before an attack was constantly going about kissing everybody he met, the kissing being sometimes replaced by laughing and sometimes by slapping or striking. During all this time he was apparently conscious and realized what he was about. After forty hours or more of this he had the regular epileptic attack. Gordon questions the conscious mental state of the boy during this prodromal period and compares it to the maniacal period of manic depressive insanity.

The Lancet, April 2, 1910.

The Failure of Nerve Anastomosis in Infantile Palsy.—R. W. Murray says that but few instances of a really satisfactory nerve anastomosis for infantile palsy have been published. The cause of failure may be (1) the choosing of an inappropriate time for operation, (2) a faulty surgical technique and (3) the fact that physiological reasons do not permit of recovery. He considers that no operation should be contemplated unless for six months from the onset of the disease assiduous treatment has been directed to the palsied muscles to improve their nutrition and to assist the return of power by adequate postural support, and further, that at the end of this time faradic irritability must be absent, although a strong current is used when the patient is anesthetized. Experience shows that it is the deltoid which in all acute peripheral palsies of the upper arm shows the least response to the methods of nature and art and some means of restoring the abductive power of the arm is urgently required. Possibly the circumflex may be anastomosed to another nerve. As regards the technique in all cases the paralyzed nerve was completely divided. In three instances the peripheral end of the nerve was engrafted into a longitudinal slit made in the sound nerve. In two cases an end-to-end anastomosis was made. In one of these the divided external popliteal was joined to a flap raised from the sound internal popliteal nerve; in the other case the spinal accessory nerve was completely severed and joined to the divided fifth cord of the brachial plexus. Sutures were of very fine silk. The nerves were handled as little as possible, and the sutures passed with as little bruising as possible. Healing was normal in every case. In the experience of Robert Jones and the author, of 6 cases of obstetrical palsy 2 completely and 3 partially recovered, and of 4 cases of spontaneous neuritis, 3 completely recovered. In regard to physiological considerations, not only are the ventral cornual cells affected but possibly also the white tracts and the piamater. The clinical evidence that we are using a functioning nerve for the purpose of grafting is, of course, the presence of voluntary power and of faradic excitability in the muscles supplied by it, but the nature of the pathological lesion suggests that though these signs are present, yet even in the segment of the spinal cord from which the functioning nerve takes origin, recovery may be incomplete. Even three years may not be too long to afford evidence of complete recovery. In cases operated on from 8 to 14 months elapsed between the onset of the disease and the time of operation. Five illustrative cases are summarized.

An Anatomical Inquiry into the Pathway of Tuberculous Infection.—F. W. Jones believes that the absorbent system is the pathway for tuberculous infection and that bacilli may reach the lungs from the lumen of the alimentary canal without leaving any trace of their passage through its walls. The relation of the lymphatics of the posterior mediastinum, the thoracic and right lymphatic duct when compared with the common sites of tuberculous disease assume a new significance, for unless it is merely a striking coincidence the facts point clearly to these channels as the route of infection in lung and spinal tuberculosis. The thoracic duct is most intimately related to the spinal column from the sixth dorsal to the second lumbar vertebræ, the bodies of which are most subject to tuberculous infection. The position of the first appearance of caries upon the bodies of the vertebræ is highly suggestive of an infection from some structure lying on the front of the center, and in addition is the fact that caries at times commence from many centers often situated on different vertebræ and unconnected with each other. The structure most intimately related to the lungs or the site of election in phthisis is the lymphatic channel passing upwards and forwards over the pleura to join the subclavian veins. In this situation the thoracic duct or the right lymphatic duct lies directly on the pleura and in more intimate anatomical relation to it than any other structure in the thorax or neck. Regarding primary tuberculous disease of the thoracic duct we know but little. In one case of tuberculous disease of the lung, there was a firm adhesion between the diseased lung, diseased pleura, and diseased duct, a condition strongly suggestive of an invasion of the lung from a primarily infected duct. This would seem to bear out the frequent observation that a pleurisy is often the first premonitory origin of a phthisis. In the absence of more definite knowledge about the lymphatic system, these facts appear only suggestive, but they would appear to point to the fact that with advancing age the abdominal lymphatics become more constricted and the lymph circulation becomes more centered on the thoracic ducts. This theory offers a ready explanation for the different sites of infection of tuberculosis in children and in adults. If the mesenteric lymphatic would carry such substances as China ink (and tubercle bacilli) in children, the onset of tuberculous peritonitis is not difficult of explanation, and if the lymphatics of the diaphragm readily carry infection to the thorax in children, the basal phthisis is easily explained.

Wassermann's Reaction from a Practical Point of View.—J. E. R. McDonough says that in the primary stage of syphilis a positive result by the serum test cannot be obtained in more than 40 per cent. of all cases, and a positive diagnosis can be reached only by finding the *Spirocheta pallida*. The secretion from the sore must be examined by means of a dark ground illumination. It is wise to place no reliance upon a negative Wassermann in the primary stage. In the secondary stage a positive result occurs in 85 per cent. of all cases, alike when an eruption is present, when no manifestations of the lesion exists at the time, and when the patient is undergoing treatment. When there is a rash and the patient has had no mercury 97 per cent. of the cases are positive. When no sign is present 80 per cent. are positive. Such cases should receive treatment at once. The other 20 per cent. may be negative. (1) Because the virus has disappeared or is dormant and there is no specific antibody in the serum, (2) because the patient is taking mercury, or (3) because the patient forms one of the 3 per cent. who in any case give a negative reaction. In the tertiary stage 70 per cent. give a positive result. The following suggestions are made: (1) When a man infects his wife both should be rigorously treated and the woman should be retreated during each pregnancy. 2. (*a*) A syphilitic woman should be treated during the whole nine months of her pregnancy; (*b*) an apparently healthy woman whose blood gives a positive reaction should be so treated during each pregnancy. 3. (*a*) A syphilitic child should be suckled only by its mother, never by a wet nurse; (*b*) an apparently healthy child, either of whose parents has had syphilis, should be suckled only by its mother; (*c*) should such an apparently healthy child react positively to Wassermann's test, it should receive antisyphilitic treatment. A positive reaction can be obtained in a congenital syphilitic on the day of birth. A congenital syphilitic is peculiar in that mercury has but little influence in converting a positive into a negative reaction. In candidates for life insurance, a positive reaction should disqualify the risk even though years may have elapsed since the original infection for a positive result indicates some visceral lesion which will ultimately shorten life. On the other hand, a candidate may be accepted who, having completed a two years' course of treatment, shows a negative reaction on being tested at intervals of three, six, and nine months after such a course.

A Case of Tetanus Treated with Subcutaneous Injections of Magnesium Sulphate; Recovery.—A man of 21 years of age came under the care of P. Paterson three weeks after he had received a small scalp wound, which promptly healed and left no visible scar. Six days before being seen the symptoms commenced with pain and stiffness in the abdominal walls and back, gradually going on to full tetanus. Next day he received an injection of 10 c.c. of a 10 per cent. sterile solution of magnesium sulphate, which in two days led to great improvement, but he then relapsed. The injections had been given every four hours day and night, causing much pain. The severity of the spasms being serious the quantity of solution was gradually doubled and the interval between spasms gradually

became prolonged. The day after the treatment was stopped an erythematous rash appeared, spreading over the entire body. The patient recovered and left the hospital five weeks after admission. Relaxation of the muscles was a gradual process interrupted by a series of long drawn-out, painless, and ill-defined waves of tonic contractions mild in degree. During the treatment the patient took from 8 to 10 pints of fluid food and water. Urine was not increased, but he lay soaked in sweat. The author thinks the injection pains could be overcome by using larger quantities of a weaker solution.

British Medical Journal, April 2, 1910.

Some Idiopathic Cases of the Skin Which May Simulate Syphilis.—Commenting on the difficulty of differential diagnosis, P. S. Abraham says that the imitation is rarely correct, but there is very frequently a mixing of the types of two or more in one. He pays special attention to psoriasis, pityriasis rosea, impetigo, ecthyma, rodent ulcer, mycosis fungoides, pemphigus vegetans, and dermatitis herpetiformis. In his experience no idiopathic disease of the skin is more frequently mistaken for syphilis than is pityriasis herpetiformis, but in the former there is no accompanying adenitis, no throat trouble, or other sign of syphilis, although the patient may have been otherwise out of sorts and have had some digestive disturbance. The cases supposed to be dermatitis herpetiformis are rather instances of a syphilitic disease simulating the former than the reverse. In all doubtful cases the modern methods of the serum reaction and the discovery of the *Spirocheta pallida* will generally enable us to solve all matters of doubt.

Double Loop Hernia.—J. A. C. Macewen reports one case of a left femoral hernia in which only one loop was strangulated. The patient was a miner of 66 years, with abdominal symptoms lasting five days. In the left groin there was a large mass suggesting a solid tumor but there was a tympanitic area over one end and a hernia was suggested. Incision revealed a double loop, one part being evidently of recent origin, and the other evidently of long standing. The recent part was ligated and cut off, while the old part was reduced *en masse*. One theory put forth as to the origin of these W herniæ is that a single large loop of bowel comes down into the sac and that subsequently the central portion of the loop slips back into the abdomen, thus forming the W. In favor of this theory is the generally large size of such herniæ and the fact that often the connecting loop of bowel, notwithstanding its position in the bowel, is damaged. This particular case does not, in the author's opinion, bear out this view. The entire absence of pressure symptoms upon the old portion of the lesion is probably to be accounted for by its very long pressure in the sac, the bowel having become thickened and easily capable of resisting any pressure upon it. The author refers to Lauenstein's suggestions as to diagnosis of this double loop hernia as follows: (1) the size of the hernia, which is generally scrotal, right-sided, and of long duration, (2) signs depending on the condition of the middle loop, such as marked asymmetry of the lower half of the abdomen where the loop is much distended, furrowing of the scrotal tumor indicating the line of separation between the two loops, which may further yield different percussion signs, one of fluid and the other of gas; (3) effusion of fluid into the abdominal cavity. In the present instance the size and long duration of the condition were the only features present of those suggested, the tumor being uniform in contour, owing probably to its thick envelopes as compared with those of a scrotal hernia, and the abdomen uniform and free from effusion, owing to one loop only being strangulated, and there being thus no affection of the middle loop. The author's case made a good recovery.

Amputation for Diabetic Gangrene.—A. E. Johnson reports the case of a woman of 62 years with gangrene of the left leg. Under localized anesthesia the anterior crural and great sciatic nerves were exposed, blocked off with a solution of novocaine and the incisions closed. General anesthesia was then given with nitrous oxide gas and oxygen. The patient made a good recovery from operation. Dram doses of bicarbonate of soda were given as a prophylactic against the onset of coma. Some seven weeks were required for the healing at the site of insertion of the drainage tube. The limb was amputated at the junction of the middle and lower thirds of the thigh. The patient remained well about three months and then began to fail, dying of coma some seven months after the operation was performed. The author strongly commends the local anesthesia in these cases. He says that the dangers of sepsis in diabetic cases lie in the special liability of such cases to septic conditions, the poor nourishment of the tissues owing to endarteritis, the interference with the proper nerve supply owing to the neuritis and the presence of free sugar in the blood and tissues forming a good breeding ground for microorganisms. These dangers require special precautions apart from those called for in all surgical procedures. The use of a tourniquet should be avoided if possible, and all tissues tenderly handled. Drainage is a serious question. At the best the tissues heal very slowly, but if there is exudation in the tissues, a very small drainage tube had best be used and a suture should be inserted for tying when the tube is removed.

Rupture of Both Quadriceps Extensor Cruris Tendons.—A case is reported by R. Kelly, whose patient, aged 60, a coal salesman, slipped while carrying a bag of coals and fell forward, losing all power in his right leg. He tried to get up by putting his left beneath him; this also gave way, so that both legs were completely powerless beneath the knee. He was carried home and both quadriceps tendons were found ruptured, leaving large gaps above the patellæ. Horseshoe-shaped strips of plaster were applied to bring down the ruptured ends of the tendons, and long splints applied to both legs. The legs were kept rigid for six weeks, when splints and plaster were removed and passive movement and massage applied for four weeks more. The man made an excellent recovery and resumed work twenty-four weeks from the time of the accident.

Münchener medizinische Wochenschrift, March 22, 1910.

The Disinfection of the Skin and the Treatment of Wounds by Iodine Vapor.—Jungengel discusses the use of tincture of iodine in the disinfection of the skin and wounds and then points out the advantages of using iodine vapor instead of the tincture. He describes an apparatus, invented by himself, to produce the iodine vapor. It has the following points in its favor: It is easily used, cleaned, and sterilized. The air which is used to mix with the iodine is made bacteria free. In spite of the great heat needed to vaporize the iodine (this boils at 356° F.), the air is cooled sufficiently to prevent the burning of the skin. The dose of iodine can be regulated. The iodine vapor is used in a very finely divided state, no droplets being produced. The author then describes his experience in skin disinfection and wound treatment by means of the apparatus. It is of especial value as applied to large abscesses, fistulæ, phlegmona, and bone cavities. He has used it in 91 operations and in no case has injury of the wound resulted. Appendectomy and herniotomy wounds healed very rapidly.

Perforated Gastric Ulcer in an Hour-Glass Stomach.—Georg Hirschel gives a report of such a case in a saleswoman twenty-five years of age. The patient was admitted in collapse. The history was negative except for occasional slight discomfort after meals. The acute attack followed immediately after a severe blow on the abdomen. The patient was operated upon six and a half hours after the accident. The operation revealed a very marked degree of hour-glass stomach, the opening between the two halves being no larger than a lead pencil. The perforation was located upon this constriction. Owing to the narrowness of this portion of the stomach it was impossible to sew up the ulcer without completely blocking the passage. The two halves of the stomach were, therefore, divided and each closed separately. A gastroenterostomy was then done to the cardiac portion of the stomach, and the patient made an uneventful recovery.

Mechanism of the Biological Action of the Röntgen Rays.—Vittorio Maragliano says that the *x*-rays exercise their action on the living cells and tissues on account of the amount of the rays that are absorbed, and of those that simply pass through them. The author bases this assertion on his experiments on animals and on physical and biological facts. The photographic action of the rays is not in direct relation with the rays absorbed by sensitive emulsion. They have a deep as well as a superficial action. Some of the deeper organs are more opaque and absorb a larger amount of rays and react before the superficial ones. The filtered rays act less energetically than the unfiltered ones in animals. These reasons show that the total amount of irradiation which passes through the tissues acts on them, and not solely the rays that are absorbed.—*Giornale di Electricita Medica.*

Book Reviews.

TEXT BOOK OF MEDICAL AND PHARMACEUTICAL CHEMISTRY. By ELIAS H. BARTLEY, B.S., M.D., Ph.G., Professor of Chemistry, Toxicology, and Pediatrics in Long Island College Hospital; late Dean and Professor of Organic Chemistry in the Brooklyn College of Pharmacy; late Consulting Chemist to the Department of Health of the City of Brooklyn, etc. Seventh Revised Edition. With Ninety Illustrations. Philadelphia: P. Blakiston's Son & Co., 1909.

IN this revision there are but few changes, most of them being found in the sections on Organic Chemistry and Physiological Chemistry. The part devoted to the proteins has been rewritten and made to conform with the classification and nomenclature recommended by the American Physiological Society and the Society of Biological Chemists. We note that the nomenclature in general does not follow that adopted by the American Association for the Advancement of Science. The size of the volume is not materially increased, and the book will continue to be popular, or at least as popular as a book on chemistry is likely to be with medical students.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By JAMES M. ANDERS, M.D., Ph.D., LL.D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Ninth Revised Edition. Philadelphia and London: W. B. Saunders Company, 1909.

THIS edition of a well known work on practice is, as claimed, a thorough revision of its predecessor of two years ago. In even so short a time the advances in the subjects concerned are such that "new and rewritten" matter must be a leading feature in such a production, and here we find it so. The management of cerebrospinal fever would not be considered complete now without consideration of lumbar puncture, for at least diagnosis, and this raises the hope that the work done toward a curative serum, for injection while tapping, has not been in vain. In the epidemics of meningitis in 1905 the use of diphtheria antitoxin was suggested, but disappointment followed. Now we have the encouraging work of Wassermann and of Flexner on serums, and consideration of their value is found here. Under erysipelas and pernicious anemia mention is made of new treatment. Under Stokes-Adams disease the differential diagnosis includes not only bradycardia and arrhythmia, but also recurring extra-systole. Cerebral hemorrhage includes ventricular, pontine, and cerebellar, also serous apoplexy, with tables on differential diagnosis of hemorrhage, thrombosis, and embolism. Diseases of the nervous system receive considerable attention in pathology and diagnosis, as chronic poliomyelitis, progressive muscular atrophy, chronic myelitis, diseases of the optic nerve. Tropical diseases are given enlarged space, as present-day American problems give them increasing importance. The work is well arranged in divisions and subdivisions of sections, the few illustrations are good, and the plates, particularly on malaria and leukemia, are excellent, the latter deserving special mention.

MODERN SURGERY. General and Operative. By JOHN CHALMERS DA COSTA, M.D.; Professor of Surgery and Clinical Surgery in Jefferson Medical College; Surgeon to the Philadelphia General Hospital; Consulting Surgeon to St. Joseph's Hospital; Fellow of the American Surgical Association; Member of the American Philosophical Society; Membre de la Société Internationale de Chirurgie; Member of the Medical Reserve Corps, U. S. A. Philadelphia: W. B. Saunders Company, 1910.

THAT surgery is still progressing and that its triumphs are not all of the past is evidenced by a consideration of the extensive revision which this work has undergone to prepare it for this edition, appearing only three years after the fifth. Among these revisions and additions we find mention of the work of Carrel, Matas, and Murphy on arteriorrhaphy; Crile's arteriovenous anastomosis for effecting transfusion of blood; Brewer's tubes for transfusion; the use of Halsted's aluminum bands in the treatment of aneurysm; the operative treatment of recent fractures; Horsley's operation for chronic spinal meningitis; the use of positive and negative air pressure in intrathoracic surgery; Murphy method of treating acute peritonitis; Cushing's operation of decompression for brain tumors; Bier's intravenous local anesthesia; the parathyroid glandules; the intraglandular extirpation of goiter, which is favored by Halsted and the Mayos; the Lorenz treatment of hip disease by weight bearing and fixation; cystoscopy and catheterization of the ureters; gunshot wounds in war; Bier's treatment of inflammation; Wright's views on inflammation; Rosenberger's method of diagnosticating tuberculosis by finding the bacilli in the blood; immunity with a sketch of antibodies, of opsonins, and of phagocytosis; bacterial vaccines; untoward effects of sera; tuberculin in diagnosis; fat embolism; erysipeloid; human glanders; Wassermann's reaction for syphilis; the serum diagnosis of cancer; tumors in general; syphilis; acute dilatation of the stomach, mesenteric cysts, congenital idiopathic dilatation of the colon, teratoids and dermoids of the sacrococcygeal region; gonorrhea; ankylosis; radium, electrical injuries, and the *x*-rays. The mere catalogue of these additions is sufficient to show that this work is in no danger of losing the position which it holds as one of the best of the one-volume treatise on surgery. We fear, however, it will not enjoy this distinction long, for if it continues to grow by accretion at the present rate, a division into two volumes will soon be necessary; this would be a convenience in a way, yet a disadvantage.

DISEASES OF THE STOMACH. A Manual for Practitioners and Students. By S. H. HABERSHON, M.A., M.D., F.R.C.P. With eight colored and eleven black-and-white plates. Chicago: Chicago Medical Book Company, 1909.

THIS little work is a concise and intelligible description of the diseases of the stomach, written especially for students and practitioners. It is authoritative, and is written chiefly from the clinical standpoint. There are valuable preliminary chapters on the anatomy and physiology of the stomach, nutrition and diet, examination of the stomach and of gastric contents, and on the symptoms of gastric disease. The author has availed himself of the researches and writings of all the acknowledged leaders in this subject, he has also brought to his task the extended experience of himself and of his father; and the result is a volume of unusual merit, whose practical value is far in excess of its size and price, and which the practitioner will find of more service than many of the larger and more pretentious works.

A PRACTICAL TREATISE ON OPHTHALMOLOGY. By L. WEBSTER FOX, M.D., L.L.D., Professor of Ophthalmology in the Medico-Chirurgical College; Ophthalmic Surgeon in the Medico-Chirurgical Hospital, Philadelphia, Pa.; Member of the Army Reserve Medical Corps, etc. Six colored plates and three hundred illustrations in text. New York and London: D. Appleton & Co., 1909.

THE character of the new issue of Dr. Fox's work on the eye is considerably changed from that of the edition of 1904. A new title has been adopted, the formulary and glossary have been omitted. The present volume is one of 807 pages. It is well printed and illustrated. Short chapters on "Embryology," "Anatomy," and "External Examination of the Eye" precede the chapters devoted to a consideration of the diseases of the eye, which last follow in logical order. A chapter each is devoted to "Ocular Manifestations of General Diseases" and "Ocular Manifestations of Nervous Diseases." Refraction and the extraocular muscles are then considered, followed by a chapter on "Laboratory Technique." Modern lines of thought and modern methods in ophthalmology are much in evidence. The rôle of microorganisms in the production of diseases of the eye is given its full importance. Operative procedures and operative technique are given *in extenso*, in fact, are rather the feature of the work. The operations peculiar to each part of the eye are treated in the chapter devoted to that particular part of the eye. There is little of theory in the work, the statements are positive and direct, bearing the imprint of the personality of the author. This treatise on the eye is excellent for the student and of value to all who are engaged in the study of the eye and its diseases.

A COMPEND OF HISTOLOGY. By HENRY ERDMANN RADASCH, M.S., M.D., Associate in Histology and Embryology, and Demonstrator of Visceral Anatomy in the Jefferson Medical College; Adjunct Professor of Physiology and Instructor in Histology in the Pennsylvania College of Dental Surgery. Second Edition, revised and enlarged with 107 illustrations. Philadelphia: P. Blakiston's Son & Company, 1909.

AMONG the changes in this new edition are some additions to the chapter on the circulatory system; the chapter on the nervous system has been rewritten; the chapter on the histology of the teeth has been enlarged and rewritten, and a new chapter has been added on the development of the face and teeth. The subject matter is up-to-date, and is presented in a clear and concise manner; and the book is more complete than most compends, and yet not so voluminous as a text-book.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held March 17, 1910.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

The Bacteriological Diagnosis of Venereal Diseases.—The Council referred the resolution requesting the Department of Health to undertake the bacteriological diagnosis of venereal diseases, gonorrhea, syphilis, and chancroids, to the Academy of Medicine. It was moved, seconded, and carried that the resolution be accepted. It is intended that a record of the age, sex, and social condition of such patients be kept, but that the identity of such individuals be not disclosed. When material is sent to the Department of Health, an examination will be made and the diagnosis returned to the physician, together with instructions regarding the care of such patients and the means of preventing the further spread of the disease.

An Interpretation of Some of Our Present-Day Social Phenomena.—DR. MAX G. SCHLAPP delivered this address. He said that all knew that during the past forty or fifty years unusual conditions were arising in society in general which he thought needed interpretation. There were some things about which sociologists had written a great deal and worried much, and one of the most important was the tremendous decline in the birth rate. There were other factors which very likely were due to the same causes, but which heretofore were not in any way associated with decline in the birth rate. Dr. Schlapp presented some charts which well illustrated the tremendous decline that had taken place during the last forty years in the birth rate. One chart showed that in France from the beginning of the Nineteenth Century the birth rate had fallen from 40 to below 20. In 1908 the births were 19,000 below the death rate. This fact required explaining. There were other factors to be considered and among these were the tremendous increase in insanity, and the increase in feeble-mindedness among children. The argument put forth by socialists that the birth rate declined with the bettering of the race was unquestionably a mistake. With a decline in the birth rate, there was an increase in insanity and an increase in feeble-minded conditions in children. This certainly spoke against the improvement of the race. There were other factors which were against the improvement of the race, such as the increase in certain nervous disorders, such as psychasthenia and neurasthenia. In Europe neurasthenia was referred to as the "American disease." Dr. Schlapp said that his interest in this subject was aroused by observing rather unusual conditions among a large number of female patients treated at the Presbyterian Hospital and other institutions. He had occasion to see a great many young women who worked in factories and offices, and other places out of their homes. The symptoms these people showed were a tremendous nervous condition, neurasthenia and the accompanying symptoms, psychasthenia and, in addition, there was a decrease or stopping of the menstrual flow. The question arose, what caused this partial or complete loss of menstruation when, among these patients, there was no other disease which caused this condition, such as acromegaly, myxedema, or other known debilitating diseases in which one found loss of menstruation? He came across these conditions in society as well. Dr. Schlapp believed that the answer was this—that Nature was beginning to avenge herself for the digression that had taken place in her laws. In order to explain this, one must go back and trace the sex from the earliest living organism. In the lower organisms there were conditions which pointed to a distinct sex. There were life processes in cellular organisms, and these life processes were three in number, the nutritive, the formative, and the functional activities; these represented the three processes that existed in living tissues. Nutrition supplied a limited amount of energy to the cells; this limited amount of energy was used up by the formative and functional activities. If either one of the activities increased, it must do so at the expense of the other. If either one of them used all the energy, there was none left for the other activity; hence, the other activity disappeared entirely. To illustrate this, he took one of the most highly specialized cells of the body, the ganglion cells of the nervous system. The formative activity was entirely lost in the adult individual. In the lowest organisms, such as the plant life or algæ, this condition was clearly shown; they reproduced and formed new organisms. But they must conjugate in order to be able to reproduce. There was a cycle in the lowest form of algæ termed the cell cycle, and this was represented by three stages, the quiescent stage, in which the cells divided and reproduced; the active functional stage, in which the cell was not capable of reproduction, and the transgressional stage passing from the active to the quiescent stage when it was not able to reproduce again. In the highest of the lower organisms one came to the dimorphic types where two sex cells could be distinctly differentiated. In the higher types conjugation was necessary before reproduction took place, and here was the beginning of the sex cells; there was the active small cell (male) and the large quiescent cell (female). In the multicellular organisms there was found the active small male cell and the quiescent large female cell. The multicellular organisms were made up of a large number of primitive sex cells. Some of these organisms were capable of multiplying by a sexual reproduction; that was, the body cells in the lower organisms were capable, if in sufficient numbers, of reproducing similar organisms, and it was not necessary to make use of the real sex cells. This was called asexual reproduction, or budding. What did this mean? It meant that the body cells in the lowest organisms had not lost their formative activity to such an extent that they were not capable of reproducing new organisms; in other words, their functional activity had not developed sufficiently to crowd out their formative activity. As one went up the scale in the animal kingdom it was found that the body cells were becoming more and more specialized, and took on more and more the functional activity; as one went up the scale more and more it was found that their capacity for reproduction became less and less until the intervertebrates were reached where this power was entirely lost and they were not capable of reproducing new organisms from parts of the body. In the lower organisms they found individuals in which there were present both sex cells, and this was a primitive state of affairs; both sex cells were found in one individual, and such an individual was called a hermaphrodite. As one went higher up the conditions changed, and the male sex cells were found in one individual, and the female sex cells in another; such individuals were termed unisexual organisms. From this period on the conditions developed which were called the secondary sexual character; the body cells as a rule were characteristic of the original sex cells. The speaker demonstrated what his meaning was with charts of the lower organisms. As one went higher in the scale the vertebrates were reached, and here one found, as a rule, the male was larger than the female; in the invertebrates this was reversed. In the intervertebrates the largeness of the female was due to the storing up of the energy for the reproductive function. The smallness of the male was due to the fact that in these individuals the functional activity did not require large amounts of tissue to carry on its function as in the vertebrates. In the vertebrates the functional activities required such large organs to carry on the necessary functions, such as skeletons, the muscular system, etc., that the largeness of the male individual was due to these systems and the storing up of energy among females did

not require such a large body. Dr. Schlapp here considered the antagonisms occurring between growth, development, and expenditure. The antagonism between growth and genesis meant, as a rule, the large animals were not as prolific as the small animals, all things being equal. If one took an animal from the time of birth, the body must grow to a certain extent before sexuality began. Growth antagonized reproduction. The growth of the body took place by using up energy which reproduced body cells. The antagonism between development and genesis had reference to the higher states of animals; the human being, for instance, belonged to a higher state than did fishes. As one went up the biological scale fertility diminished. The antagonism between expenditure and genesis was the most important and it meant that where a person was very active, reproduction diminished, and *vice versa*. Dr. Schlapp asked, what had all this to do with the decrease in the birth rate, with the increase in insanity, and the increase in feeble-minded conditions in children and the activity of women. The present social movements, such as Christian Science, antivivisection, suffragettism, etc., were movements all more or less controlled by women. Christian science was a return to the ignorance of primitive man, in that certain races tried to remove disease by prayer. Personally he believed that most of the women who were actively engaged in the suffrage movement were sincere, but movements of this sort were unwisely carried out. Woman must be conservative with her energies, especially at certain periods of her life, from the period of menstruation to the beginning of the menopause and, above all, she should conserve the energy that belonged to her children. If she did not conserve this energy for her formative activity, the child would suffer. How suffer? It meant that the organism had a running equilibrium, and must adjust itself to the outside world. If the adjustment was grossly disturbed, the running equilibrium was necessarily disturbed also, and the functions within that individual were interfered with. In the body there were certain tissues which were producing substances that had a marked effect upon other tissues of the body and they could either inhibit functional activity or lower it. Such substances were, for instance, the internal secretions of the thyroid gland, the thymus, hypophysis cerebri, the sexual glands, etc. The sexual glands were not present only for the purpose of reproduction of sex cells, but they had another important function, producing substances in the body which influenced the individual. Secondary sexual characteristics were the results of the influence of these sex cells upon the organism, and this influence was not only psychical but physical. The beard on man was the result of an influence of this sort, as was the high-pitched voice of woman, with the small larynx as compared with man. These conditions were due to the substances produced by the sex cells. The psychical elements in both sexes were very marked; there was the marked differences between men and women, between boys and girls, most marked between the ages of fourteen and fifteen in girls. These things were very important, and were conditions which influenced the lives of individuals. How did a woman's activity influence these conditions? The birth rate curve showed a decrease in the birth rate. In England and Wales there was an increase in insanity; in 1862 there were 41,129 insane; in 1904, there were 119,829 insane. The increase in population was not in proportion to the increase of the insane. The same was true of feeble-minded conditions in children. How could they explain this by the functional activity of women? Industrials had developed far beyond other conditions in life, and life had been made more difficult, and had forced women into certain activities which before that time she was not able to do. The women were using up their energies, not of the body only, but of the nervous system, which ought to be stored up for reproduction. Excessive functional activities of woman caused her to use up the energy which she ought to store up for the catabolic crises which came on in connection with her reproductive activity: if, moreover, the functional activities used up all this energy then, when the catabolic crises appeared, she having no energy left for this condition, there will be a marked disturbance in the crises; then if conception took place, the child would suffer from a lack of nutrition. Again, if she used up the energy for her functional activities, there was not enough energy left to supply all her tissues in a normal way, and there would result disturbances in her running equilibrium. This would result in abnormal functionating of the various tissues of the body, particularly of certain glands which were connected with the reproductive life. What effect had this upon the offspring? They would inherit the same pathologically changed tissues and glands; such offspring would develop certain conditions later on which might lead to insanity, or might even inherit distinct feeble-minded conditions. Women were actively engaged in furthering movements and trying to bring women into active life and no doubt they were sincere. But the question was, were they doing the best thing for the race? Were they not bringing about conditions which would result in an inferior race in the future? The mother he considered the biological balance wheel; if she used too much of her energy in other activities than to her offspring something was going to happen and it was taking place now.

Dr. E. C. Spitzka believed that the penalty of woman's activities could be traced further back than did Dr. Schlapp, and that from the very start something had resulted in their detriment, not in any fatal way, but in a hampering way. With regard to the suffrage movement he said he was not quite convinced of the complete sincerity of its advocates; there was a lot of hysteria in it. Some person once said to him, "Pay no attention to them; they will die out; they only want to be scratched." There were advocates of this movement among the males as well; he did not call them hysterical, but he recognized them as paranoiacs. He believed the problem would work itself out. After all, they were the people, and they held the fort. They might discuss the question of suffrage, but he objected to anything that touched the ideals of the mother and wife. They should think more of the influence of these things on the future and he did not think they should allow their children and their children's children to be punished because of these fads. He called attention to a fact not well known, that in families with idiotic and defective children, in nine cases out of ten the birth had been preceded by a miscarriage; this was a fact that was not sufficiently well appreciated by the profession.

Dr. Carlos F. MacDonald said that he could not subscribe to one point in Dr. Schlapp's remarks, that was, the enormous increase in the number of cases of insanity. Undoubtedly there was a very large numerical increase in insanity among civilized countries, but the question whether the ratio of insanity to the same population increased so enormously was doubtful. There were several explanations for this apparent increase, which was in fact more apparent than real. The conception of insanity to-day was a great deal wider than it was twenty-five or thirty years ago, or even within the period mentioned by Dr. Schlapp. The registration of the insane had increased enormously and so a larger number appeared in the statistics. There were a great many conditions to-day recognized and classified and registered that formerly were not. There was an increase too in the confidence of the public and the conduct and management of institutions for the insane had led people to seek treatment for their friends. Again the better care and treatment of the insane to-day had materially increased the longevity of that class of patients. Dr. MacDonald did not think that if a very careful

investigation was made that it could be shown that there was a great material increase in the proportion of the insane people.

SECTION ON SURGERY.

Stated Meeting, Held March 4, 1910.

DR. CHARLES N. DOWD IN THE CHAIR.

Streptothrix Infection Complicating Tuberculosis of the Kidneys; Nephrotomy; Nephrectomy; Recovery.—Dr. EMILY DUNNING BARRINGER reported this case. The patient was an Italian, 45 years old, who had had four children. Her previous health had been good. The history of her present illness had extended over two years before she was admitted to the hospital. Her chief complaint had been backache, especially on the right side. She had been treated for nephritis and displaced kidney. When she was admitted to the hospital she was in poor condition, running an afternoon temperature of about 101°, pulse from 88 to 116. The right lung showed areas of dullness. The heart findings were negative. In the abdomen a mass in the right kidney region was found; it was very tender. The blood examination showed red blood cells, 3,980,000, leucocytes, 9,500, and hemoglobin, 75 per cent. The tuberculin test was positive. A cystoscopic examination failed to reveal anything on account of the clouding of the field due to the quantity of the pus present. The Luys separator was introduced and the urine from each ureter was collected. The left urine showed 13.5 grams per liter of urea, was normal in flow, while from the right ureter there issued 3.5 grams per liter of urea. Both specimens of urine were repeatedly examined for tubercle bacilli and none were found. Two guinea-pigs were inoculated with these urines and showed the presence of the streptothrix. The patient's condition became urgent, and nephrotomy was performed. A second cystoscopic examination was then possible, as the urine had cleared up. The Luys separator was again used and indigo-carmine injected. This was freely excreted from the left side in eight minutes; none was excreted from the right ureter. This was six weeks from the time of inoculation. The report was received that the guinea-pigs had both developed tuberculosis. A nephrectomy was then performed. The temperature rose from 101° after the operation; it then fell, and the patient made an uneventful recovery. The urine at the last examination was normal except for the presence of a trace of albumin.

Implantation of a Portion of the Tibia into a Defect of the Ulna.—Dr. HENRY H. JANEWAY presented a woman who, twelve years ago, sustained a severe wrench of the arm. At the end of two months a tumor developed in the forearm which gradually increased in size. Five years ago this tumor was removed, but within a short time there was a recurrence calling for two subsequent operations. Finally in November, 1908, a complete excision of the tumor was made with a resection of the involved ulna. The growth proved to be a chondrosarcoma. The defect in the ulna caused by the removal of this tumor was replaced by a portion of the crest of the tibia, five and a half inches in length; Radiographs were presented showing that the implanted portion of the tibia had been transformed into, or at least, resulted in a thickness of live bone firmly united at its two extremities with the remaining fragments of the ulna. The functional results and cosmetic effects were excellent, the woman even being able to do her own washing in the tubs, and within one month after the operation. In this instance the wound healed by primary intention. The replacement of bony structures by bone from the individual himself, autoplastic implantation, was not generally used, only about ten cases having been reported; but the implantation of bone from animals, heterogenous implantation, has been frequently attempted, but without uniformly satisfactory results.

The End Results of Prostatectomy.—Dr. CHARLES H. CHETWOOD read this paper. (See page 698.)

Suprapubic Prostatectomy in Two Stages: Remarks and Report of Final Results.—Dr. HOWARD LILIENTHAL said that in looking over his list of private patients he was able to find records of sixteen upon whom he had performed the operation of suprapubic prostatectomy in two stages. The average age of these patients was 71; the youngest was 52 years old and the oldest 77. All except one left the hospital either entirely healed or with a superficial granulating wound. He had been able to follow and note the final results in all except two of these cases; the remaining fourteen cases were all well so far as urination was concerned and all were sexually potent, most of them with increased potency. After operations by the suprapubic method without perineal drainage, he had never seen a case of impotency in an individual previously potent. He had, however, quite frequently noted an increase of power which was quite decided. In several instances a bacteriuria persisted for weeks or months after the operation, but it disappeared under long continued medication. For the past ten years Dr. Lilienthal had done all his prostatectomies by the two stage method and without a fatality. In the list of sixteen cases the longest interval between the two stages was twenty days, the shortest two days, the average being about eight days. He asked what was the use of taking additional risks simply because the patient appeared to be strong enough to withstand the added shock?

Ureteral Calculus Complicating Acute Prostatic Obstruction.—Dr. WALTER BRICKNER reported this case occurring in a man 53 years old. After a preliminary suprapubic cystotomy, the small stone descended from the upper to the lower end of the ureter. A second stage operation was performed, a transvesical ureterostomy and prostatectomy. An early healing followed, with a complete restoration of urinary function, with no residual urine, and with a preserved *potentia coeundi*.

The End Results of Prostatectomy.—Dr. J. BENTLEY SQUIER said that in his first hundred prostatectomies the perineal operation was done 71 times, the suprapubic operation 21 times; in his second hundred operations the figures were about reversed, and he had not been influenced merely by the difference in the ease in performing the two operations. Whatever operation was done, the ultimate result was largely dependent upon the care and attention to clearing up the existing cystitis and in leaving the urethra in a healthy condition. To obtain the maximum benefit many patients required months of local treatment. Whatever operation was done, the indication was definite—total removal of the prostate with no damage to the compressor urethræ muscle. A permanent postoperative incontinence of urine was dependent upon the condition in which the compressor urethræ muscle was left, and was more apt to follow the infrapubic than the suprapubic operation. Temporary incontinence of urine was common, and was due to the cystitis and the deep urethritis and the relaxed condition of the sphincter muscle following the operation; the details of treating this incontinence in order to make it only temporary started with obtaining asepsis of the bladder and urethra and ended with motor reeducation of the cut-off muscle. What he stated about incontinence was equally true in regard to persistent fistulæ, suprapubic or perineal. One form of retention of urine occurred from Nature's reparative efforts. During the contracture of the cavity left after prostatic removal, a flap of mucous membrane might become shoved up so as to act as a valve and obstruct the internal meatus against the outlet of urine. A second

form of retention was caused by post-operative cicatricial stenosis of the vesical neck. What were the end results of prostatectomy? There were some failures, some improvements, and many cures, but differing from the majority of other surgical work in this—they were, as a rule, dealing with those who had already run the race, and were tottering on the brink of eternity. Such being the case, they had to conserve their every resistance to combat the shock of surgical intervention. There should be quickness in operation to minimize the amount of anesthesia necessary, wisdom in dealing with the details of convalescence, and patience while restoring a diseased bladder to health; these were the requisites of success.

Dr. Hugh H. Young of Baltimore believed that the method of performing prostatectomy through a median perineal incision was unquestionably an effective one, and had many valuable points in its favor, but he believed, also, that all these operations should not be performed in the dark. It was indeed a very simple matter to do the operation without going through the triangular ligament or bulb or injuring the external sphincter by simply stripping back the levator ani muscle on each side of the transverse perineus; this gave an easy access to the urethra, back of the triangular ligament, back of the sphincter; with the preservation of the external sphincter there should never be a fistula. One reason for a prolonged temporary incontinence of urine he believed to be the leaving back of a lobule which prevented the closure of the internal sphincter. Among four hundred cases of prostatectomy he had had but two in which incontinence of urine occurred, and only one recto-urethral injury which persisted. With regard to the persistence of urethral fistula, in his list of four hundred cases, there were two which still persisted; both of these fistulæ were pin point in character. In most of these cases such a condition was of slight disturbance. With regard to sexual potency, Dr. Young said he could not claim that perineal prostatectomy was a restorer of sexual power that had been lost; among the four hundred cases there were but five in which, following the operation, there was a return of the sexual powers. Among the cases in which the sexual power was normal before the operation, 80 per cent. claimed that it was only slightly impaired, while 20 per cent. of those in whom erections were normal before operation, had lost this power since the operation. With regard to obstructions, 300 cases led a catheter life before the operation, and but three cases had to return to catheter life since the operation. There had been a few cases in which the residual urine had not entirely and absolutely disappeared. In two cases that he had recently seen, the cicatricial tissue at the prostatic orifice caused a definite amount of residual urine to collect behind it; when this was removed by a punch, perfect results followed. To carry any patient successfully through prostatectomy depended upon a careful study of each case. Among Dr. Young's four hundred cases there had occurred 13 deaths, and a study of these cases showed that there had been a large amount of residual urine, the catheter had not been employed before operation, and that the operation had been performed without preliminary drainage by catheter. Had preliminary treatment been employed in these cases, the mortality would have been much lowered. There were some patients with from 500 to 1000 and more cc. of residual urine, and these were the cases that urgently required the preliminary treatment, and particularly those cases in whom the catheter had never been used. Every case with symptoms of uremia should always have preliminary treatment. The bladder should never be allowed to become distended beyond 500 cc.; if the bladder was allowed to contain 800 or 900 cc. of urine, the urine would be backed up in the ureters to the kidneys, and such patients of course would not improve as rapidly. The use of pheno-sulph-naphthaline had been of service in determining the function of the kidneys, both as to the rapidity with which the urine was put out and as to quantities. This agent first appeared in the excretion in seven minutes; 40 per cent. of it was excreted in the first hour, and 85 per cent. in the first two hours. As he already stated there had been thirteen deaths among his four hundred cases, and many of these might have been saved if he had been as careful then as now. In his last one hundred and twenty-eight cases he had been successful in all. The suprapubic operation Dr. Young believed to be a dangerous operation, with complications which led to an increased mortality. He had had forty cases operated on by the suprapubic route, and a higher mortality than he had had by the perineal route. Dr. Young advocated the perineal route, because he could get better results by this approach to the prostate.

Dr. Charles L. Gibson said that the only operation he had done during the last six or seven years was perineal intraurethral enucleation of the prostate; and of his cases, three died, one from cerebral apoplexy one month after the operation, one two months after the operation, as the result of general debility and sepsis, and one from uremia. In general terms, however, his late results following prostatectomy were excellent. The question regarding incontinence of urine in these cases was important, and one should be careful not to handle the membranous urethra or the musculature too much. The question of sexual power was one that had not bothered him very much, for it was concerned with the physiology of old age. Dr. Gibson had not had any experience with permanent fistulæ, and, in his work, he had never injured the rectum. The operation he performed he believed in, but it should be performed only in selected cases. In the great majority of his cases there was not a great amount of residual urine. After his operation he had never had occasion to use the catheter.

Dr. Joseph Wiener said that he had never had a permanent fistula follow the suprapubic operation, but he had seen such a condition follow the perineal operation for prostatectomy. He fully agreed with Dr. Lilienthal's statement, that every patient who submitted to this operation who was potent before operation was potent after the operation; in fact, there were a large number of patients who were rendered more potent after than they were before the operation. With regard to incontinence of urine, Dr. Wiener stated that, following the suprapubic operation, he had never seen a case which was permanent. He had seen, however, slight cases of incontinence for two, three, or four months following the suprapubic operation, which showed itself after coughing, sneezing, or some sudden strain, but he had never had a case of permanent incontinence after the suprapubic operation, and seldom did he see it following the perineal operation. Stricture of the urethra could be prevented in every case by attention to the proper technique; one should never get a stricture of the urethra after the suprapubic operation, and seldom get it after the perineal operation. Rectovesical fistulæ should never develop after the suprapubic operation. The formation of calculi occurred more frequently than the readers of the papers believed, and Dr. Wiener had seen them form in a few cases, and they were almost invariably phosphatic stones; these phosphatic stones formed in alkaline urine and, therefore, they could be prevented by keeping the urine neutral or slightly acid. These patients should be kept under observation for at least one year after the operation. He could not condemn severely enough the use of the galvano-cautery operation. If there had been any improvement in the technique in prostatic work during the past eight

or nine years, it had been in the development of the two-stage operation; this was the operation of choice, whether the patient was in good condition or not. The one-stage operation was too severe. The time between the two operations usually was about one week. The length of the after-treatment of these cases was not increased by the two-stage operation for prostatectomy. To get good end results from prostatectomy, it was important to make a correct diagnosis before operation. Locomotor ataxia caused bladder symptoms similar to prostatic hypertrophy. The cases should always be examined carefully to exclude a spinal cord lesion.

Dr. Parker Syms said that he had not resorted to the various methods which had been in vogue; that he could not be designated, as Dr. Chetwood had designated himself, a universalist in the religion of prostatectomy, but that he might be more properly classed as a genito-urinarian, for he still believed in one good thing, viz., perineal prostatectomy. Prostatectomy by the perineal route was his choice, for at least in his hands it had afforded very satisfactory results. The successful performance of this operation depended on a proper understanding of the anatomy. Thereby one should be able to operate with the least possible damage and mutilation, and with the best of end results. If one found the proper line of cleavage and adhered to it, there would be very little bleeding and very little shock, and there would be the preservation of the bladder structures and restoration of its function. When they first entered this field of surgery there were two things they dreaded—tight stricture, due to the necessary traumatism on the one hand, and incontinence of urine due to the mutilation of the bladder sphincters, on the other hand. In Dr. Syms' experience, stricture had not followed as an end result of prostatectomy. At first he used to sound these patients at short intervals; now he only used the sounds two or three times during the course of healing. Incontinence of urine was a condition about which he was no longer apprehensive.

So far as the speaker knew, he had had but two cases on his list; one of these had had incontinence produced by an operation of another surgeon, before he operated upon him, so that he did not feel that his operation could be held accountable for it. The second case was in a very feeble man, in the neck of whose bladder he was obliged to leave a fragment of stone until about two weeks after the operation. Dr. Syms thought this kept the bladder neck open, so it healed with a large caliber. He desired to report another case of a man whom he operated upon about a year ago. He recently saw him, because it was said that this man had incontinence. He injected 8 oz. of fluid into his bladder and had him hold it for a considerable length of time, showing that he had control. This man was senile and feeble, and Dr. Syms thought that he could be made to hold his water satisfactorily by proper training. He had found gymnastic exercises of great benefit. When a man became able to retain a small quantity of urine for a few minutes, he knew that he would soon regain complete control. Dr. Syms had on his list one case of rectoperineal fistula. He believed that this accident occurred after the operation but, of course, that might not be so. One of the most noticeable end-results of prostatectomy was the regeneration of the patient, owing to his relief from autointoxication. This autointoxication, which was due to the backing up of the urine and the consequent inefficiency of the kidneys, was a marked feature of prostatic obstruction. Many a man, after his relief, improved to an extent amounting to rejuvenation. He would be physiologically ten or fifteen years younger than he was before the operation.

Dr. Martin W. Ware said that it seemed illogical to listen to an enumeration of the ill effects following prostatectomy, some of the gentlemen stating that they had not seen a single instance of stricture, or fistula, or of incontinence of a permanent nature; and yet nearly all the speakers had told at length what they had done to prevent the occurrence or likelihood of fistulæ. There was no doubt that the success of this operation depended upon a sound knowledge of the anatomical basis. The mortality following this operation in the genitourinary service of the hospital was about 10 per cent. One should attempt to minimize the evil effects and also the mortality by a careful selection of the cases. After all, either operation accomplished in the vast majority of the cases results that they set out to obtain, placing the patients in a better position physically than before. Dr. Ware contradicted Dr. Wiener's statement in regard to never having seen a fistula follow suprapubic operation.

With regard to potency, Dr. Ware recalled that Allawan invariably found impotence following perineal operation. Some experiments were made by Albarran's assistant on rodents; he removed the prostates from these animals, and found them to be still potent. Walker of England had also removed the prostate from animals, and reported the same result. Dr. Ware closed his remarks by relating a rare sequel, an instance of myositis ossificans occurring in the rectus muscle following the operation of suprapubic prostatectomy, and referred to hernia occurring in the line of the cicatrix.

Philadelphia Neurological Society.

At a stated meeting held January 28 Dr. Wharton Sinkler exhibited "A Case of Acute Anterior Poliomyelitis Involving the Upper Extremities." The patient was a young man who presented weakness and wasting of the muscles of the upper extremities, without degenerative electric reactions, and with exaggerated knee-jerks, in the sequence of an acute illness with elevation of temperature and other symptoms of infection. The lower extremities were in no way affected, and the action of the sphincters was under control. There had been no loss of consciousness, and sensibility had been in no way disturbed. The case was looked upon as one of acute anterior poliomyelitis with unusual symptomatology.

After the presentation of this case Dr. Francis X. Dercum exhibited a "Case of Scleroderma with Sclerodactyly." The patient was a woman presenting widespread tightness and induration of the skin, associated with pain and tenderness in the affected parts. The fingers and toes presented at times marked pallor or whiteness, at other times cyanosis and redness. No change in the size of the thyroid gland was demonstrable.

Dr. Augustus A. Eshner then exhibited "A Case of Mercurial Tremor." The patient was a man 50 years old who had been engaged for the past fifteen years in the manufacture of felt hats. He had complained for a few months of general tremulousness and weakness, and he presented a coarse tremor of the fingers, as well as tremor of the tongue and facial muscles. The knee-jerks were preserved. There was no nystagmus. A solution of mercury in nitric acid was employed in the preparation of the felt, and men engaged in this process suffered at times from the "shakes." Drinking of milk and abstinence from alcohol were practised with more or less success as prophylactic measures.

Dr. Alfred Gordon exhibited a "Case of External Ophthalmoplegia followed by Exophthalmic Goiter." The patient was a woman who presented weakness of the external rectus of the right eye, and of the superior rectus of both eyes, with retraction of the eyelids, a staring, fixed expression, and exposure of the sclerotic above the cornea, enlarged thyroid gland, fine tremor of the fingers, and moderate tachycardia. Referring to another case of exophthalmic goiter associated with paresis of the third, fourth,

and sixth cerebral nerves Dr. Gordon contended that these cases, together with the experimental and pathological evidence, lent support to the view that exophthalmic goiter is due to a lesion of the medulla oblongata, with secondary involvement of the thyroid gland and the development of the remaining symptoms. Dr. Gordon exhibited also "A Case of Anterior Poliomyelitis of Unusual Distribution." The patient was a lad with loss of power in the trapezius and scapular muscles on the left side and of the deltoids on both sides, together with fascicular twitching in some of the affected muscles. Dr. Gordon exhibited further "A Case of Hysteria with Vasotrophic Disorder." The patient was a neurotic young man, who, in addition to other evidences of hysteria, exhibited in the sequence of depressing emotional influences circular erythematous areas of sudden development above the breasts and on the neck, and it was thought that self-mutilation could very definitely be excluded.

Dr. Tom A. Williams of Washington demonstrated "A Method of Estimating Cerebellar Dysergia." This consisted in making a horizontal line and marking on it three points at different distances and then making a second line at right angles to the first and marking on it also three points at different distances. The test was made by having the patient attempt with pencil or pen to draw lines from the points on the vertical line to the distances marked on the horizontal line and parallel to this line. The amount of dysergia would be indicated by the distance beyond the desired point the lines were drawn, and more especially the distance they were drawn backward from the extreme. Dr. Williams demonstrated also "An Apparatus for Ready Clinical Investigation of the Sensibility of Coolness and Warmth." This consisted of a thermometer encased in a block of wood and having its lower portion surrounded by a casing of copper, as the next best conductor to silver. By immersion in water of a known temperature the copper would maintain the given temperature for a time sufficiently long to make the desired examination. Dr. Williams also reported "An Anomaly of Sensibility in the Course of an Acute Serous Meningitis." This was observed in the case of a man who had been thrown from a horse and exhibited in addition to other phenomena of meningitis dissociation of sensibility in one lower extremity.

Dr. Milton K. Myers reported "A Case of Paralysis Agitans with Occasional Slight Tremor; Vitiligo the First Symptom."

Dr. William Burdic presented a communication entitled "A Study of Functional Exercises in Some Nervous Diseases." He discussed the usefulness of coordination exercises in the restoration of industrial usefulness in cases of tabes, spastic states, paralysis agitans, and other conditions. In every instance the exercises should be selected with regard to the occupation or activity of the individual patient. Muscles or members long not used or incorrectly used require reeducation, and while the process is at times tedious and time-consuming the results constitute sufficient reward for the effort.

Dr. Samuel Stern then presented an interesting communication which was entitled "Kernig's Sign: Its Presence and Significance in General Paresis of the Insane and in Arteriocapillary Fibrosis." Inability to extend fully the leg of a patient in the dorsal decubitus with the thigh flexed at a right angle to the trunk is observed in cases of meningitis, and has been thought to be due to involvement of the pia mater. In an extended investigation Dr. Stern found the sign present in a large number of cases of general paresis, and in a considerable number of cases of arteriocapillary fibrosis, and in cases of tabes dorsalis associated with arteriosclerosis. In all of these it was thought that the manifestation was due to associated leptomeningitis.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Massachusetts Board of Registration in Medicine.

March 7, 1910.

ANATOMY AND HISTOLOGY.

1. Describe the arrangement of the dura mater and state functions.
2. Make a diagram of the stomach, moderately distended, and state its anatomical relations.
3. Describe the portal circulation and state how it is connected with the systemic.
4. What is Poupart's ligament? State origin and insertion, and the structures which pass under it.
5. Describe a muscle fiber. Name three parts of the body in which unstriped muscle is found.
6. State origins of vertebral, internal mammary, and basilar arteries.
7. Name the largest cranial nerve. How many roots has it, and what is its superficial origin? Why is it called a compound nerve?
8. Make a diagram of the second nerve. What is its exclusive distribution?
9. Locate and give the gross anatomy of the medulla oblongata.
10. Oral examination.

PHYSIOLOGY AND HYGIENE.

1. State the functions of the fifth nerve.
2. Trace the nervous path in case of reflex action. Is walking a reflex?
3. What is the purpose of the Haversian canals? What is the function of the marrow and the periosteum?
4. Name and locate the valves of the heart and state their functions. What is the velocity of the blood current?
5. When food of various types is digested, where and in what way does it enter the blood stream?
6. Describe the phenomena which occur when muscle is in a state of activity.
7. What objections may be given to heating dwelling rooms by direct radiation from stoves and from steam or hot water pipes? What would you recommend as a substitute?
8. What conditions tend to prolong the life of a bacillus outside of the body?
9. Mention diseases where germs are carried by water; also by air.
10. Oral examination.

PATHOLOGY AND BACTERIOLOGY.

1. Differentiate death by drowning and death by strangulation.
2. Name and describe five abnormal constituents of urine which signify disease. How are they determined?
3. State pathological conditions for relief of which diuretics are generally administered.
4. Describe a tubercle. What is its origin and what tissues are most frequently invaded by it?
5. Give the pathology of the initial, the secondary, and the tertiary stages of syphilis.
6. Why does metastasis in carcinoma occur through the lymphatic system and sarcoma through the venous system?
7. What classification is made of bacteria based on the shape of the individuals?
8. What classification of the cocci, based on the arrangement of the individuals composing the groups, can you mention?
9. What bacterium is associated generally with specific urethritis? How may it be determined?
10. State the pathology of hydrocele.

DIAGNOSIS AND THERAPEUTICS.

1. What is glaucoma? Discuss symptoms and treatment.
2. Define and differentiate hallucinations, delusions, and illusions.
3. Describe paralysis agitans. Give etiology and prognosis.
4. Describe characteristic findings in the urine in a case of acute nephritis.
5. Give the symptoms indicating intestinal perforation in typhoid fever. What treatment may avail?
6. Outline the treatment of a case of diphtheria by the use of antitoxin. What is the principle upon which the antitoxin treatment is based?
7. How should an abscess of the middle ear be treated? What serious complications may arise from such an abscess?

8. What are the indications and contraindications as to the use of digitalis as a cardiac stimulant?

9. Differentiate diabetes mellitus and diabetes insipidus. What treatment does the latter demand?

10. What is the significance of the patellar reflex as indicative of disease?

PEDIATRICS AND TOXICOLOGY.

1. Symptoms and treatment of tuberculosis of the nose; also of the eye and of the ear.

2. Describe tuberculosis of the lymphatic glands and outline treatment.

3. State the nature, symptoms, course, and treatment of Pott's disease.

4. Describe scabies. How would you treat a well developed case?

5. Describe and differentiate pemphigus and varicella.

6. Describe catarrh of the middle ear; etiology, symptoms, course, and treatment.

7. Arriving within five minutes after your patient has swallowed a 2-ounce solution containing 5 to 8 grains of cocaine hydrochlorate, in what condition would you expect to find him, and what would you do for him?

8. Arriving an hour after your patient had taken cocaine as mentioned in question 7, in what condition would you expect to find him, and what would you do for him?

9. State in detail what you would consider the most efficient treatment, when promptly administered, for a patient who has swallowed a dangerous dose of carbolic acid? Should the treatment be delayed for half an hour to an hour after ingestion of the dose, what would be your treatment?

10. In what manner does death ensue in poisoning by hydrocyanic acid, by aconite, by morphine, by atropine, by strychnine?

SURGERY.

1. Give etiology, symptoms, and treatment of empyema. State usual results when not treated.

2. Differentiate chancre and chancroid, and state treatment for each.

3. State the symptoms of fracture of both bones of the forearm in their middle third. How would you treat a case?

4. State the causes of nonunion in bone fractures. What should be the treatment in such cases?

5. Differentiate piles, fistula, and fissure. Treat the last.

6. Discuss ascites—causes, differential diagnosis, and treatment.

7. Give the symptoms of renal calculus. State cause and treatment during an attack, and also treatment in the interval between attacks.

8. State the diagnostic points in prostatic hypertrophy. Give palliative treatment.

9. Define psoas abscess. What is the nature of its fluid? What can you say as to its treatment?

10. Oral examination.

OBSTETRICS AND GYNECOLOGY.

1. Discuss the conditions which may render anesthesia advisable during labor. What anesthetic would you use, and how would you administer it?

2. Define second stage of labor and state the conditions which may cause delay of delivery in this stage, and how such conditions should be managed.

3. Describe toxemia as noted in pregnancy, and state measures of prevention and of alleviation.

4. Define endometritis and state cause, symptoms, and treatment.

5. Should the head of the child fail to enter the pelvic brim, how would you conduct your case of labor?

6. Mention not less than four conditions liable to cause prolapse of the cord, and outline the treatment for any one condition mentioned.

7. Differentiate the uterus of a virgin and that of a multipara, as observed in post-mortem examination.

8. Discuss possible injuries to the birth-canal incident to labor. How and when are they best discovered, and state how they should be treated.

9. How can you differentiate uterine and vaginal leucorrhea?

10. Discuss gonorrhea in women—symptoms and far-reaching results.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE.

March 7, 1910.

ANATOMY AND HISTOLOGY.

1. For *arrangement of dura*, see Cunningham's "Anatomy" (1909), page 597; or Gray's "Anatomy" (1908), page 972. The *function of the dura* is protection: It forms the internal periosteum of the skull, it forms three partitions for the support of the parts of the brain, it forms sinuses or venous channels for the return of the blood from the brain, and it forms sheaths for the nerves as they leave the skull.

2. See Cunningham's "Anatomy" (1909), page 1051; or Gray's "Anatomy" (1908), page 1277.

3. See Cunningham's "Anatomy" (1909), page 1120; or Gray's "Anatomy" (1908), page 768.

4. Poupart's ligament is formed by the lower border of the aponeurosis of the external oblique muscle; it extends from the anterior superior spine of the ilium to the spine of the pubes. The anatomical structures which lie beneath Poupart's ligament are (from without inward): External cutaneous nerve, Iliacus, anterior crural nerve, Psoas, femoral artery, femoral vein, femoral ring.

5. See Gray's "Anatomy" (1908), page 364. Three places in which unstriped muscle is found: Arteries, stomach, intestines.

6. Vertebral artery is from subclavian artery; internal mammary artery is from subclavian artery; basilar artery is from two vertebral arteries.

7. The largest cranial nerve is the fifth, or trigeminal. It has two roots. Its superficial origin is from the side of the pons Varolii, nearer to the upper than the lower border. It is called a compound nerve because it contains both motor and sensory fibers.

8. See Cunningham's "Anatomy" (1909), page 676; or Gray's "Anatomy" (1908), page 1038. It is distributed exclusively to the retina.

9. See Cunningham's "Anatomy" (1909), page 481; or Gray's "Anatomy" (1908), page 874.

PHYSIOLOGY AND HYGIENE.

1. THE FUNCTIONS OF THE FIFTH CRANIAL NERVE. *First ophthalmic branch* supplies sensation to conjunctiva and skin of upper eyelid, cornea, skin of forehead and nose, lacrymal glands, mucous membrane of nose. *Second, or superior maxillary branch*, supplies sensation to skin and conjunctiva of lower lid, nose, cheek, upper lip, upper teeth and alveolar processes, and palate. *Third, or inferior maxillary branch*, supplies sensation to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower teeth, lower lip, and skin of the lower part of the face. This branch, in addition, supplies motion to the muscles of mastication (Masseter, Temporal, External, Pterygoid, Internal Pterygoid), also mylohyoid, and anterior belly of digastric.

2. *Reflex actions* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve. Reflexes are classified as: (1) Superficial, (2) deep, and (3) visceral. *Example:* The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendons, afferent or sensory nerve, pulsterior roots, and anterior horn of the spinal cord; the efferent or motor nerve, and the muscle itself. Strictly speaking, *walking* is primarily a voluntary act; but practically it may be considered as a reflex.

3. *The Haversian canals* serve to conduct arteries, veins, lymphatics, and nerves to and from the bone substance. The *marrow* supports the blood-vessels, is concerned in the formation of bone, also nourishes spongy bone, and forms red blood corpuscles. The *periosteum* acts as a protection to the bone; also generates bone, aids in the repair of bone, and takes part in the nourishment of bone.

4. *The valves of the heart* are: In the *right auricle*, the Eustachian and coronary valves; the former is situated between the anterior margin of the inferior vena cava and the auriculoventricular orifice. In the fetus it directs

the blood from the inferior vena cava through the foraman ovale into the left auricle; the coronary valve prevents the regurgitation of the blood into the coronary sinus during the auricular contraction. In the *right ventricle* are the tricuspid and semi-lunar valves; the former prevents the blood in the right ventricle from flowing back into the right auricle during ventricular cystole; the latter guards the orifice of the pulmonary artery. In the *left ventricle* are the mitral and semi-lunar valves; the former acts similarly to the tricuspid; the latter guards the orifice of the aorta. Aortic valves, behind the third intercostal space, close to the left side of the sternum. Pulmonary valves, in front of the aortic, behind the junction of the third rib, on the left side, with the sternum. Tricuspid valves, behind the middle of the sternum, about the level of the fourth costal cartilage. Mitral valves, behind the third intercostal space, about one inch to the left of the sternum. *The velocity of the blood current* is about one foot per second in the arteries; about one inch per minute in the capillaries; and about eight inches a second in the veins. The complete circulation around the body is said to occupy a little less than half a minute.

5. The products of digestion find their way into the blood by two routes: (1) By the blood-vessels of the gastrointestinal tract, which unites to form the portal vein, and (2) by the lymph vessels of the small intestines, which converge to empty into the thoracic duct. The water, inorganic salts, proteids, and sugar go by way of the portal vein to the ascending vena cava; and the fats go by way of the thoracic duct to the junction of the left subclavian and internal jugular veins.

6. *When a muscle is in a state of activity:* (1) It becomes shorter and thicker, but (2) there is no change in volume; (3) there is an increased consumption of oxygen; (4) more carbon dioxide is set free; (5) sarcolactic acid is produced; and hence (6) the muscle becomes acid in reaction; (7) it becomes more extensible, and (8) less elastic; (9) there is an increase in heat production and consequently a rise of temperature; (10) the electrical reaction becomes relatively negative; and (11) a sound is produced.

7. The objection to *stoves* is that the air gets dry and unpleasant, the air is thus often hotter than the walls and floor, and so chills are produced; the presence of carbon dioxide is often noted. *Steam or hot-water pipes* are about as good a method of heating a house as any known.

8. *Conditions that tend to prolong the life of a bacillus outside of the body:* Moisture, rest, moderate warmth, dim light, alkaline medium, and suitable nourishment.

9. Diseases whose germs are carried *by water:* Typhoid, cholera, dysentery, sometimes diphtheria; germs are carried *by air:* Tuberculosis, scarlet fever, measles, smallpox, pneumonia, influenza, diphtheria, and erysipelas.

PATHOLOGY AND BACTERIOLOGY.

1. *In death by drowning:* The surface is pallid, the face appears tranquil, the eyes and mouth being partly open. The skin often has the appearance known as gooseskin, and, if the body has lain upwards of twelve hours in the water, that of the hands and the feet is sodden by imbibition. The most important external sign is the presence on the mouth and nostrils of a fine froth (possibly blood stained), composed of air, mucus, and the medium in which drowning took place; if the body remains three or four days in water, the froth disappears. Exceptionally, fragments of weeds or other small objects may be found tightly grasped in the hands. On opening the thorax the lungs, gray in color, with reddish staining, are seen to be very voluminous, a condition known as ballooning, partly due to infiltration of the lung tissue with some of the medium in which drowning took place, and partly to true edema. The lung substance is inelastic and pits on pressure. On section, fluid and froth resembling that found on the lips exude from the divided air passages. Minute subpleural hemorrhages are not infrequently present, and the pleural cavities may contain fluid. The stomach often contains water or other liquid which was involuntarily swallowed during attempts at respiration. Occasionally some of this fluid is forced by vital action into the intestines. With one exception, the remaining appearances are those met with after death from asphyxia. The exception is constituted by the blood, which is not only dark colored and fluid, as is usual after death from asphyxia, but is also diluted by the imbibition of water from the stomach and lungs.

In death by strangulation: The blood is of a dark color, owing to complete reduction of the hemoglobin. The proportion of carbonic acid is increased, and owing to its excess the blood coagulates slowly or imperfectly; hence it remains fluid or forms few and soft coagula. The large veins, the pulmonary artery, and the cavities of the right side of the heart may be distended with dark fluid blood, but this is by no means necessarily the case. The left side is usually empty or nearly so. The lungs may be congested, but are often pallid and anemic, though the dependent parts usually exhibit appearances of hypostatic engorgement. The abdominal viscera, especially the kidneys, are often congested. The appearance of the brain varies; it may be anemic or more or less congested. Special signs characterize special modes of causation of asphyxia. Very commonly punctate ecchymoses are visible on the conjunctiva, face, neck, and chest. They are considered by Tardieu to be more frequent in strangulation than in asphyxia from other causes, or than in cases of overstraining, which likewise may lead to them. In the subcutaneous cellular tissue, and in the fascia of the muscles above and below the hyoid bone extravasations are frequently found, as well as on the external surface of the thyroid cartilage and trachea. The lungs vary as regards their vascularity; but on the surface it is common to find pseudomembranous patches, which are due to the rupture of some of the superficial air cells and collection of air bubbles under the pleura. In the substance of the lungs congested patches, or apoplectic extravasations, are often found, varying in size, but larger than those usually found in suffocation.—(From Quain's *Dictionary of Medicine.*)

2. Five abnormal constituents: Albumin, sugar, blood, bile pigment, and excess of indican.

Test for *albumin:* The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture and again filtered. The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3.

Test for *sugar:* Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test tubes. To one test tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color.

Test for *blood:* To the urine add a solution of potassium hydroxide to distinct alkaline reaction; heat nearly to boiling (do not boil). A red precipitate is produced.

Test for *bile pigment:* Put 3 c.c. HNO_3 in a test tube, add a piece of wood, and heat until the acid is yellow; cool. When cold, float some of the urine to be tested upon the surface of the acid. A green band is formed at the junction of the liquid, which gradually rises, and is succeeded from below by blue, reddish-violet, and yellow.

Test for *indican:* The urine is mixed with one-fifth its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chloride, a few drops of chloroform are added, and the mixture strongly shaken one to two minutes. With normal urine the chloroform remains colorless, or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess.

3. *Indications for the use of diuretics:* (1) To remove excessive fluid from the tissues, as in dropsy; (2) to dilute the urine; (3) to promote the elimination of waste products, or poisonous material from the blood; and (4) to maintain the action of the kidneys.

4. A *tubercle* is a small nodule, found in the lungs, etc., in cases of tuberculosis, but also found in other diseased conditions. It consists of three layers, the outer one consisting of lymphoid cells, the middle one of epithelioid cells, and the inner one of giant cells. These layers are squeezed or compressed into a firm mass, which may caseate or undergo other pathological processes. There is no blood supplied to a tubercle. Its *origin* is due to the stimulating or irritating effects of the tubercle bacillus upon the fixed connective tissue elements, causing a round-cell proliferation. The *tissues most frequently invaded by it* are: Lungs, lymphatic glands, bones, joints, intestinal tract, peritoneum, skin, testicle, epididymis, brain, liver, kidneys, spleen, Fallopian tubes, ovaries, uterus.

5. See French's "Practice" (1907), page 420; or Osler's "Practice (1909), page 267; or Rose and Carless' "Surgery" (1908), pages 144, 148, and 151; or Da Costa's "Surgery" (1908), pages 276, 279, and 284.

6. In carcinoma lymphatics are found in the stroma, which abounds; in sarcoma there are no lymphatics, but the blood vessels are in direct contact with the tumor cells.

7. Bacteria are classified as follows: (1) the coccus, which is spherical; (2) the bacillus, which is rod-shaped; and (3) the spirillum, which is spiral.

8. Cocci are classified as follows: Diplococci, occurring in pairs; sarcinæ, occurring in bales; streptococci, occurring in chains; and staphylococci, occuring in bundles.

9. The bacterium generally associated with specific urethritis is the gonococcus of Neisser. The gonococcus is a diplococcus, and is recognized by staining with the ordinary aniline dyes, being found inside the pus cells; it is Gram negative, and can be cultivated on human blood serum, but will not grow on the ordinary culture media.

10. See Rose and Carless' "Surgery" (1908), page 1265.

DIAGNOSIS AND THERAPEUTICS.

1. *Glaucoma* is a diseased condition of the eye, produced by increased intraocular pressure, and resulting in excavation and atrophy of the optic disc, and blindness. It is due to increase of the contents of the eye, hypersecretion, retention, old age, gout, rheumatism, nephritis. *Symptoms:* Visual disturbances, increased ocular tension, hazy and anesthetic cornea, sluggish and dilated pupil, shallow anterior chamber, ciliary neuralgia, cupping of optic disc, blindness. *Treatment:* Myotics, such as eserine or pilocarpine; massage of the eyeball; mydriatics are contraindicated; operative treatment may include paracentesis, iridectomy, or sclerotomy.

2. A *delusion* is a belief in something which has no real existence, but is purely imaginary, and out of which the person cannot be reasoned. An *illusion* is a false or perverted impression, received through one of the senses. An *hallucination* is the same as an illusion, but without any material basis.

If an individual believes himself to be made of glass, and is afraid of being touched lest he be broken, he is suffering from a *delusion*. If the whistling of the wind is mistaken for a voice telling a person to do a certain thing, that would be an *illusion*. If a person fancied he heard a voice when there was nothing at all to be heard, that would be an *hallucination*.

3. See French's "Practice" (1907), page 1114; or, Osler's "Practice" (1909), page 1042.

4. See French's "Practice" (1907), page 893; or, Osler's "Practice" (1909), page 688.

5. *Intestinal perforation in typhoid fever:* Sometimes there is severe, sudden pain localized in the abdomen, and sometimes there is little or no pain. Marked tympanites, great weakness, collapse, anxious look, small, rapid pulse, and difficult breathing are present. The legs are apt to be drawn up, and nausea and vomiting may ensue. Hepatic and splenic dullness appear, and leucocytosis may be present. The treatment is surgical; laparotomy, with suture of the intestine, should be done as soon as possible. In the meantime opium (or preferably morphine) should be administered.

6. See French's "Practice" (1907), page 196; or, Osler's "Practice" (1909), page 209.

7. *Treatment of abscess of the middle ear:* Leeches, free incision followed by boric acid irrigation or by insufflation of dry boric acid powder. *Complications that may arise:* Eczema, boils, arthritis of temporo-maxillary joint, ankylosis or necrosis of the ossicles, facial paralysis, mastoiditis, subcranial abscess, meningitis, thrombosis of the lateral sinus, cerebral abscess.

8. Digitalis is *indicated* in diseases of the heart: (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in non-valvular cardiac affections; (4) in irritable heart, due to nerve exhaustion. Digitalis is *contraindicated* in diseases of the heart: (1) in aortic lesions when uncombined with mitral lesions; (2) when the heart action is strong and arterial tension is high.

9. See French's "Practice" (1907), pages 935, 947, and 949; or, Osler's "Practice" (1909), pages 408, 424, and 425.

10. The *patella reflex* is nearly palways *present* in health, and denotes a healthy condition of the entire reflex arc (tendon, afferent or sensory nerve, posterior roots and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself). It is *absent* when there is a lesion which affects any part of this reflex are, such as is the case in locomotor ataxia, poliomyelitis, Landry's paralysis, neuritis, in apoplexy just after the shock, and in epilepsy following the convulsion, etc. It is *exaggerated* in: Hemiplegia, lateral sclerosis, general paresis, transverse myelitis, injuries to the spinal cord, hysteria, neurasthenia, tetanus, and strychnine poisoning.

PEDIATRICS AND TOXICOLOGY.

1. TUBERCULOSIS OF THE NOSE: "Tuberculosis of the nose is characterized by the formation of neoplasms or ulceration of the mucous membrane, and often accompanies a general pulmonic tuberculosis. *Symptoms:* In the ulcerated form there is an accumulation of crusts which are blown from the nose. There may be more or less stoppage of the nose, perforation of the septum, and nasal catarrh. In the neoplastic form, there is nasal obstruction and symptoms of hypertrophic catarrh. *Treatment:* In the necrotic form of the disease the nose should be sprayed twice daily with a mild alkaline spray, followed by an oil spray containing acetozone. Small papilla-like growths may be destroyed with the galvano-cautery or removed with snare and scissors. It is advisable to refrain as far as possible from surgical procedure in the nasal cavity in a general tuberculosis. The general treatment is directed to combating the tubercular infection by tonics, sunshine, and outdoor life."

TUBERCULOSIS OF THE EAR. "*Symptoms:* The ear symptoms frequently appear after the lung complications are established. There may be tinnitus, followed by deafness and painless rupture of the drum, and a thin mucous or mucopurulent discharge. On the other hand, the symptoms may vary in no wise from simple acute otitis media. *Treatment:* The surgical treatment is the same as for acute or chronic otitis media. Outdoor exercise and nutritive diet are especially essential."—(J. J. Kyle's *Manual of Diseases of the Ear, Nose, and Throat.*)

TUBERCULOSIS OF THE EYE. "*Tuberculosis of the conjunctiva:* A rare condition, most frequently associated with lupus of the skin of the face. It is characterized by large, soft granulations in the fornices, studded with miliary tubercles. Usually there is some infiltration of the sclerocorneal margin and of the cornea, so that vision is reduced. *Treatment* is best effected by thorough removal of the granulations by scraping and subsequent insufflation with iodoform." *Tubercular iritis: Symptoms:* "This is most frequently seen in children and young adults. It is of a quiet, painless, and chronic type. Miliary tubercles are to be seen in the iris—small grayish nodules, with a few pink vessels about them. They usually appear at the root of the iris, close into the angle of the anterior chamber, but may affect the border of the iris. Spots of lymph of large size, like spots of mutton fat, may be seen on the back of the cornea, indicating cyclitis. In other cases these symptoms may be complicated by a sclerokeratitis. These are of a more severe order, and shrinkage of the eyeball may result. The diagnosis of tubercle is not easy. We may exclude syphilis by history, by the balance of the symptoms, and by the response to treatment. The reaction to injection of Koch's tuberculin or the newer ophthalmoreaction of Calmette may be utilized, or the aqueous may be tapped and inoculated into rabbits."—(*Aids to Ophthalmology.*)

2. *Tuberculosis of the lymphatic glands* occurs most commonly in people under twenty years of age; hereditary disposition and lowered vitality are predisposing factors. The tubercle bacilli reach the glands either by the blood or lymph or through mucous membrane. The glands are enlarged and firm; later they run together and caseate and frequently suppurate. Later still periadenitis fixes the mass to the deeper structures and to the skin. Still later the abscess bursts on the surface, leaving one or several openings and discharging pus for a long time. *Treatment:* Improve the general health by fresh air, sunshine, arsenic, cod liver oil, iron, and good nourishing food. The gland or whole glandular chain may be dissected out in cases where periadenitis is present. Where there is an unopened abscess, either excise and drain or dissect out.

3. See Rose and Carless' "Surgery" (1908), page 718; or, Da Costa's "Surgery" (1908), page 747.

4. *Scabies* is a contagious, animal, parasitic disease, due to the *Sarcoptes scabiei*, characterized by burrows and a multiform eruption, and attended by severe itching. The eruption usually occupies certain areas where the skin is thin; these are the interdigital spaces, the flexor surface of the wrist and arm, the anterior and posterior axillary folds, the mammæ and nipples (in women), the umbilicus, the buttocks, the penis, the inner side of the thighs and legs, and the toes. The face is exempt except occasionally in infants. The itching is intense and worse at night. The affection is curable, but dermatitis may result from overtreatment. *Treatment* consists in a thorough scrubbing with soap and warm water, followed by friction to dry the skin, and the application of sulphur ointment, the latter to be repeated morning and night for three days. The whole process may need to be repeated one or more times.

5. *Pemphigus* is an acute or chronic inflammatory dis-

ease of the skin, characterized by the formation of successive crops of variously sized, rounded or oval bullæ affecting seriously the general health and sometimes terminating fatally. The blebs of pemphigus are tense, abruptly elevated, noninflammatory, and come out in crops. For *Varicella*, see French's "Practice" (1907), page 313; or, Osler's "Practice" (1909), page 128.

6. "*Acute catarrhal otitis media* is frequently caused by acute coryza and the infectious fevers. There is a painless obstructed sensation in one or both ears, impairment of hearing, and tinnitus. The inflammation causes closure of the Eustachian tube. Inflation and aspiration of the middle ear and syringing and douching the nares and nasopharynx must be avoided. A moderate spray of Dobell's solution may be used. If pain is present, dry heat, in the form of hot-water bottle, hot stone wrapped in flannel, etc., may be applied. A few drops (100), warmed, of a carbolic acid solution (1:40), or one of formalin (1:2000), may be instilled into the ear.

"*Acute purulent otitis media:* Acute catarrhal otitis media, instead of undergoing resolution, may pass into acute purulent otitis media (especially in exanthemas) from the passage of pathogenic germs from the nasopharynx into the middle ear. The pain will become more intense, the hearing dull; tinnitus will become louder and more distressing, and fever usually sets in. Dry heat allays the pain. Warmed water or warmed carbolic acid solution (1:40) may be used. Inflations, aspirations, etc., should be avoided. If the nares are filled with tough secretions, a spray of Dobell's solution may be used. If the pain continues over six hours in a child or over twelve hours in an adult without spontaneous perforation of the tympanic membrane, paracentesis of that structure should be performed. The concha and meatus should be smeared with petrolatum to avoid chapping, and the secretions should be gently mopped off as they appear. Under this treatment the ear usually returns to normal in two to three weeks." (Gould and Pyle's *Pocket Cyclopedia of Medicine and Surgery.*)

7. The patient will probably be found with pulse increased in frequency and fulness; the respirations more rapid, much general nervous excitement, and general hyperesthesia. Empty the stomach, give stimulants; adrenalin is said to be antagonistic; nitroglycerine, amyl nitrite, ammonium carbonate and strychnine, and caffeine have all been recommended. Artificial respiration may be necessary; mustard plaster over the heart and stomach may give relief.

8. The patient is now probably in the stage of depression, with shallow breathing, rapid heart action, and pale or cyanotic face. Chloroform or ether may be given subcutaneously, and the measures mentioned in question 7 may be adopted.

9. Alcohol (four to eight ounces of whiskey) followed by water is probably the best treatment when seen immediately. Later on some soluble sulphate, such as sodium sulphate or magnesium sulphate, is the proper treatment.

10. In *poisoning* by *hydrocyanic* acid, death is probably due to asphyxia; by *aconite*, to asphyxia; by *morphine*, usually to paralysis of respiration, occasionally to paralysis of the heart; by *atropine*, to paralysis of respiration; by *strychnine*, to fixation of respiratory muscles.

SURGERY.

1. See Rose and Carless' "Surgery" (1908), page 926; or, Da Costa's "Surgery" (1908), page 773.

2.

CHANCRE	CHANCROID
First lesion of a constitutional disease, viz., syphilis.	A local disease.
Due to syphilitic infection.	Due to contact with secretion from chancroid.
Generally a venereal infection.	Always a venereal infection.
May occur anywhere on the body.	Nearly always on genitals.
Period of incubation never so short as ten days.	Period of incubation always less than ten days (generally about three).
Generally single.	Generally multiple.
Not autoinoculable.	Autoinoculable.
Secretion slight.	Secretion profuse and purulent.
Slightly or not at all painful.	Generally painful.
As a rule only occurs once in any patient.	May reoccur in same patient.
Buboes are painless and seldom suppurate.	Buboes are painful and usually suppurate.

For treatment, see Rose and Carless' "Surgery" (1908), pages 157 and 141; or, Da Costa's "Surgery" (1908), pages 288 and 1180.

3. Rose and Carless' "Surgery" (1908), page 526; or, Da Costa's "Surgery" (1908), page 505.

4. *Nonunion of fracture is caused by:* Ill health, want of approximation of the end of the bone, want of blood supply in the bone, defective innervation of the bone, disease of the bone, lack of rest, and immobility. *Treatment:* "When delayed union exists, seek for a cause and remove it, treating constitutionally if required and thoroughly immobilize the parts by plaster. Orthopedic splints may be of value. Use of the limb while splinted, percussing over the fracture, and rubbing the fragments together, thus in each case producing irritation, have all been recommended. Blistering the skin with iodine or firing it has been employed. If the case be very long delayed, forcibly separate the fragments and put in plaster as a fresh break. If these means fail, irritate by subcutaneous drilling or scraping, or, better, by laying open the parts and then drilling and scraping at many places."

5. Rose and Carless' "Surgery" (1908), pages 1134, 1137, and 1148; or, Da Costa's "Surgery" (1908), pages 1009 and 1012.

6. Ascites is *caused* by: Mechanical obstruction of the portal circulation; cardiac or pulmonary diseases obstructing the general venous circulation; diseases of the peritoneum; diseases of the kidneys; anemia, debility, exposure to cold or wet; cancer, syphilis. *Symptoms:* Generally of gradual onset; abdominal distention, sense of weight and fulness; dyspnea; gastrointestinal disturbances; lineæ albicantes, presence of fluid may be detected by palpation, percussion, or aspiration. If due to heart or lung disease ascites will occur elsewhere, and the legs are generally affected first; in hepatic disorders the abdominal distention is marked, and appears early; in renal disease the abdominal fluid is generally small in amount. *Treatment:* Tapping, drainage, incision, and administration of cathartics have all been recommended. Ovarian tumor, pregnancy, distended bladder, pancreatic cyst, and echinococcus cyst may be mistaken for it. *Ascites is characterized by:* Enlargement of the abdomen, most marked in the flanks when the patient is lying on his back, and in the hypogastrium, when he is standing up; there are dilated superficial veins on the abdomen, and the skin is tense; the umbilicus is prominent; there are fluctuation and vibration on palpation; dulness is found on percussion over the fluid, while the center of the abdomen is resonant.

7. Rose and Carless' "Surgery" (1908), page 1173; or, Da Costa's "Surgery" (1908), page 1110.

8. *Prostatic hypertrophy is characterized by:* Slowness in starting urination; difficult micturition; frequency of micturition, particularly at night; the presence of residual urine; dull, aching pain in the perineum and above the pubes; enlargement of the lateral lobes of the prostate; there may be cystitis and retention of urine. The *cause*: It is a senile change, and may be due to increase of the glandular substance or of the interstitial fibrous or muscular tissue. *Palliative treatment* consists in: Mild and unirritating diet, avoidance of alcohol, taking plenty of milk or water, or other diluent. Alkalies and sedatives should be taken, also urotropin or other antiseptic so as to prevent cystitis. Regular catheterization, at least once a day, preferably in the evening, and with due aseptic precautions.

9. Rose and Carless' "Surgery" (1908), pages 723 and 730; or, Da Costa's "Surgery" (1908), pages 151 and 156.

OBSTETRICS AND GYNECOLOGY.

1. See Williams' "Obstetrics" (1909), page 321; or, Hirst's "Obstetrics" (1909), page 320.

2. The second stage of labor begins when the os is fully dilated, and terminates with the expulsion of the child. Conditions which may cause delay are rigidity, edema, atresia, or displacement of the os or cervix; fibrous bands or atresia of vagina; persistent hymen; unyielding perineum; tumors; distended bladder or rectum; hernia; edema of labia; pelvic deformities; malpositions or malpresentations of the fetus; prolapse of limbs; short cord; large fetus; dead fetus; twins or monstrosities; uterine inertia; rupture of uterus.

3. Williams' "Obstetrics" (1909), page 507; or, Hirst's "Obstetrics" (1909), page 263.

Preventive treatment: (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3)

the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ. *Curative treatment* includes: (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

4. *Endometritis* is inflammation of the mucous membrane lining the uterus. The acute form is due to the introduction of septic bacteria, and is manifested by pain, constipation, irritability of bladder, rapid pulse, rise of temperature, and a profuse discharge. *Treatment* following miscarriage or labor consists in curettage, intrauterine hot sterile douche, free purgation, hot stupes over the lower abdomen, milk diet and stimulants. Chronic endometritis may accompany numerous pathological uterine conditions, but is generally due to gonorrhea. The symptoms are backache, headache, leucorrhea, profuse menstruation, and impairment of the general health. *Treatment* consists in removing the cause when possible, and when due to gonorrhea curettage and irrigation of the uterus, with the application of an antiseptic.

5. See Williams' "Obstetrics" (1909), page 737.

6. See Williams' "Obstetrics" (1909), page 842; or, Hirst's "Obstetrics" (1909), page 625.

7.

VIRGIN UTERUS	UTERUS OF MULTIPARA
The cavity is of normal length and triangular.	The cavity is increased in length, and oval.
The cervix is small, hard, and cartilaginous, and of the same length as the body.	The cervix is large and soft; it is about one-half the length of the body.
The external os is a transverse slit or pinhole orifice with smooth edges.	The external os is irregular and its edges are fissured.
The sides of the cavity of the body are convex inward.	The sides of the cavity of the body are convex outward.
The uterus is normally anteflexed.	The uterus is straighter, or even retrodisplaced.
There is more or less flattening of the anterior and posterior uterine surfaces.	The contour of the uterus is more rounded, while its diameters are increased.
The fundus is nearly flat.	The fundus is convex.
The internal os is closed.	The internal os is patulous.

(From Dorland's *Obstetrics.*)

8. "Tears of the perineum destroy the integrity of the pelvic floor and result eventually in rectocele, cystocele, hemorrhoids, and displacements of the pelvic organs. If the tear involves the sphincter ani, incontinence also results. Lacerations of the cervix retard or check involution of the uterus and predispose to endometritis, menorrhagia, displacements, eversion of the cervical mucous membrane, cystic degeneration, and malignant disease. Deep lacerations of the vaginal vault may open into the base of the broad ligaments, and in the majority of instances genitourinary fistulas are caused by traumatisms of labor. All lacerations are immediately dangerous on account of the increased liability to sepsis, while the remote results are generally due to interference with involution or the pelvic circulation and to the destruction of the normal supports of the pelvis."—(Ashton.)

All tears should be repaired as soon as possible (unless there are contraindications). A primary operation is best because the edges are fresh and can be approximated; little (if any more) anesthetic is wanted; the woman has to lie in bed, and therefore only one absence from household work is requisite; infection is less likely. In any case, operation may prevent rectocele, cystocele, prolapse of uterus, and general weakness, malaise, and disability. For technique, see any text-book on obstetrics or gynecology.

9. Leucorrhea from the vagina is whitish in color, of a creamy consistency. When from the body of the uterus it is a thin, clear, watery, colorless fluid. From the cervix it is a clear, transparent, tenacious, glairy fluid, like white of egg. By means of a speculum the discharge can be seen coming from the uterus in the two latter conditions.

10. *Symptoms:* Pain and burning in the vulva and on micturition; dyspareunia; yellowish or greenish discharge containing the gonococcus; the vagina is hot, red, swollen, and tender. *Possible results:* Cystitis, urethritis, vulvitis, endometritis, salpingitis, septic peritonitis, sterility, condylomata of vulva, abscess of Bartholin's glands.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of April 16, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	1,317	192
Diptheria	541	58
Measles	1,623	32
Scarlet Fever	702	32
Smallpox	—	1
Varicella	146	—
Typhoid Fever	35	10
Whooping Cough	58	13
Cerebrospinal Meningitis	4	6
Malarial Fever	—	—
Totals	4,426	344

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 15, 1910:

CHOLERA

		CASES	DEATHS
Java, Batavia	Feb. 20–26	1	1
Samarang	Feb. 20–26	20	15
India, Bombay	Mar. 2–8	..	1
Calcutta	Feb. 13–26	..	75
Philippine Islands:			
Manila	Feb. 13–19	2	2
Provinces—			
Bataan	Feb. 13–19	..	3
Bohol	Feb. 13–19	2	2
Cavite	Feb. 13–19	2	2
Misamis	Feb. 13–19	2	7
Pampanga	Feb. 13–19	19	12
Russia, Novotscherkask	Mar. 18	2	2

YELLOW FEVER

Brazil, Para	Mar. 13–26	21	17
Ecuador, Babahoyo	Mar. 1–15	1	1
Guayaquil	Mar. 1–15	20	9
Venezuela, La Guayra	Mar. 1–15	3	3

PLAGUE

Brazil, Bahia	Feb. 12–18	1	1
Pernambuco	Jan. 16–Feb. 15	..	3
Ecuador, Guayaquil	Mar. 1–15	12	3
Milagro	Mar 1–15	2	2
Egypt, Alexandria	Mar. 12	1	..
Provinces—			
Assiout	Mar. 11–16	8	4
Fayoum	Mar. 11–15	3	3
Garbieh	Mar. 14	1	..
India, Calcutta	Feb. 13–26	..	41
Bombay	Mar. 2–8	..	121
Russia, Libau	Mar. 19–25	6	..
Turkey in Asia, Jiddah	Mar. 14–19	11	10

SMALLPOX

Abyssinia, Adis Ababa	Feb. 20–26	..	Present
Arabia, Aden	Feb. 15–21	..	1
Brazil, Bahia	Feb. 12–18	42	31
Pernambuco	Jan. 16–Feb. 15.	..	150
China, Hankow	Feb. 13–19	1	..
Nankin	Feb. 13–26	..	Prevalent
Swatow	April 6	..	Epidemic
Egypt, general	Feb. 5–18	187	37
Cairo	Mar. 5–11	3	..
France, Paris	Mar. 13–19	10	..
Great Britain, Halifax	April 16–22	1	..
Greece, Athens	Feb. 28–Mar. 12.	..	2
Hawaii, Honolulu	April 9	1	..
On S. S. Manchuria from Orient.			
India, Bombay	Mar. 2–8	..	53
Calcutta	Feb. 13–26	..	5
Madras	Feb. 26–Mar. 4..	..	2
Italy, general	Mar. 14–20	8	..
Naples	Mar. 14–20	25	1
Japan, Formosa	Feb. 20–Mar. 5..	47	3
Mexico, Aguascalientes	Mar. 13–26	..	5
Persia, Enzeli	Jan. 9–Feb. 2..	..	Present
Kasbin	Jan. 5–Feb. 3..	..	Present
Laristan	Dec. 9–15	..	Present
Mohammerah	Jan. 9–Feb. 2..	..	Present
Philippine Islands, Manila	Feb. 13–19	15	..
Portugal, Lisbon	Mar. 13–19	13	..
Russia, Odessa	Mar. 6–19	87	13
Riga	Mar. 6–19	7	..
St. Petersburg	Feb. 28–Mar. 12.	95	19
Saratov	Mar. 19–25	..	Epidemic
Siberia, Vladivostok	Feb. 6–13	1	..
Spain, Valencia	Mar. 13–19	2	..
Vigo	Mar. 13–19	..	1
Turkey in Asia, Bagdad	Feb. 20–26	..	Present
Venezuela, La Guayra	Mar. 1–15	1	..

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Original Articles.

THE ALCOHOL-INJECTION TREATMENT OF TRIFACIAL NEURALGIA.

WITH REPORT OF CASES.

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Of all the peripheral nerves the trifacial, or its branches, is most frequently the seat of neuralgia. We are thus reminded that it is the largest cranial nerve, that it is a nerve of special sense, of common sensation and motion, and that it is the great sensory nerve of the head and the motor nerve of the muscles of mastication.

Many patients during the early stages of trifacial neuralgia will respond promptly to suitable medical (nonsurgical) treatment, the affection terminating in complete and permanent recovery. Desultory and unsystematized management, or impatience of the sufferer, may lead him from physician to physician, until the disease has become chronic and persistent, or ultimately develops into true tic douloureux with its attendant hyperesthesia and agonizing paroxysms. The elimination of affections of the teeth such as dental caries, exostoses or impaction is essential. The same may be said of maxillary or frontal sinusitis and intracranial disease involving the roots of the fifth nerve.

Trifacial neuralgia is frequently symptomatic of intestinal toxemia, and may be relieved by castor oil three times daily, and careful regulation of the diet. Again, rest, galvanism and other forms of electricity are useful. The administration of aconitin, or the subcutaneous injection of strychnin in increasing dosage, have all been followed by more or less success. It is not my object in this paper to enter into therapeutic details. For further elaboration of these outlines of general and special treatment let me refer you to modern text books and to an article by the writer published in the MEDICAL RECORD, March 27, 1897. It is well known that these unfortunate patients are commonly and often unwarrantably subjected to the extraction of numerous healthy teeth, in order to remove a possible dental origin, and are at times, at an early stage of the disease, subjected to nerve resection.

A conservative and safe plan to adopt is the following:—

After rectifying all discoverable sources of irritation, either direct or of reflex origin, should the pain continue unabated, despite the systematic treatment instituted, we may then resort to the injection of alcohol before considering surgical intervention. For those unable or unwilling to submit to any prolonged course of treatment, the alcohol method may be adopted in selected cases.

Within the last few years the treatment of intractable cases of trifacial neuralgia and tic douloureux has been completely revolutionized through the introduction of the injection of alcohol into or in the neighborhood of the foramina of exit of the various nerve branches. Its history, technique and scope are not so well known and familiar to the medical profession as they should be. Before attempting this operation, a preliminary anatomical study on the cadaver and skull is absolutely essential.

Any physician who wishes to undergo this training, can acquire the necessary proficiency for its performance. There is very little likelihood, however, that it will be undertaken indiscriminately by the average practitioner, for suitable cases are not of sufficient frequency to justify the prerequisite preparation. Hence, it is not so likely to fall into disrepute.

The history of the development of this form of treatment is interesting. Schlösser, an ophthalmologist of Munich, was the pioneer in this field, and to him belongs the credit and honor of its discovery. In 1903, in a preliminary report of his investigations, he announced that trifacial neuralgia was easily relieved by the injection of alcohol, and reported several cases of tic douloureux successfully treated in this manner (Bericht über die xxxi Versamml. der ophthalmolog. Gesellsch. Heidelberg 1903, S. 84).

In 1907, at the Congress für Innere Medizin zu Wiesbaden (*Wiener med. Woch.*, June 15, 1907), he reported, that after numerous experimental studies upon animals he discovered that alcohol in the strength of 70 to 80 per cent when brought in contact with a nerve, produced a degeneration of all of its parts excepting the neurilemma. He claimed that the deadening of a nerve with alcohol is equal to a surgical resection. By regulating the dosage, the degree of nerve injury could be controlled. During the preceding five years, he had treated 123 cases of trifacial neuralgia with uniform success. The duration of relief from pain averaged over ten months.

Such marvelous results were previously unknown, and it was not long before the method became deservedly and enthusiastically recognized and warmly advocated. Unfortunately, Schlösser has never published in detail either his technique or his results. His method, however, was subsequently briefly outlined by Ostwalt, one of his students (*Lancet*, June 9, 1906, p. 1605).

Schlösser's method was first introduced to the medical profession in this country by Dr. Otto Kiliani of New York in a paper read before the N. Y. Academy of Medicine (MEDICAL RECORD, December 29, 1906). In his concluding remarks he stated that "it promises to make all operative procedures for these unfortunate sufferers unnecessary." In a subsequent communication (MEDICAL

Record, January 18, 1908) he has statistically reported fifty-five cases treated by this method. In these articles he has referred to the technique only in the most cursory manner. It may here be stated, however, that Schlösser's technique consists in the injection of about two cubic centimeters of sterile alcohol, of strengths varying from 70 to 90 per cent, into the peripheral foramina of exit of the various branches of the trifacial nerve according to the branch involved; *i.e.* at the supraorbital notch, the infraorbital foramen, or the inferior dental foramen. Should these peripheral injections prove ineffectual, the alcohol is injected by the intrabuccal route into the foramen rotundum or the foramen ovale in order to reach the second or third branch.

In 1906 Lévy and Baudouin of Paris (*Presse Médicale,* April 17, 1906) published *their* method of giving alcohol injections in the treatment of trifacial neuralgia. This consists in the employment of a needle 10 ctm. long and 1.5 mm. in diameter. It is introduced through the skin at the lower border of the zygoma to a depth of 4 ctm. to reach the inferior maxillary division of the nerve at its emergence from the foramen ovale, or to a depth of 5 ctm. to reach the second branch as it leaves the foramen rotundum to enter the pterygomaxillary fossa. When the point of the needle has reached the desired location, the alcohol is slowly injected, the needle withdrawn, and the small puncture in the skin covered with collodion.

One year later, Dr. H. T. Patrick of Chicago first directed the attention of the profession to this simpler and equally effective method, in a paper read before the Section on Mental and Nervous Diseases of the American Medical Association (*Journal American Medical Association,* Nov. 9, 1907). In the same number of this Journal, Dr. D'Orsay Hecht, another neurologist of that city, also published a valuable article on this subject. These admirable papers represent an almost exhaustive symposium on the technique and practical utility of the alcohol injection treatment of trifacial neuralgia. In a recent paper (*Journal American Medical Association,* Dec. 11, 1909) Dr. Patrick gives an additional report with brief histories of 75 cases thus treated; 36 patients were between 60 and 70 years old, 13 between 70 and 80, and one over 80. All were perfectly typical cases of tic douloureux. Most of them had passed the fortieth year.

The subzygomatic method of Lévy and Boudouin is more popular in this country on account of its simplicity, and the results are equally satisfactory.

During the last two years I have employed this method, at times, in conjunction with the peripheral injections of Schlösser in the following cases:

Case I.—March 10, 1908. Man, 63. Tic douloureux of a very severe type affecting the third branch on the left side. Duration two years. Twenty-five to fifty attacks daily. They are described as sudden, sharp, electric-like shocks at point of chin, darting upward to the interior of the eye, with twitching of facial muscles, and lasting about thirty seconds. There is no loss of consciousness, but he at once becomes oblivious to his surroundings. At times, he is suddenly aroused out of his sleep. The paroxysms are induced by talking, blowing the nose, sneezing or eating. He has not partaken of solid food for several months, and has lost nearly thirty pounds in weight. He is unable to attend to his business, or go about the streets unattended, for, as soon as an attack occurs, he suddenly grasps his face forcibly, and bends his head and body toward the ground, remaining in this position until the pain subsides. There are no tender points. All of the molar teeth in the left upper and lower jaws have been extracted without relief. March 16. Injection at foramen ovale, the point of the needle touching the nerve at once, as manifested by the patient, who complained, while the alcohol was being injected, of severe burning at the side of the tongue and numbness in the lower part of the face which soon became analgetic. During the next 48 hours he had two very slight pains. March 18. Was feeling quite well and voraciously eating solid food. No pain for one week, and he had gained nearly ten pounds. March 26. Slight attack. Injection 3 c. c. 90 per cent. May 17. Recurrence. This was ascribed to exposure to cold, in getting drenched in a storm and remaining in wet clothing for several hours. Injection repeated. This was followed by complete freedom from pain for several months, when some pain returned in the middle branch. Dec., 1908. In the course of two weeks five injections were given for the middle branch with permanent relief for five months. In May, 1909, very slight pain in middle and inferior branches. One injection given into infraorbital foramen, and three for deep branches. When last seen, May 29, 1909, he was free from pain.

Case II.—April 23, 1908. Man, 48. Second and third branches involved on left side. Duration two years. Usual hyperesthesia of face. Two injections for middle branch. No pain for five months. Oct., 1908. Injection for inferior branch. Complete relief for ten months. Then slight pain in middle branch. Aug. 1909. Injection into infraorbital foramen. No pain since.

Case III.—May 20, 1908. Man, 70. Second and third branches involved. Duration three years. Attack every twenty or thirty minutes, accompanied by spasm. Usual hyperesthesia. Pain more pronounced in third branch, radiating into tongue and pharynx. All teeth had been extracted. Injection near foramen ovale followed by analgesia. Attacks diminished in frequency, and subsided the next morning. Slept all night for the first time in two years. Complains of slight pain in second branch. Injection into infraorbital foramen. Nov., 1908. A few mild pains in third branch. Injection followed by relief for eleven months. He was so comfortable that he refused further treatment.

Case IV.—Sept. 15, 1908. Woman, 64 years old. Third branch affected on right side. Duration six years. Attack every fifteen or twenty minutes, the pain involving the tongue, and, at times, radiating into the ear. Maxillary antrum had been explored and all lower teeth extracted on affected side. She was taking two to three grains of morphine daily. The face was extremely sensitive to the slightest touch. Attack induced by blowing the nose, sneezing, or attempting to masticate or swallow food. Injection was soon followed by analgesia, so that 15 minutes later, the face could be rubbed and stroked without producing an attack. The pain disappeared, and she refused to have another injection unless the pain returned. There was a slight recurrence at the end of nine months. June, 1909. Two injections were given during one week, and she has since been free from pain.

Case V.—Nov. 12, 1908. Woman, aged 56. Second and third branches affected on left side. Duration about six years. All teeth had been extracted and the lower alveolar process "scraped" without relief. Attacks alternate between the two branches,

the pain in the lower branch being more severe, involving the tongue, floor of the mouth, and the pharynx. Paroxysm every five or ten minutes accompanied by spasm of facial muscles. The face is exquisitely sensitive, touching it with a soft camel's hair brush or blowing upon it inducing an attack. Injection for lower branch produced slight relief for a few days. Then, infraorbital foramen was injected, and a week later the third branch was again injected. This was followed by analgesia and complete relief for nearly eight months.

Case VI.—Jan. 28, 1909. Woman, aged 62. Left third branch involved. Duration fifteen years. About six years ago, resection of inferior dental nerve was followed by relief for ten months. The pain then returned and has continued. She has been subjected to many forms of treatment without relief, and has become hypochondriacal and self-absorbed, continually talking about her past and present pains. The attacks are characteristic of tic douloureux. Injection was given for the third branch, and the next day the infraorbital foramen was injected, resulting in cessation of all spasm. Another deep injection was given two days later. Feb. 17. Since last injection all spasm has completely disappeared. The pain is very much diminished and the attacks are less frequent. After much persuasion, she hesitatingly admits that she is very much improved. She sleeps better and has been out driving several times. The pain is confined to the third branch, and there is slight stiffness of the muscles in the lower jaw. Injection given. This was followed by sensation of burning and numbness in the lower lip and chin, and on the side and tip of the tongue. Only slight analgesia was demonstrable (probably on account of the previous resection of the inferior dental nerve). March 31. Very much improved. Only occasional attacks of very slight pain. No spasm since first injection. She is apparently unwilling to admit that she has been benefited by the treatment, although her nurse and various members of the family notice the improvement in her general behavior. She is continually apprehensive as to the return of the attacks, and repeatedly and persistently describes in detail the pain and torture she has endured for so many years. I did not see her again until August 14, 1909, when I learned, that during my absence from the city in July the paroxysms returned, and she received two deep injections without relief, and a few weeks later, two injections into the inferior dental foramen. The latter was followed by persistent spasmodic fixation of the jaw so that she was unable to open the mouth more than one-fourth of an inch. The pain was very much worse, and the attacks were accompanied by tonic spasm of the facial muscles. She had been confined to bed for several weeks, receiving frequent doses of morphine subcutaneously. I found her screaming and crying aloud every few moments and thoroughly demoralized. Injection at the foramen ovale was followed by incomplete analgesia in the peripheral distribution of the third branch. Immediate relief resulted. She soon fell asleep. The morphine was discontinued at once. In a few days she was up and about in every way improved. When last seen, March 11, 1910, she reported that she has been entirely free from pain since the last injection (a period of eight months).

Case VII.—Feb. 13, 1909. Man, aged 54. Right second branch affected. Duration five months. All teeth have been extracted from the upper jaw without relief. March 9, injection into infraorbital foramen, followed by analgesia of face. For several months after the injection, he complained of numbness of the nasal mucous membrane on the side affected and the frequent escape of watery fluid from the nose. He was not aware of this until the fluid trickled over the upper lip and down the chin. He was made comfortable by the insertion of small wads of absorbent cotton into the nostril, from time to time, and this annoying condition gradually subsided. It is now thirteen months since the injection was made, and he has remained free from pain.

Case VIII.—April 17, 1909. Man, aged 33. Tic douloureux affecting left middle branch. Duration two years. Numerous attacks daily, three or more at night. The paroxysms last from two minutes to half an hour. Usual hyperesthesia of face. All teeth had been extracted from the left upper jaw without relief. April 24, injection into infraorbital foramen. May 1, pain in course of supraorbital nerve; injection at supraorbital foramen. Complete cessation of all pain until June 5, when pain returned in left upper alveolar process. Attack every fifteen minutes. Infraorbital injection given. He remained well for nearly six months. The next injection was followed by relief until January 29, 1910, when attacks recurred. Injection into infraorbital foramen. No pain since.

Case IX.—April 18, 1909. Man, aged 45. Right middle branch affected. Duration three years. All molars in right upper jaw extracted. Usual hyperesthesia. One year ago he was under my care for several months and the pain was relieved by abstinence from alcoholics, the administration of castor oil, and increasing doses of strychnine. Pain returned a few months ago. Attack about every five minutes, induced by the slightest touch on face. Injection at infraorbital foramen. May 2, after first injection had no pain for forty-eight hours; now eats without difficulty; very slight pain since. Deep injection into infraorbital foramen followed by complete analgesia in distribution of second branch. Jan. 23, 1910, reports complete relief for eight months. Pain returned about two weeks ago, confined to middle branch. Infraorbital injection. No pain since.

Case X.—May 11, 1909. Woman, aged 57. Tic douloureux affecting left third branch, and involving the tongue. Duration two years. Twenty to forty attacks daily in the last two months, preventing sleep. Paroxysm induced by mastication, swallowing or talking. Hyperesthesia of face. All teeth extracted from the left upper jaw. Injection for the third branch on the 13th and four more during the next two weeks. The pain was very much relieved, and she could sleep and eat well. She remained quite comfortable until July 14 when pain returned, but in milder degree. Injection was given at foramen ovale, and she remained free from pain for three months. Then, slight recurrence. Last injection Nov. 16, 1909. No pain since.

Case XI.—Nov. 6, 1909. Man, aged 55. Third branch on right side affected. Duration fifteen months. Pain circumscribed to the alveolar process of the right inferior maxilla. Pain almost continuous during the last two months, and accompanied by facial spasm. Prevents sleep. Exquisite hyperesthesia. Local injections of alcohol and various minor surgical methods had been tried without benefit. Injection at foramen ovale was followed by some analgesia in the lower lip. Pain subsided for 24 hours and injection was repeated. This resulted in complete relief for 48 hours, the pain re-

turning in a very mild form. On Nov. 23 injection was followed by analgesia in the lower lip and the lateral aspect of the tongue. No pain for two months. Still complains of numbness. Injection repeated and he remained well for nearly two months. March 19, 1910. Recurrence. Injection followed by analgesia.

Case XII.—Dec. 16, 1910. Man, aged 50. Twelve years ago neuralgia of the second branch on the left side. He was treated with strychnine injections in increasing doses and remained well for two years. Occasional pain since. One year ago pain returned in the second branch. He is unable to talk or masticate without inducing an attack. Almost continuous pain prevents sleep. Cutaneous hyperesthesia of face. At times, the third branch is involved and the pain extends to the tongue. Attack occurs about every five minutes. Injection into infraorbital foramen. Jan. 8, 1910. Pain continues in third branch. Injection at foramen ovale followed by relief, but pain having returned in the second branch, the infraorbital foramen was injected. At the end of a week pain returned in the third branch. Injection given for third branch, and three days later, the foramen rotundum was injected. He remained well for four weeks, when another deep injection for the second branch was given. This was repeated February 11. No pain since.

Case XIII.—Feb. 10, 1910. Woman, aged 66. Neuralgia began about fifteen years ago, affecting the left third branch. It ceased spontaneously for several months and returned at intervals. One year ago, it became more severe and persistent. Last two weeks, pain day and night. Relieved by large doses of morphine. Pain confined to the left third branch. Attack induced by the slightest touch. Extremely sensitive point over the left lower alveolar process. Many teeth have been extracted without benefit. She is unable to masticate and has difficulty and pain in swallowing. Has chronic bronchitis. Injection at foramen ovale. Analgesia followed, so that the face and alveolar process could be handled with impunity. Pain relieved. Three days later the injection was repeated and she has had no pain since.

Case XIV.—Feb. 17, 1910. Man, 40. Fifteen years ago pain in the right supra- and infraorbital distribution for three months. Gradually got worse. Five years ago pain almost constant for one year. Paroxysms every few minutes. Four years ago resection of supra- and infraorbital nerves. Slight relief followed, the pain continued in a mild form until, four months ago, when it became as bad as ever. Now involves the second and third branches. Attack every fifteen minutes, accompanied by spasm. Unable to eat solid food. Usual hyperesthesia of face. As a result of the former operation there are hypalgesic areas in the distribution of the nerves resected. Feb. 19. Injection at foramen rotundum and five days later this was repeated. No pain since.

Case XV.—Feb. 18, 1910. Woman, aged 50. Left third branch affected. Duration fifteen years. After freedom from pain for about six months it returned 18 months ago with renewed severity. Pain in third branch, at times extending to second branch. Paroxysm every two or three hours lasting five to ten minutes. Occasionally the pain radiates over the neck and shoulder. No spasm. Attack induced by mastication, swallowing or blowing the nose. No tender points. Injection for third branch followed by analgesia. March 2. Still has slight pain in second branch. Injection into infraorbital foramen. No pain since.

Sterilization of the skin and instruments is a *sine qua non*. The pain produced by the puncture of the needle is so much less than the excruciating pain that the patient is accustomed to suffer, that general or local anesthesia is unnecessary. The region of the foramen ovale is reached much easier than that of the foramen rotundum. In the latter the passage of the needle may be obstructed by a projecting coronoid process. It may also be difficult to accurately reach the desired point, owing to some unusual configuration of the skull. *X*-ray pictures have not yet satisfactorily shown the relationship of the coronoid process and the zygoma. Hence, the needle must be guided by the sense of touch and a knowledge of the anatomy of the parts. From two to three cubic centimeters of 80 to 90 per cent sterile alcohol are injected. There is no advantage to the patient from the addition of cocaine or chloroform to the solution, therefore, I invariably use the alcohol alone. When the solution has been accurately placed, analgesia soon develops in the peripheral distribution of the corresponding nerve. Even when this is not accomplished the pain may subside. However, when such reaction occurs, one may confidently assume that relief is assured. It may be necessary to repeat the injections several times in the course of a few days or weeks, according to the reaction. No serious accidents or complications have been recorded. Slight ecchymosis or swelling of the face sometimes follows the injection but disappears in a few days. Some rigidity of the muscles around the temporomaxillary articulation occasionally occurs after the injection into the region of the foramen ovale, but it usually subsides in the course of a week. Injection into the inferior dental foramen, is, however, commonly followed by muscular rigidity particularly of the masseter, which prevents the patient from opening the mouth, and may persist for a number of weeks or months. Recurrence of pain may take place from four weeks to fourteen months. The treatment is then repeated. The effects are usually more lasting after several injections, but, as a rule, patients are unwilling to have them repeated unless the pain returns. In some instances reported by others, the injections have not proved successful in curing the patient either because the needle did not reach the proper location on account of some anomalous conformation of the skull, or the patient refused to submit to a repetition of the injection. Again, in some cases of long duration, a psychosis is developed in addition to the neurosis, the patient still having a fixed idea as to the continuance of the pain, although the area injected is completely analgetic.

This form of treatment when successfully applied is virtually surgical nerve resection without the resulting scar. There is no good reason to-day, with the evidence before us, why a patient should be subjected to a cutting operation, when the alcohol injection is equally, if not more, efficacious in the majority of cases. Despite the brilliant results from this therapeutic measure recorded by many competent observers, nerve resection and intracranial division of the sensory roots are still recommended and practised under the same conditions as heretofore. Gasserectomy with its attendant dangers and mortality has always been considered a *dernier ressort*. Why should it not be considered so to-day? Yet, there are surgeons who unhesitatingly operate

without a fair trial of the alcohol injection treatment.

I take pleasure in expressing thanks to my friend, Prof. Irving S. Haynes of Cornell Medical College, for his courtesy in placing abundant anatomical material at my disposal during my preliminary work in this field.

145 West Seventy-seventh Street.

THE QUESTION OF HYSTERICAL FEVER.

By LOUIS A. LEVISON, M.D.,

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A large part of the literature on hysterical fever has an historical value only. The earlier writers took no temperature, making all observations on fever by other methods than thermometric measurements. As one reviews the literature, it is not easy to understand from our present-day point of view, how so many diverse and various conditions, so palpably organic in their nature, could be ascribed to hysteria. One can not refrain from musing over the possibility of future writers so commenting on our works of to-day. In the main the value of the journalistic references to hysterical fever is in indirect proportion to their age. The term, idiopathic fever, could equally well have been applied to many of the older cases. Given a patient with an unexplainable rise in temperature, the term hysterical fever was too often applied. The diagnosis of hysteria or other neurotic or functional disorder is essentially by exclusion. We are never justified in calling fever or other symptoms hysterical in the presence of yet unused diagnostic resources. Newer and better diagnostic methods are being devised constantly and the standard of today is not that of yesterday or to-morrow. The trend of modern medicine is materialistic. More and more of the phenomena which we have been pleased to term idiopathic, cryptogenetic, or functional, are being assigned their proper place in the classification of disease. Few of the reported cases of hysterical fever can stand the light of modern medicine. True, some of them are not to be explained from the data given, and the diagnosis of hysterical fever may be tempting. The question of hysterical fever revolves around the possibility of fever being produced by purely psychic phenomena with the exclusion of organic changes or toxic or chemical influences. Even when such changes or influences can not be demonstrated by the methods of to-day, they may stand revealed by the methods of to-morrow.

The riddle of fever remains unanswered. The number of etiological factors which may produce or be associated with fever are legion. Some are marked and well understood organic changes, while others are bacteriological and chemical toxins without demonstrable organic change. Fever is usually attributed to an excessive oxidation of the tissues, notwithstanding the fact that conclusive proof is lacking of an increased oxygen intake and an increased carbon dioxide output. The opinion is held by Woods Hutchinson that there are toxins present in fever which prevent the normal body metabolism, this perversion leading to the production of heat as a waste product. Ordinarily, the expenditure of energy in normal metabolism is constructive and promotes motion, secretion, and growth. In fever, the constructive processes change to destructive, Hutchinson holds, further, that the harm done in febrile conditions is due to the toxins, rather than the fever. The question is brought up whether the elevation in temperature may not be protective in its nature. It is well known clinically that certain severe types of sepsis may be associated with a subnormal temperature. Aronsohn[1] contends that the excessive temperature in febrile conditions is generated in the muscles. He speaks of the "living strength of the biogen being transformed into heat." This theory necessitates as a premise the presence of heat centers located in the brain, from which centers, caloric or trophic nerves control the generation of heat. The production of a rise in temperature by protein injection, as has been shown by Vaughan, Wheeler, and Gidley, is an important contribution. They maintain that fever results when the sensitized animal body begins to split up the foreign proteins which have been introduced into the body fluids. They think it probable that the sensitization is due to a specific ferment.

The presence of special heat centers and nerves has long been believed. Physiologists have endeavored to demonstrate such nervous structures, separate from motor, secretory, and other nerves. A very large number of experimental facts can be brought forth, showing the connection between the central nervous system and the body temperature, but conclusive demonstration of the heat mechanism is not forthcoming. Bernard believed that he had discovered such nerves in the cervical sympathetic fibers, but this was not confirmed. Injury to the brain, such as section or puncture at the point of juncture of medulla and pons, may cause a rise in body temperature. On the contrary, section of the cervical cord usually results in a drop in the temperature. The production of a rise in temperature by the experimental "heat puncture" is a classical procedure and demonstrates the possibility of fever from cerebral lesions. This puncture is made by thrusting the needle into the brain in such a manner as to pierce the mesial edge of the corpus striatum. It is stated by Tigerstedt that the rise in temperature from this procedure may amount to more than 3.6° F. The rise is due, not to a destruction of tissue, but to stimulation. However, heat centers have been variously located in other parts of the central nervous system, among them the septum lucidum, midbrain, cortex, and Reichert places them in the anterior horn of the spinal gray matter. It has been suggested by Howell that heat production may be controlled, not by a special heat regulating apparatus composed of thermogenic centers and nerves, but by the "coordination of the activities of various nerve centers."

Instances of a rise in temperature following injury to the central nervous system are numerous. It is to be regretted that reports on this point are not always clear. Not only is it impossible to exclude infections in many of the reported cases, but in carefully studied cases with all possibilities kept in mind, it may be virtually impossible to differentiate between organic changes, toxic, chemical, or other influences. Fever from tumors of the central nervous system is known. Here, the differentiation between cancer or other toxins and disturbance of a heat-regulating apparatus as the cause of the fever will be difficult or impossible.

The question of hysterical fever is one concerning which there is no unanimity of opinion. There is a general tendency to ignore or deny its existence, but many skeptics have changed their belief following puzzling cases. The usual symptoms of

hysteria very often appear spontaneously, that is, they require no definite predisposing illness, accident, or condition. Hysterical fever, on the contrary, if we may judge from many reported cases, has required a definite predisposing cause. The fact that some such predisposing cause has so often existed tends to cloud these cases. How can we be sure that there is no infection or other agent concerned? Some of the conditions mentioned in case reports as preceding or existing during the continuance of the fever are epileptic attacks, the puerperium, diarrhea, cramps, neuralgia, asthma, menstrual disturbances (common), ovarian tenderness, convulsions, dyspnea, articular rheumatism, chronic endocarditis, mitral and aortic lesions, hypertrophy and dilatation of heart, pulmonary edema, constipation, diarrhea, and enlarged spleen, gonorrhea, postoperative conditions, otorrhea, operation for gastric ulcer, pseudophthisis with dulness over lung, catarrh of lungs, autointoxication, purpuric rash, and others. To say that the presence of almost any of the above conditions is sufficient to cast suspicion on the hysterical nature of the case, would not be too much. The presence of certain of the above conditions discredits the report at once, and is either a sad commentary on the accuracy of medical observation or a mistaken conception of the term hysteria. In addition to the above there is a considerable number of case reports, in which is mentioned no condition, inflammatory or otherwise, that would directly militate against an hysterical origin of the fever. However, in medical reports, sins of omission are as grievous as sins of commission, and it must needs be said that such sins are not wanting.

This paper does not deal with those cases of so-called hysterical fever, in which willful deception on the part of the patient has played a part. Many of the reported cases of hysterical fever belong to this category. Likewise, the cases in which the temperature rose to an unusually high degree may be questioned. Alexander[2] reports the case of a girl, age 22, having attacks of dymenorrhea and convulsions, in whom the temperature rose every afternoon to 110° F. for four days. On the fifth day, the thermometer was placed under the arm and the mercury rose to the top (112° F.) and broke the instrument. Another thermometer registered up to 116° F. (the top) and was likewise shattered. No adequate explanation could be determined and it was called hysterical. Dr. Alexander Smith (quoted by Thompson) refers to a "case reported by a gentleman of high authority, in which the temperature of a male patient rose to 122° F." Another case was reported at a meeting of the Association of American Physicians, in which the temperature was said to have reached 148° F. Thompson styles the possessor of this startling temperature an "arrant knave and malingerer." In discussing the coagulation time of proteins, Thompson names three globulins coagulating below 148° F. These are paramyosinogen (116.6° F.), myosinogen (132.8° F.), and myoglobulin (145.4° F.) Kühne states that there is an albuminate in muscle with a coagulation point at 116.6° F. It is evident that these high temperatures are quite inconsistent with physiologic facts and have their origin in deception only. The methods of deception are often unknown, but most of them have been perpetrated with old-styled thermometers.

It is difficult to set an arbitrary temperature point at which recovery is improbable. There are well authenticated cases of tetanus, insolation, and other conditions, in which the temperature has reached 112° F. to 115° F. Recovery has occurred in some, more particularly the cases of insolation. The literature on hysterical fever contains numerous instances of unusually high temperatures. Among these may be mentioned the cases of Teabe 122° F.[3], S. Mackenzie 119.8° F., Philipson 115.7° F., Ormerod 115.7° F., Meissen 113.9° F.,[4] Lumbroso 113.3° F.,[5] Tillman 113.9° F.,[6] Vizioli 113.° F., Lorentzen 112.8° F.,[7] Sachs 111.2° F., Sciamanna 111.2° F., and Soulier 111.2° F.[8]

Hysterical fever is not a clinical entity, so no disease picture can be drawn of the condition. It is essentially but one symptom observed in the course of hysteria. It is difficult to depict an accurate description of the various conditions described under the name hysterical fever for several reasons. One is that many reports are manifestly descriptions of conditions not hysterical and may be reasonably judged to be typhoid, meningitis, chronic endocarditis, chronic peritonitis, epilepsy, pelvic disorders, autointoxication, traumatic conditions, tuberculosis, and others. Again, the less objectionable cases show no unanimity of symptomatology.

The condition seems to occur in females from fifteen to twenty times as commonly as in males. The average age of these females is about twenty-two. The larger number have been unmarried. Marked hysteria is mentioned as existing in many cases, in others there are hysterical stigmata, others are termed neurotic, traumatic or emotional shock preceded the fever in some instances, and there is a lesser number who have a negative personal and family history, in so far as neuroses are concerned.

The fever is in the highest degree variable. Its duration has been from hours to a year or more. Its intensity varies from hysterical fever without fever at all (*Scheinfieber*) to the startling heights mentioned above. If there is anything characteristic in the type, it is that the fever is irregular, paroxysmal, appearing on slight irritation and apparently independent of all other symptomatic manifestations. In some cases, it has been continuous, as in Lannois' case,[9] where the fever was not absent more than 48 hours during a period of seven months. In another case of the same writer, the fever was present for one year. This case was associated with intractable vomiting, hematuria, and albuminuria, so its hysterical nature may not be entirely above doubt. Sudden drops from 104° F. to 105° F., to normal without apparent cause has suggested hysteria to some authors. Other writers dwell on a temperature curve which is high in the evening, but regularly dropping 1° to 4° F. in the morning. The reverse of this has been present in other reported cases. Debove, whose name is conspicuous in the literature of hysterical fever, calls attention to the irregularity of the fever, its duration and intensity and the lack of an evening exacerbation. On the whole, a characteristic temperature curve in hysterical fever is not forthcoming.

There are a number of instances cited by Sarbo,[10] Preston,[11] and Wunderlich,[12] in which the temperature upon the two halves of the body was unequal. The determination of this point must depend on axillary measurements, as obviously, the mouth or rectal temperature cannot be utilized. Slight variations in axillary temperature could be easily produced by various conditions not dependent on the degree of internal warmth, so a considerable degree of caution must needs be em-

ployed in reaching conclusions on this point. In Wunderlich's case, there was a difference on the two sides of 1.5° C. for a year. The temperature was taken in the axilla, Holzapfel in discussing this difference, states that he made a large number of observations on normal individuals to determine the relative temperatures. In his series, there was an average difference of more than 1° F. (0.6° C.) on the two sides. Relative differences have been found in organic lesions, especially cerebral hemorrhages, but the date on this point is insufficient to judge of its value, either in hysteria or normal individuals.

The pulse in hysterical fever is usually increased in rate. However, a number of writers insist on the absence of relationship between the raised temperature and the pulse and respiration. The latter two may be quite unchanged in the presence of a considerable degree of fever. The reverse is sometimes met in the "scheinfieber" of the Germans.

Further than the temperature, pulse, and respiration, the clinical picture of hysterical fever varies with the condition it stimulates. It has been truly said that hysteria loves the paradoxical. To attempt a résumé of the symptomatology of the reported cases would be baffling, both through its immensity and diversity. The symptom-complex of typhoid fever may be traced in cases showing anorexia, coated tongue, diarrhea, headache, general malaise, flushed face, scaly and cracked lips, abdominal sensitiveness, and borborygmi. One writer states that his case of hysterical fever had pea soup-like diarrhea and an enlarged spleen. A large group of cases is associated with ovarian tenderness and pain, dysmenorrhea, cessation of menses and various types of abdominal pain. One case had the "inner genital organs" removed for a gonorrheal infection. Recurrences of cramps and fever, more particularly at the menstrual periods, suggested hysteria, inasmuch as bimanual palpation showed no infiltration of the operative stump. In another case, the author thought it not improbable that some of the symptoms originated in a slight hemorrhage into the cortex of the ovary. This association of hysterical fever and disorders of the female pelvis is striking. However, our present conception of the manifold pathological states of the female genitalia shatters the hysterical nature of many of the cases reported.

Clinical pictures simulating tuberculosis are often seen in case reports. These may vary from the pseudophthisis and hysterical lung congestion of Fabre[13] with fever, hemorrhage, dullness at apex, and cough to the suggestive afternoon rise in temperature only. Intermittent fever and chills in some cases suggest malaria. Pseudomeningitis is often described, especially by the French writers (Boissard, Chantemesse, Dalché, Reynard, Macé). A few cases with urticaria suggests an intestinal autointoxication.

Manifest hysteria is evident in a large number of cases. Among the symptoms and signs given in reports may be mentioned vasomotor disturbances, facile suggestibility, psychic disorders, as thenia, polyuria, anuria, retention of urine, chromatopsia, contracted visual field, tetany, increased irritability, tremor, convulsions, tachycardia, anesthetic areas, erotism, simulation, unstable emotions, with many others.

The absence of any nutritional disturbance or loss of weight in hysterical fever challenges our attention at once. Possibly most clinicians can recall cases of organic disease with a more or less continued elevation in temperature running for weeks or months without apparent or actual loss of weight. The writer recalls such cases in chronic tuberculosis, syphilis of the liver, and chronic endocarditis. The mere absence, therefore, of nutritional disturbance is not sufficient to rule out an organic lesion. This absence of tissue change and nutritional disturbance has been widely commented on by various writers, including Raffaele, Preston, Boulay, Caramino, Sarbo, and others, but not always in a critical manner It seems to be one of those conditions, which have gained momentum in the transmission by quotation. Bound up with the question of nutritional change is the experimental evidence concerning the metabolic activities of the body. It is not to be expected that many accurate, chemical estimations have been made in this field. This is true, because most of the case reports are not of recent date and owing to the faulty clinical observations and deductions noted. Cuzin[14] examined the urine of his case twice and found a diminished uric acid excretion. He calls this "urine nerveuse," an expression not infrequently met in the French literature. Sarbo states that one of his cases showed an increased excretion of urea. In the case of Naline Taidelli,[15] a young girl who had been having attacks of nervous fever for two years, showed no increase of urea or total nitrogen. It should be stated, however, that the figures in this case are not given.

The purest example of a rise in temperature due to neurotic, psychic, or hysterical influences would seem to be that produced by suggestion or hypnosis. If this is possible, it must be fairly conceded that hysterical fever is not a myth. If an organically sound individual, however impressionable he may be, can be compelled by suggestion, either auto or extraneous, or by hypnosis, to show a rise in temperature (fever) where none was before, then the controversy waged over the existence of this manifestation of hysteria must end. Most writers are silent on this point. Debove cites the case of a female, aged 24, with a temperature running between 102° F. and 104° F., where the mere mention of the somnambulistic state would sometimes cause the temperature to rise 1° to 2° F. He states, further,[16] that he has raised the temperature 2° to 7° F. by suggestion in the hypnotic state. Preston[11] states that he has raised the body temperature 1° F. by nonhypnotic suggestion. Krafft-Ebing,[17 18] states that he has raised the temperature by suggestion to 106.7° F. (41.5° C.). Èstèves[19] gives intellectual fatigue and intense grief as causes of hysterical fever. These latter two causes are psychic in their nature and must rank with suggestion. Doubtless, this fever, due to intense grief as depicted by Èstèves, is the scientific explanation of the mysterious and convenient attacks of "brain fever" following the climax or dénouement of many tragedies in romance. I have had several competent exponents of psychotherapeutics endeavor to raise the temperature by suggestion, but these experiments have always been unsuccessful, even with impressionable individuals, who were easily placed in a semihypnotic state.

The attention of the writer was attracted, particularly, to the subject of hysterical fever in its relation to tuberculin reactions. It is often necessary to explain minutely the possibilities and features of a tuberculin reaction to patients before the injection is made. This matter is of real importance in dealing with nervous or hysterical individuals and

phthisiophobiacs. The constitutional symptoms and accentuation of physical signs in certain reactions may be poorly developed and reliance may have to be placed in large part on the temperature curve. If fever can be produced by suggestion, emotional influences, or anticipation as recorded above, then the interpretation of tuberculin reactions should be carefully made. Out of a large series of diagnostic injections of tuberculin given by the writer, there have been a number in which the fever was the only discernible evidence of a positive reaction. However, not any of these have been considered hysterical, even in the presence of marked neuroses. The case of Fürst[20] is much quoted in this connection. His patient was a man of twenty-nine with a negative hereditary history. Six months before, there had been a fall resulting in the fracture of five or six ribs. Since that time, the patient had pain, cough, expectoration without bacilli, and inability to work. A light diffuse catarrh was determined and the usual temperature was 100.4° F. Following an injection of 0.5 mg. old tuberculin, there was a temperature of 101.3° F. with peculiar associated symptoms (*Nebenerscheinungen*). An injection of distilled water was given and the temperature recorded as 100.6° F. (38.1° C.) with the same symptoms. Three further injections of water were given, and each time the temperature became lower, and the last time, normal. This clinical observation was made ten years ago when tuberculin diagnosis was young. Such fractional variations in temperature hardly justify any conclusions, but, nevertheless, this case has gone the rounds, as a warning to diagnosticians to beware of an hysterical reaction to tuberculin.

The clinical condition known as pseudohysterical fever has not received as much attention as the febrile form. It is described at length by Sarbo, and also by Rosenthal, Heubner, and others. The usual ratio between fever and the pulse and respiration is reversed here, in that the two latter increase in rate, and not the former. The syndrome includes tachycardia, vasomotor disturbances, red skin, headache, thirst, malaise but the temperature remains unchanged. The similarity of this condition to a febrile disorder has not impressed, apparently, English or American writers.

Writers on hysterical fever have divided themselves into two camps, those who believe in and those who oppose the existence of such a form of fever. The observation has often been made that the skeptics are those who have never had a case. Many writers confess that they had always doubted the existence of such a form of fever, until confronted by examples, which were above criticism. It must be admitted that a few of the cases show no palpable flaw. Thus, Römheld states that one of his patients, who was hysterical, went through a railroad accident. Following this, the slightest irritation produced chills and fever, sometimes reaching 104° F. No cause could be determined and these febrile manifestations continued until the supervention of a pregnancy, when all symptoms permanently disappeared. Among those who believe in the existence of hysterical fever are v. Krafft-Ebing, Briand, Gagey, Sarbo, Ughetti, Wunderlich, Hale-White and a great many others. Opposed to it stand v. Stümpell, Grisolle, Landouzy, Pinard, M. Rosenthal, Jolly, and Schultze. The French authors were the first to speak of and describe hysterical fever, but these earlier writers, Pomme, Tissot, Baillou, and Rivière, interest us from an historical standpoint only, because they took no temperatures. Briquet in 1859 stated that he had seen twenty women with hysterical fever, with many and various symptoms, which he did not believe to be typhoid, meningitis, etc., because none of them died. This method of differential diagnosis ranks with that of another writer, who ruled out organic disorder because the fever did not respond to antipyretic remedies.

The relative number of Italian writers on this subject is not without a possible significance. We would expect a larger number, relatively, of hysterical patients in the Latin races, but the wide prevalence of malaria, especially the more chronic forms, in Italy may have caused some confusion in the differential diagnosis. The presence of the plasmodium malariæ of Laveran was unsuspected in the time when most of the Italian reports were published and no blood examinations were made for this organism. One or more writers mention the failure of quinine to reduce the fever as proof of its nonmalarial nature. This is entirely unjustified, as many chronic cases are very resistant to quinine. This possible error is given probability by Pucci, who states that hysterical fever is often uotidian, tertian, or intermittent.

To summarize, it may be stated:

1. That the earlier reports on hysterical fever are unreliable.
2. The larger number of case reports are faulty, in that the differential diagnosis from tuberculosis, malaria, typhoid, meningitis, peritonitis, and other infections, have been insufficiently considered.
3. The Latin races have furnished the greater number of cases.
4. Most cases have been in young women.
5. Medical opinion is divided on the question of hysterical fever.
6. The case reports of fever reaching an unusually high point may be set down as clever deceptions.
7. The fever has been more often variable in the highest degree, without definite relation to pulse and respiration.
8. The temperature has been found at times unequal on the two halves of the body.
9. Medical writers of high repute have reported elevations of temperature from psychic influences only, as suggestion or hypnotism. This seems to stamp hysterical fever as genuine.

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A CASE OF ANGIONEUROTIC EDEMA.

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The symptoms of angioneurotic edema are so well defined that the nature of the disease ought to be self-evident, yet it is my experience and the experience perhaps of all who have seen a number of these cases that they are far from being generally and readily recognized. Relatively, the disease is so infrequent that many practitioners have never met with a case and therefore it is not altogether strange that it should often go unrecognized and be regarded simply as a puzzling proposition.

During the past year three such cases have come under my observation, and consulting my records of years ago I find a number of cases, not fully recognized then, but now seen to be true types of this somewhat rare and strange disease. The following case would seem to bear out the statement that the disease not infrequently passes unrecognized, for of the several physicians consulted while the patient was abroad where the symptoms first became evident, as well as the family physician at home, all expressed doubts as to its nature and failed to give it a name. Two other reasons induce me to record this case, the first being the statement that "cold, which is an important factor in certain cases of urticaria, does not seem to play any part in angioneurotic edema, and that the season makes no special difference."* In this case, on the contrary, cold was the only important exciting factor, while the seasons made every difference in the world.

Another reason for recording the case is because of the very positive benefit derived from certain physical methods of treatment. The patient, a man aged 35, with a good heredity, and whose whole life had been one of healthful physical and mental activity, had been enjoying for several months a most delightful season of sightseeing abroad where the disease developed. One morning while in Munich, with the temperature down to 35° or 40°, the hands and especially the fingers began quite suddenly to swell, and soon the pressure of a ring on one of the fingers became so painful that it was necessary to have it filed off. In returning to this country he was still the picture of health, and on warm days and while in the house he felt no inconvenience, but a low temperature, and especially a cold wind, excited prompt swelling and a painful perversion of sensation in exposed parts.

A piece of ice held in the hand for a few moments caused, at first, a deep redness, followed by swelling and a perfectly white appearance. Rubbed over the mouth the same phenomenon was apparent, the lips swelling to double the normal size. The symptoms would then gradually subside, but it was some hours before the tissues became again natural.

A cold bath was intensely disagreeable because of the itching and general puffiness occasioned. Even the handling of the cold razor caused the finger tips to swell and itch. When he was out walking in the cold air, the hands, ears, and face must be protected in every precautionary way in order to give even halfway comfort.

There were no intestinal symptoms, but ice, and even ordinary cold water taken internally, produced decided gastric disturbance, due probably to edema of the wall of the stomach. The only predisposing causes were a somewhat nervous temperament and a pronounced business worry which came suddenly to him, while an exciting cause might be attributed to a temporary departure from his ordinary habit of moderate smoking and simple living. The total urine for twenty-four hours (thirty ounces only) was subjected to the nitrogen test, and in commenting on the result of the analysis Dr. T. W. Hastings wrote: "Judging from the creatinin output the total amount for twenty-four hours was not carefully collected, for the creatinin output is extremely low and almost impossible for an adult. The total nitrogen is likewise low, but might be accounted for by a carefully restricted nitrogen diet. The rest-nitrogen is higher than the average normal, and if the total urine for twenty-four hours is correct, this increase in the rest may be accounted for by the low nitrogen output. If the figure for the total amount of urine is correct, there is some disturbance of the nitrogen metabolism."

Notwithstanding the doubt here expressed as to the stated amount (thirty ounces) of urine passed in twenty-four hours, careful interrogation of the patient as well as various subsequent tests proved its correctness.

In considering this report and in attempting to apply therapeutic measures in accordance with it, I was impressed with the statement of Osler that "if the endogenous poisons, the result of perverted metabolism, anywhere from the moment the morsel of food is rolled round the tongue until its constituents have been through the furnace and are cast out as ashes and smoke, we talk a great deal, but we know nothing, so far, at least, as this disease is concerned."

Nevertheless, the results of the analysis seemed to favor the elimination of meat, and for one month the patient confined himself rigorously to a diet of bread and milk, but as at the end of that time there was not the slightest improvement, and the test was trying, he returned to his ordinary rational diet, eating in moderation anything he pleased, but abstaining from coffee and tobacco. Various drugs were used in a blind sort of a way, among them calcium lactate, for which something has been claimed, but without result. He was then subjected in an equally blind sort of way, perhaps, to various physical methods—electricity, vibration, phototherapy—the idea being to establish a healthy nutrition, and so obliterate the effective cause of the edema, about which we know so little. The results of these applications were not brilliant, but sufficiently marked to encourage a continuance of their use. It was instructive to observe that the application of light and heat, whether incandescent or arc, and which are so valuable in many vasomotor disturbances and in the relief of pain, did not agree with him, seeming to aggravate the symptoms.

On the other hand he reported amelioration of symptoms after the various electrical applications, whether static, high frequency, or general faradization. The galvanic current, however, seemed to serve a better purpose than any other method, and finally was wholly relied upon in the treatment, and under its influence there was not only amelioration but progressive improvement.

The patient is now and has been for many months almost entirely free from all disturbing symptoms, and the rather unusual rapidity of his recovery may fairly be attributed to the influence of these physical methods.

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*Osler's "Modern Medicine," Vol. VI., page 650.

COCAINISM.

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Cocaine has a special action on the sensory centers and nerves, depressing their conductivity and diminishing or cutting off the transmission of impulses. It is a true analgesic. Its exact paralyzing action on the nerve centers and neurons is not clear, so that it must be studied largely from its effects.

There is no drug so fascinating in its perfect relief of discomfort, fatigue, mental worriment, and sense of exhaustion, and the impression which follows from its use is that of renewed vigor and unusual capacity, also that some new force has been added, or capacity for reasoning and observing of matters relating to the body and its surroundings.

Usually cocaine is given for states of depression, exhaustion, and many times for pain, both local and general. In states of catarrh, where the pain is accompanied with great discomfort, its action is very prominent and pleasing, and the sense of relief amounts to a positive conviction which leads to the renewal of the drug. This renewal must be continued, and very quickly an addiction follows in which an apparent normal condition is only obtained after the use of the drug. Unlike other drugs, there is a specific psychical action, carrying with it a profound sense of relief and vigor and good feeling. In the early stages this is prolonged, and fills the mind with satisfaction that is very impressive. Later, when the effects are shorter and less pronounced, the withdrawal of the drug is followed by intense gloom and mental bewilderment which craves a return of the effects. This first psychical effect of comfort impresses the organism so vividly that the memory of it is never forgotten. After the drug has been taken a long time, no depression or pain following its withdrawal can efface the memory of its first effects. Hence, perpetual struggle to secure the comforts which came from this first use. Aggravated catarrhs, irritating bronchial troubles, and states of exhaustion from starvation and poisoning are the conditions which cocaine relieves most markedly.

The first after effects following the withdrawal are of short duration, and not especially painful. Later this condition increases. The pain takes on a mental activity, a species of irritative melancholia and profound exhaustion which seeks relief at all times and under any circumstances. Nature seems to protest against the physical and psychical injury done in the most alarming way. This is seen in the facial agony of the cocaine taker when deprived of the drug. His sufferings are internal and not seen in muscular excitement. The profound change that follows its use in the quiet face, serene satisfaction, and perfect relief is evidence of its effects.

There appears to be a more pronounced susceptibility to this drug than to alcohol or opium. Very few cases are found in which the effects are unpleasant. Many persons become alarmed when they discover its tremendous fascinating effects, and make great efforts to escape. Those who are feebler may realize for a time its influence, but become powerless to escape by themselves. In their efforts to accomplish this they turn to morphia, spirits, and other drugs. A great many cocaine takers in this country are poisoned by spirits and drugs, and are exhausted before cocaine is taken, and the relief which this brings them is a new experience, increasing the degeneration.

Probably the largest number of cocaine takers among the lower classes belong to the ill-fed degenerate and poisoned classes. To them this drug is a revelation, and the rest of their lives is a perpetual struggle to secure it and enjoy its effects.

Its special narcotic action on the higher brain centers, meaning the ethical sense and morale of the man, is very marked. Criminality and lawless conduct are the natural results. The cocaine taker soon develops delusions of persecution, and becomes a criminal in his efforts to avert the danger which he imagines is confronting him from every side. In our experience, covering a quarter of a century and more, drugs and spirit takers who come to the institution with fire arms in their possession are always cocaine takers. No form of mental anesthesia or narcotism is followed by such pronounced delusions of death from violence and intrigue. This delusion may be concealed and covered up with great shrewdness, or be open and apparent. This constitutes the greatest danger, particularly of the lower classes who use this drug. They not only lose all ethical sense of law and order, but they become centers of intense suspicion of injury by others, and have no regard to any obstacles which prevent them from getting the drug.

Shrewd peddlers and disreputable men cater to this want, by furnishing the drug in the most secretive ways. The cocaine taker often exhibits a degree of criminal sharpness and superiority in his efforts to get the drug. If he is an alcohol or drug taker, the degeneration is so pronounced that any criminal act, regardless of consequences, will be undertaken to secure the drug.

Compared with the alcoholic, he may possess a degree of vigor that is misleading and only show his disease in the insane mania to possess the drug. The alcohol and drug taker may be cowardly and give way to circumstances, and show normal fears, but the cocaine taker has a maniacal boldness and reckless cunning when his interests are perilled and the drug is withdrawn. He will stoop to any crime, or any act that promises relief, regardless of what the results may be. The delusion of persecution is frequently associated with one of revenge, and desire to inflict injury for some real or imaginary insult. Often the presence of this particular phase of character is an unmistakable indication of his cocaine taking. The vindictive criminal in the lower circles who fights the officer seeking his arrest, who suddenly assaults people on the streets or shoots people without any provocation, or sets fire to buildings, commits serious damages, acts wildly and maniacally, is suffering from cocainism.

The alcoholic and the drug taker follow uniform lines of conduct that can be seen and anticipated to some degree. The cocaine addict is erratic, changeable, uncertain, always dangerous, and likely to be a criminal any moment. If his addiction is mixed up with alcohol and spirits, greater uncertainty follows. He is never suicidal, but always homicidal.

Cocainism among the intellectual classes is more concealed and is probably one of the most delusive addictions known. Many persons in professional circles begin with the use of cocaine to give them power and strength for certain particular acts or events. In literary circles many writers use cocaine and show it in their writings. A very interesting field of observation is in the smooth, flowing sentences of periodical and fiction writers, who do the work under the influence of cocaine. Both the brain and nervous system of the cocaine taker is lowered,

paralyzed, and starved. He is unable to reason clearly. Hence he is the most dangerous, because he cannot realize his own condition compared with the alcoholic and morphine taker, who in their lucid moments have some sense of their danger and possible defects of reasoning. He is a veritable dement. The exaltation of the ego and the delusions of strength cover up and conceal his real condition. In all probability the cocaine taker is more thoroughly insane than all other drug addicts, although it may not appear. His health may seemingly be about the same, and his anemic appearance and staring, suspicious eye are the only evidence of impaired health. Cocaine addiction is increasing, particularly among nervous, exhausted men and women and the half-starved degenerates of the lower walks of life.

Cocaine addiction can be concealed for some time, hence its peculiar danger. Certain general symptoms give indications of the use of cocaine, but its verification may be difficult. There is no more dangerous drug, although it is widely used and praised highly by many physicians. Like the germs of infectious diseases it must be introduced into the community, then it spreads from one to another. Possibly it may die out in its local growth, but not until a percentage of those who suffer from it have been destroyed. It is possible that physicians, by thoughtless prescriptions and telling the patient the character of the drug they give him, may start the use of the drug in the community. It is certain that proprietary drugs for local pains have been found extremely popular and have had a large sale, until the substance composing it was discovered. Then the drug was used alone. Druggists, physicians, and patent medicines are responsible for this new scourge of humanity. The remedy is to stop its sale, except for some specific purpose, to be noted on a public book, and, where a doctor uses it freely, there must be some accounting, so as to prevent its danger. In a mill town where catarrh was prevalent, a certain proprietary drug had an enormous sale. The board of health discovered that the drug contained cocaine. As there was no law that would apply in this particular instance, the greatest difficulty followed in suppressing its sale. This happened some years ago, but the result of that one drug, extended over a period of nearly two years, was the permanent ruin of at least a dozen persons, whose drug and spirit addiction followed them until death. Drinks served from the soda fountain, containing cocaine, are attracting increased attention by the sudden popularity and enormous sale in certain sections. When the fact is ascertained that their chief value consists in cocaine, in small quantities, efforts to suppress them are both difficult and doubtful. The proporietors, by merely changing the names, can continue the use, and, if the soda fountain dealers refuse to dispense them, they are frequently sold direct to the customers.

A great deal of attention was attracted by an instance which came under my care, in which several eminent physicians failed to make a satisfactory diagnosis. When the patient was brought to the hospital and the surroundings were changed, it was found that he depended on a certain proprietary drug, which contained cocaine, and that his condition was due to cocainism, with mild delirium at night and increasing delusions that were largely concealed. His recovery was rapid when the drug was removed. He remained abstinent for many years, but the fascination for the effects of this drug never died out. When wearied and worn the impulse to secure this drug was very strong with him, and could only be overcome by keeping away from all places where he was likely to get it.

In another case under my care a cocaine addict, realizing the danger from the resumption of the drug, turned to morphia for help, and after several years of the addiction of this later drug, took up cocaine again; breaking away from this, he became an alcoholic. Realizing his danger, he entered voluntarily into an insane asylum and remained there till his death. In criminal circles cocaine is occasionally used to give courage and serenity for criminal acts. A burglar declared that it was necessary to enable him to carry out his plans without flinching or losing his judgment. It has been noted that criminal suspects who show a remarkable steadiness of nerve and frankness of manner when subjected to adroit questions by detectives, are not infrequently under the influence of cocaine. An instance of this kind came to my attention, and it appeared to me that the suspected person believed what he stated, with the utmost confidence and frankness, although it was evidently false. The impression of innocence was so pronounced that he would have been discharged had not the authorities, at my suggestion, kept him in confinement for another day. Then an examination revealed the real man, and eventually he acknowledged his guilt. The cocaine had been exhausted, and the remarkable paralysis and control of his emotions and reason disappeared.

The ordinary cocaine taker is secretive and suspicious, particularly in the later stages, but all this is concealed and only apparent in his conduct, and in little things. Thus a man who was known to be in ill health manifested great interest in having the locks of his house changed, and burglar alarm wires put around the windows. This he explained in a very rational reasonable way, but why he should do it at this time when there was no particular occasion, attracted attention. It was found that he was a secret cocaine taker. In another instance a man wrote a number of wills at short intervals, and this very unusual act resulted in the discovery of his secret use of cocaine.

In doubtful cases it is always wise to consider the possibility of the use of this drug, for its manifestations are exceedingly variable and misleading. The increasing difficulty of procuring it in many of the States will, of course, diminish the number of cases.

Medical men can do very much in concealing its use to their patrons and dispensing it personally. The paranoic cases that are so bewildering are very likely to have a cocaine origin, and the strange unusual acts are all likely to be traced to this source. In all probability, this drug is much more widely used, both legitimately and otherwise, than is supposed. The fact that the sales are increasing is an unmistakable indication of this.

Tuberculosis and Malaria in Greece.—Consul-General George Horton has made a report from Athens on the conspicuous work of Greek physicians in combating the country's two chief scourges—malarial fever and tuberculosis. An annual average of 2,000 persons die each year from the former, while in epidemic years, due to excessive rains, the number exceeds 6,000, which was the case in 1905. The population of Greece is 2,433,806. The people have been interested through lectures, pamphlets, etc., to fight the malaria-carrying mosquito by draining stagnant ponds and throwing petroleum on them. A tuberculosis congress will be held in Athens next year, to which will be invited, not only physicians, but all the mayors and other prominent people of Greece.

MIGRAINE, PERIODICAL VOMITING, AND EPILEPSY, WITH REPORT OF A CASE OF PERIODICAL BLOODY VOMIT.

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It is interesting to compare the characteristic features of hemicrania, periodical vomiting, and the attacks of epilepsy. One finds the etiology of all to be practically identical, the pathology to be negative, the symptoms, though differing, to show resemblance, the prognosis to be unfavorable in all, and the treatment to be more or less the same. In fact, one gains the impression that migraine, periodical vomiting, and epilepsy represent varieties of one condition, affecting the brain and giving rise to symptoms more or less light or severe.

Migraine is usually inherited, and some cases may be traced through several generations. Occasionally it commences in early childhood, though the time of puberty seems to favor the onset. Sometimes it may commence later, though rarely after middle age. Emotion, excitement of some kind, a disturbed digestion, etc., may be the direct cause. The most important symptom, and often the only one, is the unilateral headache, with loss of appetite, nausea, and vomiting. The attack may last from a few hours to several days. Prodromal symptoms are not rare, such as general malaise, nervousness, depression, dizzines, pressure in the head, and spots before the eyes. The headache affects one side of the head, usually the left; it may alternate or affect other portions of the head occasionally. It commences mildly and gradually increases in intensity. The patient feels miserable, is nervous, depressed, complains of throbbing in the temples, and is highly sensitive to light and noise. The loss of appetite is complete, and in severe attacks the slightest motion increases pain, and even the sight or odor of food may produce a new vomiting spell, with severe pain in the pit of the stomach. A prolonged deep sleep often breaks up the paroxysm and the patient may wake up in perfect health. The attacks are periodical, and the intervals between them vary from a week to several months. In some cases the skin is cool, the temporals hard, and the pupils large; in others the face is reddened, the arteries soft, and the pupils small.

In the angiospastic and paralytic forms of the disease the attacks are occasionally accompanied by disturbance of sensation, motion, and speech; a peculiar scotome and floating spots before the eyes are frequent; amaurosis is rare. In one of my patients it appeared as an aura and lasted each time for several minutes. Incomplete aphasia and paresthesias of various kinds are not rare. Weakness in one arm or in one leg or a complete hemiparesis occurs; differences in the pupils have been recorded; and in one of my patients was a symptom which I have noticed in several patients, namely, ptosis of the right eyelid. Palpitation and marked cyanosis, especially of the lips, are a constant symptom. Occasionally slight psychic disturbances may be found accompanying the attack. Just as in epilepsy, so also in migraine there have been described spells of dizziness and of cardialgia taking the place of the paroxysm; I have also found in one patient states of excitation and partial blindness. One of my patients would come to me occasionally in a highly nervous condition, saying, "Doctor, to-day I am as blind as a bat, but have no headache." Gastroxynesis is supposed to be such an equivalent.

Periodical vomiting, first described by Leyden, often affects children and adults apparently in the best of health. The paroxysms occur at intervals of from one week to several months, and the attack may last from one to several days. General malaise, headache, and other symptoms, as emotion and excitement, may precede the attack. The paroxysm is characterized by intense nausea and copious vomiting of food, followed by mucus and bile, and accompanied by intense pain in the pit of the stomach radiating to the back. The patients are depressed, are sensitive to light and noise, and avoid motion, as this increases the pain and the attacks of vomiting. Loss of appetite is complete. The headache may be unilateral, though occasionally it affects the whole head. Not rarely the paroxysm is predicted to the day, and its length is usually typical.

One of the characteristic features of epilepsy is the heredity of the disease in a large proportion of cases. It can be traced in families, and often a neurotic inherited predisposition is found. No lesion has yet been discovered to explain the disease. Its pathology is negative as to the cause. In all cases the paroxysms, mild or severe, half-sided or involving the whole body, are separated by intervals of perfect health. Aura may precede the attack, and do so in many instances, such as a twitching of muscles, pain in the epigastrium or headache, spots before the eyes, amaurosis, seeing of color, hearing peculiar sounds, anxiety, nervousness, and other similar symptoms. The onset of the paroxysms is sudden, sometimes directly caused by indigestion, constipation, excitement, etc. The patient is attacked when in apparently perfect health. A sudden dizziness, palpitation, or slowing of the pulse, a sudden perspiration or flushing of the face, a sensation as if paralyzed, with complete inability to move, are considered epileptoid; whereas a sudden loss of consciousness, occurring without warning, lasting a few seconds and perhaps following an aura and accompanied by a few convulsive movements, a sudden cry, and a fall, may constitute the attack, the patient afterward continuing his scarcely interrupted work. The paroxysms of "grand mal" consists of an aura followed by tonic and clonic convulsions and coma. The equivalents of epilepsy are peculiar psychic conditions that may take the place of the attack. Cases of bloody periodical vomiting are rare, and are rarely mentioned in the textbooks. Hysteria, according to some, occasionally shows repetitions of this symptom during an attack, the amount of blood vomited usually being small.

The following cases are reported for illustration:

Case I.—Mrs. S., 48 years of age, born in Mississippi, the mother of five children, stated that her father was a healthy man and died at the age of 70 years. She did not remember her mother, who died during childbirth, when 37 years old. She had had scarlet fever and the usual diseases of childhood, but no other infectious disease. She remembered to have had severe attacks of unilateral headaches with nausea and vomiting since early childhood, which became more frequent and regular with the establishment of the menstruation. For the last twenty years she had had an attack each week, commencing on Wednesday and usually lasting three days. She always had been entirely free from attacks during her various pregnancies. With each year they had become more and more severe.

The attacks commenced with headache coming on at a time when the patient felt in perfect health; they were left-sided, and increased in intensity till they became unbearable and morphine had to be administered by injection in order to stop the excruciating pain. As the pain increased nausea commenced and copious and repeated vomiting spells followed. First the stomach was emptied of its contents, and large quantities of acid water, mucus, and bile followed, the vomiting being accompanied by intense pain in the epigastrium radiating to the back. For many years she had vomited blood in these attacks, varying in amount from a few tablespoonfuls to a cupful. I had an opportunity to observe two such paroxysms of bloody vomiting in two successive weeks. Gradually the severity of the symptoms decreased, and after two or three days she fell asleep and woke, weak but with appetite restored and apparently in good health. During the attack the patient was pale, cold, and clammy, and of a collapsed appearance; the abdomen was sunken and tender to the slightest touch, the extremities were cold, and the pulse was feeble and rapid, the arteries were contracted, and the urine dark in color and small in quantity. The patient was gracile, 5 feet 2½ inches tall, and weighed 103 pounds; had had white hair since the age of 25 years. The respiratory and circulatory organs were in perfect condition. The stomach was in the normal position and the contents, after a test meal, showed nothing abnormal. The urine was normal. Nothing abnormal was found in an examination of the abdomen. She had hysterical stigmata. The patient yielded readily to treatment, for the first time during the last twenty years has been free from attacks for three months at a time, and is still doing well.

Case II.—M., 8 years old, was a school girl. Her father was in good health, her mother, hysterical. She had had measles and chicken pox during the first years of her life. When 4 years old she contracted a cold, and with it an attack of severe nausea and vomiting. Since that time she had had these attacks regularly about once a month every winter, and occasionally in the summer. The paroxysms commenced as a rule with a cold, headache, and nausea followed by vomiting. The stomach contents were ejected and followed by large quantities of greenish sour liquid, mucus and bile. The loss of appetite was complete, and for days the smallest amount of food taken caused new spells of vomiting. The paroxysms lasted from four to five days. The temperature occasionally rose. The urine contained albumin. During the attack the child suffered intensely from the nausea and pain in the pit of the stomach. The face was pinched, the extremities cold and clammy, the arteries contracted, the pulse rapid, the abdomen sunken and painful on touch, and eyeballs protruded, especially the left. The exophthalmos and albuminuria lasted several days after the attack had passed. Sensitiveness to light and noise was excessive. The child was poorly nourished and nervous; the chest and abdominal organs were normal; the urine was free between attacks; the ears, nose, eyes, and throat were normal. The child has been free from attacks since November, 1908, when treatment was commenced.

The exophthalmos which accompanies the attack indicates intracranial venous hyperemia. The direct cause of the attacks may have been the swallowing of mucus during a cold.

Case III.—Mr. G., 58 years of age, born in Louisiana, a plantation manager. He did not use alcohol or tobacco. His mother died when 78 years of age. His father had been a very nervous man, and had suffered from migraine during his whole life. The patient stated that he had suffered from severe attacks of unilateral headache with nausea and vomiting since childhood, that the attacks had become more and more frequent and severe on the left side, and that excitement, especially anger, brought them on. The patient was of a nervous temperament; the chest organs were normal, the arteries sclerosed and tortuous. The stomach contents, after a test breakfast, showed nothing abnormal. The patient stated that he had been gray since the age of 17 years. No paroxysm since October, 1908. I have noticed frequently that these patients turn prematurely gray, probably due to a disturbed nutrition of the hair.

Case IV.—Mr. P., 33 years of age, born in Louisiana, had been chemist on a sugar plantation till 1901. The patient comes from an hysterical family, his organs are normal and his life is regular; he does not use alcohol or tobacco. In March, 1901, he was employed as a trainman, and while trying to put off a man from the train was shot, the ball crushing the skull above the right ear and glancing off. He was unconscious for a few minutes and woke up with difficulty in breathing, inability to speak, and complete left hemiplegia. From this he gradually recovered in the course of a few weeks, the bone having been entirely removed over an area the size of a quarter of a dollar. In October, 1901, he was employed as chemist, and it was then that he had his first attack of losing consciousness followed by convulsions. They were repeated every three months for two years, then they changed to attacks usually at 3 A. M., commencing with a groan or cry followed by tonic and clonic convulsions and coma. They became now more severe, and sometimes he would have four to five paroxysms one after another. A year later these paroxysms would alternate once a week with spells of insanity, as is usual in these cases of great violence, each lasting for several days, so that in June, 1904, he had to be confined to an asylum. It was then that the treatment as outlined later was commenced, and ever since he has been free from attacks and has made his living as a clerk.

Case V.—Miss B., 36 years of age, was a frail, nervous patient. She had always been nervous but in good health until ten years ago, when, after some trying work one night, she was taken with a severe paroxysm. The mother stated that she heard her cry, and hurrying to the bed, found her in convulsions and unconscious. This first paroxysm was followed by a large number during the first twenty-four hours. The next was six months later, at night, and since then she has had attacks with an interval of four to six weeks. They were preceded by a drifting sensation and twitching in the hands when coming on in the day time. Patient has a good family history, except that the mother is hysterical, and her organs are normal. Was first seen April, 1907, and has been free of attacks since.

Case VI.—Anna B., 12 years old, was an adopted child, nothing known of her parentage; had had attacks of genuine epilepsy since she was two years of age, a paroxysm every two months. She was mentally undeveloped. The organs were normal. There have been no attacks since the treatment was begun.

Case VII.—R. H., 20 years of age, a student. In December, 1907, he was struck on the right side of the head by one of his schoolmates with the foot during hazing, and had an epileptic attack three days later. Ever since that time he had had a paroxysm once a week, sometimes at night, sometimes during the day. There was no aura, the patient dropping to the ground without a sound, as if shot. The left arm and leg became rigid, followed by convulsions and coma. Operation was considered useless by a surgeon. Treatment was commenced three months ago, and he has been free from attacks since then.

One cannot fail to be struck by the resemblance of these diseases, as has been recognized in migraine and epilepsy. The heredity is a characteristic feature, and the search for a pathological lesion has been negative in all; symptoms of epilepsy point to a focus, and focal symptoms are occasionally present in migraine. An aura may precede the attacks, and excitement of some kind, as anger and fright, or digestive disturbances, may cause it directly. The onset is sudden in all, and the paroxysms are separated by intervals of apparently perfect health. It may be difficult to differentiate an attack of periodical vomiting, while migraine and paroxysms of epilepsy show resemblance. A prolonged and deep sleep usually closes an attack from which the patient awakes to apparently good health. The equivalents of migraine resemble those of epilepsy. With the absence of a lesion in the brain as a cause, it is difficult to find a satisfactory explanation of these conditions, and numerous have been the theories advanced, such as the theory of autointoxication, the "Strümpel" theory, "sudden removal of inhibitory influences, sudden discharge of stored-up motor impulses," and others. Vasomotor spasms have been thought to be the cause of migraine. The theory advanced by the writer in *American Medicine,* Vol. XI., No. 9, pages 312-15, is that the condition is due to a permanent instability of the brain, inherited or acquired, and a congestion brought about by various causes there stated. The paroxysms with convulsions and focal symptoms due to edema seem to explain the paroxysms of migraine and periodical vomiting as they seem to do those of epilepsy. Acting upon this theory, treatment of the general conditions of the patient has been carried out with special attention to the circulation with the means well known and understood. A bland, salt-free, vegetable and fruit and milk diet, withdrawal of all stimulants, mild purgation more thorough at the time of an expected attack, mild hydrotherapeutic measures, exercise and rest in proper proportions, and the administration of atropine, the bromides, and nitroglycerin as indicated, have succeeded in relieving a number of these patients.

Thanks are due to Dr. A. Fossier, who has assisted me in this work.

SPECIALISM IN MEDICINE; IS IT OVERDONE?*

By THOMAS J. HILLIS, M.D.,

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It is not the purpose of the writer to go into the history of medical practice—trace it step by step through the centuries. He prefers to leave that to the medical historians, one of the ablest of whom has the honor to be a member of the Celtic Medical Society, one who delights to bask in the ancient literature of medical nomenclature.

The art of healing was respected and prized in the ages past and found expression in the temper and culture of the times. Farther back than the thirteenth century, it began to be recognized that the field of medicine was too wide to be grasped by any single hand, that in order to cultivate that field it was necessary to cut it up into sections to make it the more convenient, and its application the more certain. That was the hour the specialist sprang into activity. This activity, however, was arrested by periods of repose, but light there was, a dim light to be sure, but nevertheless increasing in candlepower until to-day, the twentieth century, when the light is dazzling, searching out the dark corners and exposing their contents to view, yes, piercing the human body and with fidelity photographing its interior, penetrating even masses of solid steel as if they were cobwebs.

The science of medicine has appropriated some of those discoveries and put into the hands of some of its professors those new weapons to know the use of which constitutes the physician, to be expert in the use of one constitutes the specialist. Now, in order for the individual to determine his expertness and adaptability in handling best some one of those several appliances, he must find out just which of the weapons is best adapted to his weight and reach, measure it as a skillful prize-fighter does his adversary facing him in the ring.

A great deal has been said about the time a student should devote to be accounted skillful in his specialty. Some say five, others ten years, working in the wider field of general practice and the particular branch that he recognizes as his forte should appeal to him as a heritage, a birthright, while treading the wine-press with the others in the larger vineyard. It is essential, though, that the man be possessed of a knowledge of the whole field—since the whole contains all its parts—to be the better able to determine any inequalities in a given part.

It is the opinion of the writer that no hard and fast rule can obtain in a matter so significant. Two men of unequal intelligence adopt a profession, the medical profession, a specialty. The less intelligent soon outstrips the other because he possesses a deftness of manipulation and adroitness in accomplishing that leaves no comparison between the two. He can do more and do it better in a given time than the more brilliant man. In other words, the plodder is on top. His genius for application sent him there, and often keeps him there to the disgust of his brilliant rival at the foot of the ladder looking Heavenward in vain. The man above has concentration and grasp. The man below is towering, overtopping in intellect, he has the material but cannot construct. The creations of his bright mind are utilized by the other fellow who knows how to build securely—he has climbed up the brilliant man's back to occupy his exalted position.

To specialize as approved by usage is to use the square and plumb, travel through a dark alley without hitting his head against a projecting brick from either side, breathe an atmosphere saturated with his own mode of procedure and reflecting his ambition, build with material often quarried by other hands than his, side-step responsibilities to be shared with others. In fear of slipping he carries a balance pole to better maintain his equilibrium, which shifts with the conditions that environ him.

*Read at a meeting of the Celtic Medical Society, February 24, 1910.

To accomplish his purpose it is meet he should be thus ready and he is.

No doubt this is why the specialist seeks an avenue of exit for the consequences of his intense application by betaking himself to other and pleasanter pursuits, indulging his fancy in a hobby, as teaching his favorite dog to dance, a goat to butt with neatness and despatch, a chantecler to crow with better grace and rhythm. Or, he may rise to a higher plane, trace a comet in its wanderings, tread the dark pathways of space in an effort to circumscribe the Universe, or weigh a distant sun. These hobbies are the safety valve that keep the specialist on the monorail of daily routine, the gyroscope that regulates his movements, clarifies his brain, and fits him for renewed and better effort.

The best specialists, as a rule, don't know how to write, writing is a sealed book to them. The art of writing is a specialty in itself and a great one—a thing often to which the most accomplished operator is a stranger. Often the man standing by gives valuable hints to the operator, while if he had the knife in his own hand it might go hard with the individual on the table. This sort of thing makes fine operators poor lecturers, the two qualities are seldom found in the same man. The downright failure in the operating room often turns his hand to writing—perhaps a text-book, something he has to tell the other fellows, things he has observed that have escaped their minds—that is, if they were ever there. But mind you, gentlemen, he will avoid stating that he was himself a failure in the art about which he preaches. He has written well, much better than he could operate, operating was not in his line and writing is.

The ambiguity and verbosity in most of the medical volumes on our shelves make them practically unreadable. This is largely due to the fact that the author wants to make a bigger book than the facts he has to present warrant. So he pads and stuffs and succeeds in spoiling his book and the temper of him who tries to read it.

He is the man of the hour in literature, any literature, who has something to say and knows how to say it. The unread author, as a rule, has attempted too much. He may know how to make a pair of shoes, but he cannot make that fact known in his book. Then, gentlemen, his specialty was making shoes not writing about them. To-day, the writer of a text-book, and a good one because he did not write it, is extolled for his perspicacity and clearness. The book is clear, you can see down in the deep water, thanks to a clever fellow who has no standing in the operating room, but whom the author in a moment of felicity or inspiration selected to do the work for which he himself was so illy fitted.

That gentleman was an operator not a writer. He did not commit the blunder of the shoemaker who tried to write about shoes. He was keen enough to recognize this in time to save himself the mortification of reading about his book in the medical journals which have lately come to grow tired in the monotony of condemnation, and cut stupid authors to pieces in their review of new books. Now, was he magnanimous enough to give due credit to the gentleman that set his compass and pointed the way when he was heading directly for Salt Creek?

It is not from numbers in the wide field of medicine that danger will come. The overdoneness will be in the man not his occupation. If his eye or mind or both be trained to look for a certain thing or effect, and for it only, it or something like it is very likely to appear. If the specialist be overtrained—trained too fine, hears imaginary sounds, examines everything big or little with a magnifying glass—a time comes when he is color blind, his spectrum is blurred, the lines impinge on each other, and he is sure to make mistakes in diagnosis and treatment, operate when not necessary, oftener than not operate when necessary.

It is an everyday occurrence with most of us while on our professional rounds to be bored or amused, as strikes our temperament, with fragments of gossip swapped by passengers at our elbows. Two ladies meet, the conversation proceeds. The one, after exhausting her magazine of invective against the design and proportions of her rival's hat, switches off with:

"How is your mother's cold?"

"Quite improved, thank you," replies the other, "but we were anxious, since a specialist discovered bacilli in her sputum. He said if we remained in the lowlands mother was doomed. We remained; the germs proved harmless."

"That's how it was with Aunt Betsey," said the former speaker. "Pa took her to a liver specialist. He said she had cancer. She went home to die but didn't. She is now at a tub of clothes. I must hurry my shopping as I want to help her with the ironing."

Those specialists were overtrained, if trained at all, and overtraining is as bad as undertraining—here extremes meet. Both beget carelessness which is the parent of ignorance and overconfidence. Reflection and repose are valuable adjuncts to the repertory of all, but most valuable, perhaps, to the professional man and specialist.

Then is specialism overdone? Hardly, the truism that "many hands make light work" holds in this case as in others. The work will not only be lighter, but it will be better done. In the industries this is well understood, so that it has come to be that a foundry, a factory, a dry-goods shop or department store has in its employ all the way from five to twenty-five departments, specialties. The supervisors of those departments are veritable specialists. It ensures better and more efficient service. The standard of efficiency, not numbers, is what tells in the final accounting. In the end a bungler will be more expensive than a better man.

This fact impresses itself upon the patient when if the incompetent do not improve in his methods he is relegated to the rear to be lost in the cloud of dust left behind by the men racing to the front. The temper of the hour is for maturer judgment and better technique. As the profession stands to-day it is quality not quantity that counts, but quantity and quality will harmonize, grow together, and prosper.

As to the bungler, he often waxes fat and flourishes like the green bay tree, but all the while he is in hiding behind a powerful patron, someone is standing between him and the results of his very inferior work. The pathologist knows about it, so does the undertaker. Neither will speak. The former is overwhelmed with the excellence, if not the beauty of his specimen, the latter chuckles over his great good fortune, while the elders weep and the ragged urchins gambol on the naked hearth.

The physician of to-day, specialist or not, particularly if he be a good one, who has a bishop for

a patron, has his professional future in his pocket. If, however, he have the great good luck to claim an archbishop, his path is strewn with flowers and the road to success is a triumphal march, not only for himself, but for the two or three favored youths who are fortunate enough to be accounted his assistants.

Then, again, there are times when there is not room at the top for merit, for the fellow with the lighter specific gravity has by a trick taken the big man's place, crowded him out as it were. He has come to the surface on the back of his patron who is an adept at this kind of swimming. Often the well-equipped and capable physician, be he specialist or not, is left at the bottom of the pool. He is handicapped by his own avoirdupois for the reason that he does not know how to manipulate—how to court success.

At present the activities of our arduous lives demand a greater nervous energy, a greater consumption of force—the thing necessary to keep us alive. The wear and tear is telling, and since an effort must be made to maintain a standard of efficiency, more men must needs be employed—specialists to handle the different and varied clinical material always on hand in the two or three hundred hospitals, public and private, in Greater New York. These numbers are constantly growing and the hospitals daily, like the sea, giving up their dead.

Why are the hospitals in existence? Simply to supply a want. Why do so many people die who go to the hospitals? Is it because they don't present themselves early enough to the clinician? Then do they die through their own want of thought or inclination in the matter rather than by incompetent hands? To-day there are at least four times the physicians per capita of the population that there were when some of us were young, and they have much to do.

Gentlemen of the Celtic Medical Society, is this army, the subjects of disease, to be permitted to go forward in its march of death? Happily, no; a way is being opened. It is the domain of preventative medicine, and now working with assiduity in that domain are the students of experimental science—with a view to prevent disease rather than to cure it. Here again the old saying has its charm as well as its significance, that "an ounce of prevention is worth a pound of cure." On this trite aphorism the whole superstructure of experimental and preventative medicine rests.

We would have thought of this before if we considered that it is easier to prevent an accident than repair a damage. The services of two watchmen in place of one will make the work more efficient, and certainly will leave less to do for the repair shop. It may take five physicians to convince a millionaire that he is not the victim of Bright's disease, but, on the other hand, if he be, perhaps twenty-five cannot cure him of his malady.

This new field of preventive medicine will have its specialists, but they will be better informed than they are to-day, and I think more numerous. The quality, rather the faculty, of observation will be cultivated with greater assiduity. The best observer will be the most skilful physician. This habit of observation will bring the physician face to face with the causes that militate to produce disease. He sees the weak point in the flange of the driving wheel, and applies the safety brake. His presence there was of the utmost importance—for he averted a disaster.

A child can pull a young tree from its earthy bed, but a giant cannot budge that tree if it be permitted to take deep root. An infant can apply a cog to wheel the instant it begins to move down a declivity, but give it a few seconds to gather momentum, and it will crash through a wall. To arrest a disease at its inception means intelligence and preparedness. Those valuable aids are summoned by the careful observer who knows how to utilize the material in his hands.

The man, whoever he be, that has eloquence and persuasion to prevent another man from eating five plates of boiled tripe in place of one is a benefactor, a conserver of energy, and an observer not without a future. For have his observations not led him to think? It was this that spurred him to action and lost a patient to the clinician of the old régime.

Knowledge is power, whether it be possessed by the specialist or some other man who may be a special specialist in a particular case. When an operation is necessary, and so formidable that an anesthetic is about to be given, the intelligent observer may here vouchsafe the information that the man nearly lost his life once before, being a bad subject for chloroform.

Gentlemen, we see in the dawn of what light the new era has so far afforded that careful observation is the sheet anchor of him who can hope to succeed in the field of preventive medicine. To observe carefully takes time, then to do a certain work properly will be not one man's portion, but ten men's.

A man is dead; his loving friendship is severed from those dear ones about him, besides the money value of his activities that could be prolonged for years. If the services of five or ten observers could have saved this man's life, it would be a boon to his family, a gain to the State, and a credit to his medical advisers. Here a benefit would accrue to all. True, it would have required the services of more observers, but since success was the object to be attained, its attainment was well worth the labor necessary to that end.

Groping in the dark, but with an effort to seek the light, the Celestial physician centuries ago attempted to inaugurate what in the near future will be accomplished. That is, anticipate disease and arrest its progress, rather than by an effort on his part to cure it. The keen appreciation of things that are transpiring will lead to a closer observation, which will furnish a storehouse of knowledge easy of access to him who possesses it, but a sealed book to the careless man, even though he be called a physician. Gentlemen, he is an accomplished clinician who knows the quality of a pulse and can tell the significance of a heart beat.

Then in the field of preventive medicine will be a great number of observers, and those observers will be physicians whose duty will be to detect a flaw in time to avert a disaster, by, if necessary, calling an assistant who will be a specialist skilled in the kind of work necessary to be done in a particular case.

Finally, it is the opinion of the writer that specialism is not overdone, but considerably underdone. This is why people, over the head of their family physician, consult a specialist, purely from delinquency on his part, who probably tarried long after he found his own efforts of little avail. This has reference to operative measures rather than medicinal ones. It is the keynote of preventive medicine that the practitioner and specialist be in close touch.

In order to do this the specialist must come down a peg or two and meet the practitioner half way, and not with an air of superiority, but on terms of equality.

Taking for granted that the specialist can do something better than the practitioner is no reason to assume that he can do everything better, and by so assuming the specialist presumes too much. This presumption the practitioner feels and resents, and from this comes the isolation of the specialist.

The era of preventive medicine that is upon us will bring more men into the field, and, as we said before, will bring them better fitted, for they will need to be, since at the present day a medical specialist and consultant has little prescience, and will say without any compunction whatever, "We must wait for developments," while he hates to wait for his fee. "Waiting for developments," sir, won't do. You must anticipate them, and correctly, and you would be able to do it if you were a careful observer —one who profited by experience.

For in the light of this twentieth century medication, old systems are being abandoned and old methods so exposed that we are ashamed of our accomplishments. Crude and barbarous they are—the conceptions of ignorant pretenders and very commonplace plodders, but we are redeemed in the fact that we saw according to our light, and acted in harmony with the meager knowledge we possessed.

Yes, gentlemen, the day of waiting to see what's going to turn up is gone forever, and even the people we meet in the sickroom to-day are not the kind of people we met there thirty years ago. The people of to-day are more keen-witted and possessed of the kind of intelligence to make the physician think, and think accurately, or they will know the reason why. Indeed, a stupid doctor has no standing in a sickroom, even in the face of an ordinary 'longshoreman or housemaid, who can tell with surprising accuracy all about the human appendix and discourse with glibness upon the germ theory.

To answer or dodge the questions, intelligent ones, these people bombard you with means that you are a live and resourceful physician. It also means that what Abraham Lincoln called the plain people will not longer be fooled with the five and ten-cent store style of medication, mostly engineered and operated by some of our brethren of a speculative turn of mind for their own pockets.

Even now, to meet the demands of the hour, the physician must come into the sickroom ready to gather round him, if necessary, associates, each skilled in his specialty. This course as an economic measure will have its value and its reward. This all-important subject has resolved itself into this—that healing the sick has grown obsolete. So much so that we physicians recognize this and try to shirk the consequences by an effort to throw the responsibility on other shoulders.

To accomplish the desired result there should be more harmonious action, more urbanity and charity. Then the practitioner and specialist will be in closer touch, making their work more congenial, their labor more efficient, and the result more certain. Then the practice of medicine will really be a science, the most efficient interpreter of which will be the most skilful physician, and the best exponent of that interpretation the most successful specialist, when the patient and his advisers have formed a partnership, a health trust, the object of which is a mutual benefit.

35 Charlton Street.

NECESSITY FOR SCIENTIFIC MEDICAL NOMENCLATURE.*

By A. ROSE, M.D.,

NEW YORK.

Socrates, defending himself before his judges, said: "All my life long have I been attempting to expose the weaknesses of my compatriots and to incite them to correct their errors. In future, they will probably fall to slumber, if God, out of pity, will not send another man to arouse them." And, indeed, not one man, but many great men, have appeared to enlighten the Greeks, men who have created the highest civilization and who have left to the world a rich inheritance. Aristotle, Plato, and Hippocrates, have continued to be, up to our time, the teachers of mankind.

While all civilized peoples of all times owe gratitude for the rich inheritance which the Greeks have left to them, it is especially our present time which more than any other should be reminded to keep in view the precious benefits of classical civilization. It seems as though at present money and comfort were considered the highest aims of man in this world, and science and art were valued first of all according to the material gain which they may bring.

In view of this materialistic tendency of our time it is well in place to show to our youth, to our society, that there have existed men who paid little attention to those things which are admired above all others at present, who devoted their lives to ideals and to science, who have become immortal benefactors of mankind. When we familiarize ourselves with, and indulge in the generous inheritance of classical antiquity, we imitate Juno, the wife of Jupiter, who took every year the wonderful bath which rejuvenated her. Without this rejuvenation, without this spiritual revival, men who are at the head of civilization will soon be in danger of becoming savages and bemeaning themselves.

Considered from this point of view, the knowledge of the Greek world is not only a sacred duty to all who have science at heart, but it is at the same time a sacred tribute which we owe to the great men of antiquity, and it is the first condition of our existence as men of civilization, it is the correct measure of our value as men of learning.

The names of new scientific inventions and discoveries are mostly Greek or new-formations from the Greek language, and this is natural enough, because the foundation of medical knowledge, of philosophy, and of almost all sciences was Greek, and the sciences have been transmitted to the world together with their Greek onomatology. The Romans were the first to accept from the Greek, together with medical learning, Greek terms in medicine.

The language of medicine is the result of its historical development; the chief constituent part of the linguistic treasure of natural philosophy is contained also in the confines of the classical languages. It is by this means that the sciences still bear to-day the stamp of intercommunity, simplicity, and internationality, and this fact makes it an indispensable duty for every physician and natural philosopher to acquire a knowledge of the Greek and Latin languages. A physician who has no knowledge of Greek and Latin lacks dignity. Who-

*Read at a meeting of the New York Academy of Medicine March 31, 1910.

ever admits that Greek is necessary to the physician—who more than any man has to enter deeply into every sphere of human life—must also admit that, other things being equal, the best physician (for an absolutely good physician it is not possible to find) who has no knowledge of Greek would be a great deal better if he had not disregarded that which is the crown and flower of the highest culture.

It gave me great satisfaction to read in a paper the views which Dr. John A. Wyeth has expressed in an address, "The Medical Student," delivered before the Mississippi Valley Medical Association in 1890, he said: "The decline of Greek in the classical curriculum is certainly, so far as medicine is concerned, a great mistake. . . . In Dunglison's Medical Dictionary there are approximately forty-one thousand words, of which twenty thousand are of Greek origin and twenty-one thousand are from the Latin, English, French, and Saxon. Just think of it. To the medical student without a fair knowledge of Greek, one-half of the words he uses he doesn't understand." Indeed of all that we have read on the question of Greek in our colleges this view of Dr. Wyeth, I think, is the most noteworthy.

Another mistake of our colleges is that no attention is paid to the study of the Greek language as spoken and written by the educated classes of Greece to-day. The language which we find in the classical writers was never the language really spoken by any one, not even by those who wrote it. The study of living Greek offers a broad field of linguistic, philological, literary, and practical import. The classical literature of the Greeks is but a fragment of the Greek language; without knowledge, without study of the complete language, the one spoken to-day included, much of the writings of the classics must remain unintelligible.

The Greek language of to-day is as genuine as the Acropolis is genuine. The Greeks have eliminated those foreign elements which have been introduced during Xenocraty, in the same way as they have removed the defacings of the Acropolis dating from Turkish rule. Not only the Greeks of the classical period, but also the Greeks of to-day, deserve our highest admiration and gratitude; the latter because they preserve the treasures of the ancients; the treasures of art and the purity of the language.

During the last year (1908) an important event happened in Greece which well deserves our attention. It is the appointment of a committee to prepare and to publish a historical lexicon of the Greek language, comprising all times from Homer to the present date. The members of this committee are men who are known already in the world of science. There is, first of all, Professor Hatzidakis, whose name, whose writings, are the most important of any Greek philologist of the present time, and who inaugurated the idea of the great work, the new Thesaurus of the Greek language, as it is called. Another member of this committee is Menardos, a pupil of Hatzidakis, now professor of modern Greek at the University of Oxford.

This new Thesaurus of the Greek language will be an everlasting monument to the immortality and unanimity of the Greek nation; it will demonstrate the history of the entire Thesaurus of the Greek language; it will comprise all its forms and phases, reflect the inner and outer history of the Greek nation; and it will show that the Greek nation has remained an ens, both ethnographically and linguistically, from the oldest time up to the present day.

It is true, the gigantic undertaking is yet in its initial stage; all kinds of difficulties have to be overcome, even the preparations require a great deal of time and a large sum of money, and it is well known that the Greek government, on the subsidies of which the editors have to rely, is not rich. But considering that the modern Greeks are not the only heirs of the culture which their forefathers have left to the world, that all civilized peoples of Europe and of America are heirs, that all owe a sacred duty and have a direct interest in the Thesaurus, it is to be hoped that all peoples will come to its aid, that the monument of the glorious language of three thousand years may be better understood; for such better understanding will mean a great gain foremost to the world of science.

For us physicians, too, a work of this kind means a considerable gain, because by its aid the correct scientific denomination of words of Greek origin can be definitely established. Lavoisier, in his beautiful words on the importance of correct onomatology, says: "The logic of science essentially adheres to scientific language . . . perfection in science is impossible without perfection in language . . . . however true the facts may be, however correct the ideas developed by facts, only wrong impressions will be transmitted so long as the expressions by which they are communicated are not exact."

Lucas Papaioannou, the greatest Greek anatomist of his time (he died in the year 1890), who was also a distinguished philologist, laid the foundation for the only possible scientific reform of anatomical onomatology. He studied the writings of the ancient Greek philosophers and physicians in regard to their onomatology, utilized all that was of importance for the present time, and introduced 2,700 new formations which he had constructed according to the laws of the language as only a Greek who is physician as well as philologist can master these laws. The nomenclature of Papaioannou has been introduced into Greek medical literature.

While it is necessary to acquire a knowledge of Greek, of the really spoken Greek, in order to apply Greek technical terms correctly, it is not said by any means that we foreigners are competent to coin new words from the Greek. This work we have to leave, naturally enough, to native men of learning, and, as far as medical terms are concerned, to the comparatively few of them who are at the same time physicians and thorough philologists. This fact is well illustrated in the columns of the medical journal, Ἰατρικὴ Πρόοδος, edited by John Phoustanos, who is also the editor and publisher of another great patriotic work, a complete edition of all the ancient Greek medical writers, not only those that are already obtainable in book form, but also those that have been out of print, and even those which exist only in manuscript. The texts are faithful reproductions of the originals, free from the errors that are to be found in current editions of the classical works.

In these days, of course, when books printed in the ancient languages are no longer sought for to any great extent, commercial gain can hardly be expected to result from such an enterprise; in reality it means an enormous sacrifice of labor and money. This is fully recognized by the editor; his work is purely patriotic, and that fact makes the

undertaking all the more creditable to him. Medical scholarship cannot fail to be immensely benefited by this great work, one that is sure to heighten the prestige of modern Greece in medicine.

When we compare the philological explanation of medical terms as given by this philologist and physician in his journal, with the attemps of German, American, and English committees appointed to revise medical onomatology, the members of which have never seen a Greek text-book on anatomy, we have to confess that these committees, although composed of distinguished members of the profession, cannot be taken seriously. Dr. Phoustanos has almost finished a dictionary of all the terms used by the ancient Greek physicians as well as the numerous names in our present onomatology. Of the latter those coined by foreigners who are ignorant of the Greek language present a pitiful and repulsive spectacle of barbarous distortions of Greek. This immense agglomeration of errors and barbarisms is corrected in this lexicon according to the rules of the Greek language.

One of the distinguished men of the University of Athens, Rigas Nikolaidis, professor of physiology, has in his classical book on physiology, like Papaioannou in his text-book on anatomy, constructed correct Greek terms for new conceptions which have been highly approved by the philologists and are accepted by the medical profession of Greece, as the terms of Papaioannou were accepted.

Hatzidakis, this long time and incessantly, has suggested that the scholars of Europe and America should cooperate with those of Greece. Indeed, as long as physicians and natural philosophers of the whole civilized world shall continue to name their inventions and discoveries by Greek terms, such cooperation will be the only means of doing away with difficulties and confusion. The Europeans and the Americans will then cease to take the first word they come across in the lexicon, and will have carefully selected most suitable regular denominations if they address themselves to competent Greek scholars.

One of such Greek scholars who has done noble work in revising medical terms, as to their correctness or incorrectness, and of whose explanations I have availed myself in all my writings on the subject, is Dr. Basilios Leonardos, director of the Museum of Inscriptions; as a matter of course he is, on account of his position as philologist and archæologist, looked upon as an authority. Fortunately for us, he is also a physician, a graduate in medicine of a German university. Of especial value is his book "Olympia," written in pure and elegant Greek; the style of this work contradicts all that has been said against modern Greek.

And speaking of the best men of learning, the greatest scholars of Greece, we have to mention Klon Stephanos, who is willing to aid us. His ethnographic and especially anthropologic labors I have described in my book, "Christian Greece and Living Greek." He is like Leonardos, a physician, a graduate of a German university, and, also like Leonardos, a profound philologist and linguist. While Leonardos has devoted himself to the study of inscriptions, Stephanos has made ethnography the work of his life, and both deserve the gratitude of the whole civilized world for their labors in the interest of science.

Permit me, Mr. President, after having given you these statements, these informations, and having demonstrated the necessity of a scientific onomatology, to speak as a member of the Medical Society of Athens, as a member of the committee appointed by the Athenian Medical Society, to aid in the regulation of medical onomatology. I beg to suggest that the New York Academy appoint a committee which will communicate and cooperate with our Greek brethren who are engaged in this onomatological work for the benefit of medical science.

173 Lexington Avenue.

Contribution to the Treatment of Scoliosis Automodeleur of Mencière with Pneumatic Pressure.—Louis Mencière presents a new apparatus for the treatment of scoliosis, in which the thorax is so pressed upon by pneumatic cushions during respiratory gymnastics that its normal shape is gradually regained. He makes use of passive measures consisting of *redressement forcé*, manual or instrumental, mobilization of the spine, and mechanotherapy. To this he adds modeling of the thorax during respiration as active measure. His apparatus is prepared for each individual case, a cast of the thorax being made from which a positive is made with pneumatic cushions placed over the prominent parts of the deformed thorax, and over the depressed portions spaces are provided intended to allow of increase in size as the thorax expands. When deep inspirations are made the pressure of the elastic inflated pneumatic cushions connected with a compressed air apparatus pushes in the prominent portions, while the depressed portions tend to expand into the space allowed on the opposite side. The head is fixed by a head sling suspended from the ceiling. Another exercise is given in the same position with the child exercising the arms and shoulders by pulleys. A third places him in a sitting position while the apparatus is in position and allows of exercise by lateral pulleys. During the exercises the apparatus follows the movements of respiration, the partially ankylosed costovertebral joints are limbered, and the unused portions of the lungs are inflated. All the exercises should be carefully supervised by the physician.—*Archives Provinciales de Chirurgie.*

Alterations in the Blood in Intoxications.—Consoli Nicolla and Mantano Saverio say that in the infections there is an increase in the leucocytes, especially the polynucleates. The researches up to the present day in this direction have included only the infections, and not the other intoxications. There is a large group of substances of an intoxicating nature that are formed within the body and which produce similar symptoms. The authors have made experiments on these substances, producing intoxications in animals by means of them, and then making blood counts and tests. The substances thus tested are acetone, indol, phenol cresol, and one other substance ethylic alcohol. The results found are as follows: these substances produce marked changes in the blood; only acetone has a direct action on the red blood globules producing hyperglobulia; the others diminish the hemoglobin in the blood; all cause hyperleucocytosis and polynucleosis; the lymphocytes are constantly and markedly diminished; the large mononuclears and eosinophiles are also increased; acetone causes presence of medullary cells and myelocytes. These substances have a chemiotactic action on the white globules similar to that of the infective toxins; here the polynucleated neutrophiles pass out of the medulla of the bones and get into the circulation. A phase of hyperactivity of the osseous medulla is shown by the presence of medullary cells, myelocytes, and normoblasts.—*Giornale Internazionale delle Scienze Mediche.*

Examinations for Lactose in the Urine During Pregnancy.—E. Gérard and M. Oui review the communication in which Porcher states that lactose may be found in the urine of most women in the few days or weeks before labor takes place. The authors, in order to get results confirming or against this statement, made 170 examinations of urine in 44 women at different periods of pregnancy. Three cases were thrown out as unsuitable, and of the remaining 41, the urine of whom was tested in the last few days before labor, they found lactosuria in only five, that is 12 per cent. Their results are very different from those of Porcher, lactosuria being in their observation much less frequent than that author found it to be. Out of these five cases lactose was in small amount and found but once in each case, the largest amount appearing in a woman who did not nurse her child.—*L'Echo Médicol du Nord.*

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A NEW INFECTIOUS DISEASE.

IN the course of the last century immense strides were taken in our knowledge of the acute infectious diseases, and especially in the differentiation and diagnosis of the various forms of continued or remittent fevers. During the early part of the century, from the great group of "pestilential fevers" were separated various entities, chief among which were malaria, typhoid, and typhus, these being definitely distinguished upon the ground of their clinical appearance and pathological changes. The greatest step, however, in the advance of accurate knowledge of this group of diseases was made during the last decade of the nineteenth century by the work of Widal and others on the agglutinius of the blood in health and disease. It was soon found that the Widal reaction, while positive in a very considerable majority of cases presenting the clinical and pathological findings of typhoid fever, failed completely in a fairly constant minority. The discovery of the paratyphoid bacilli at first gave hope of clearing up this smaller group. Within limits this hope was realized, as many cases of paratyphoid fever were reported, and for some time a case clinically resembling typhoid fever, but failing in the Widal reaction, was often hastily accepted as an infection with one or other of the various paratyphoid bacilli. Careful attempts, however, to confirm these cases by agglutination tests and blood, urine, and stool cultures, showed that, though many of them were cases of paratyphoid, a small group still remained which could be classed in no better way than as atypical typhoid fever, showing neither agglutination reactions nor bacteriemia.

Such cases have been very puzzling to the diagnostician and the statistician, and have been entered in the records of the hospitals under the various titles of atypical typhoid fever, paratyphoid or paracolon infection, influenza, febricula, autointoxication, digestive fever, sapremia, and many other equally indefinite names, these usually followed by a conscientious interrogation point. These cases have been observed by every physician who has had to deal with typhoid fever and has attempted to confirm his clinical diagnosis by the modern more exact methods, and as a rule they have been passed over with but little thought other than that they were examples of the fallibility of laboratory diagnoses. At the Mount Sinai Hospital in New York, during the past fourteen years, 221 such cases have been seen and carefully studied by Nathan E. Brill, and the more of them the observer has studied, the more he has been impressed with the belief that he was dealing, not with an atypical typhoid fever, but with an entirely distinct infectious disease, previously undescribed. In the *American Journal of the Medical Sciences* for April, 1910, Brill presents the results of these studies, and his reasons for believing that the cases comprise an entity in themselves quite distinct from typhoid fever.

The cases studied present a striking uniformity of clinical symptoms. The incubation period of about four days is followed by an acute onset, usually with a chill and a rapid rise of temperature, which reaches its fastigium on the third day, has but very slight diurnal remissions, and ends by crisis or rapid lysis at the end of two weeks. The symptoms are severe from the onset. There is violent headache and prostration much more marked than is seen in the early stages of typhoid fever. The skin is hot and dry, and between the fifth and seventh day a profuse rash appears. This is maculopapular, of a dull red color, not infrequently petechial, and does not entirely disappear on pressure. It appears first upon the back and abdomen, but spreads rapidly to the arms, neck, legs, and at times even to the palms and soles. It comes out in a single crop and does not begin to fade until the crisis is reached, when it rapidly disappears, leaving a brown stain. The spleen is enlarged. Daily agglutination tests with the typhoid and various paratyphoid organisms have been negative in every case, and systematic blood, stool, and urine cultures have failed to show organisms of the typhoid group. Recovery is very rapid after the crises and no relapses have occurred. The only complications which have been at all frequent has been bronchitis. No intestinal hemorrhages have occurred, and no case has ended fatally.

The uniformity of this symptom complex which in many ways suggests a very mild noncontagious form of typhus fever, and the accumulation of the various points of difference between it and the clinical picture which is recognized as typical typhoid fever, present a strong argument in favor of Brill's contention that he has been dealing with a distinct clinical entity. The cases have been studied by every means open to the present day physician with the help of the best of laboratory facilities, and the investigation is lacking in no detail except that of autopsy reports, which the universally good prognosis of the disease has rendered impossible. The presentation and argument of Brill are sufficiently convincing to put every physician upon the watch for the condition, and to impress upon him the importance, in case of a fatal outcome in such a case, of a postmortem examination. The question of a name for the new disease, if such it prove to be, must remain in abeyance until more is known as to its cause and nature. If the present custom of eponymic nomenclature is followed it will probably be called Brill's disease. Brill has given us evidence that it is not typhoid fever; it now remains for him or some other observer to show, not what it is not, but what it is.

INFLUENCE OF WATER SUPPLIES UPON TYPHOID FEVER DEATH RATES.

Avowedly there are several causes which contribute to the origin and spread of typhoid fever, and some long held views must be considerably revised. Flies and human typhoid carriers have been shown to be responsible for many outbreaks of the disease, and probably these are more important factors then they are even now recognized to be. At the same time the fact must not be lost sight of that after all polluted water is the main cause of large epidemics of typhoid fever, and that the prevention of these lies in providing uncontaminated water supplies.

In the Bulletin of the Vermont State Board of Health of March 1, 1910, is an article by George M. Kober, Professor of Hygiene in Georgetown University, Washington, D. C., on the influence that water supplies exert upon typhoid fever death rates. Statistics quoted by the writer prove conclusively that the water supply plays the most important rôle in the spread of the disease. The following is a summary of the typhoid fever death rate in American cities with a population of over 30,000: The mean typhoid fever death rate from 1902 to 1906 per 100,000 of population in four cities using ground water from large wells was 18.1; in eighteen cities using impounded and conserved rivers or streams, 18.5; in eight cities using waters from the small lakes, 19.8; in seven cities using water from the Great Lakes, 32.8; in five cities using both surface and underground water, 45.7; nineteen cities using polluted river water, 61.1. The rates for cities using unpurified river water fluctuated from 33.1 in Minneapolis, to 122.1 in Allegheny and even 133.1 in Pittsburg. The effect of change in water supply on typhoid fever rates of seven American cities has been, according to Wilbur, that the combined average annual death rate from typhoid fever has fallen from 69.4 to 19.8 per 100,000; a reduction of 70.5 per cent. A convincing argument, it would seem, in favor of purifying water supplies. Kober believes that about 80 per cent. of the cases of typhoid fever are water-borne and milk-borne and about 20 per cent. may be spread through the agency of flies, personal contact, the consumption of raw oysters and shellfish raised in sewage-polluted waters, or the eating of strawberries, radishes, celery, lettuce, and other vegetables and fruits which have been contaminated with infected night soil.

In a concerted crusade, however, against typhoid fever, such a crusade as there should be in this country, the chief point of attack is polluted water. It may be asserted with the utmost confidence that four water supplies were rendered free from infection typhoid fever would soon be practically extinct. Many uninstructed members of the community are apt to imagine, now that the menace of flies, typhoid-carriers, and shellfish is widely heralded, that the danger of infected water has been exaggerated. But it has not, and the fight against impure water must go on as strenuously as ever.

The Injection Treatment of Neuralgia.

For many years the treatment of neuralgia and especially of sciatica by means of injections into or around the affected nerves has been a fairly common procedure. The number of substances used for this purpose, as morphine, creosote, carbolic acid, silver nitrate, ether, alcohol, cocaine, and many others, tell the story of the ineffectiveness or the danger of most of them. Few have given more than temporary relief, with the possible exception of alcohol, and many have done much harm by causing degenerative changes in the nerves. The work of Schleich, however, showing that by the use of large amounts of fluid containing but a trace of cocaine, local anesthesia could be produced, led several workers to try such mechanical infiltration methods in the various forms of neuritis. In the *Berliner klinische Wochenschrift* for March 7, 1910, Otto Weiner of Prague presents an interesting communication upon the injection of large amounts of ice-cold salt solution into the sciatic and other nerves. In cases of sciatica he places the patient upon his well side with the hips and knees slightly flexed so as to put the muscles slightly on a stretch. Into the painful point found between the trochanter and the tuber ischii, he inserts an 8 cm. long trocar, until he punctures the sheath of the nerve. At the moment at which this occurs the patient feels an intense lightning-like pain extending to the toes. The author insists upon the importance of obtaining this "control pain," as unless it is felt the needle is not in the nerve and the injection will be without effect. Care being taken that the needle is not moved from its position, 100 c.c. of ice-cold salt solution is slowly injected. During the injection the pain is intense, and may be associated with convulsive twitching. According to the author, however, almost immediately after the withdrawal of the needle the pain disappears, and partial or complete relief from the neuritis is obtained. The only drawback which Weiner has found to the treatment is the occurrence, three to four hours after the injection, of a high "salt fever," lasting for a few hours. This, however, he says, occurs but seldom if, instead of plain isotonic sodium chloride, a mixture containing sodium chloride 6.0, calcium chloride 0.75, water 1000, is used. The author believes that the immediate relief from pain by this method of intraneural infiltration is due to the mechanical action of the solution in stretching the nerve sheath, and breaking down the adhesions caused by the neuritic process. Of fifty-nine patients with sciatica, eight were improved and fifty-one cured after two or three injections. Of twenty-six patients with trigeminal neuralgia two were unaffected, two were improved, and twenty-two were cured. In view of the excruciating pain of sciatica and its obstinate resistance to most forms of treatment, this method of intraneural injection with saline solution seems to be worthy of a thorough trial.

The Coagulation Time of the Blood.

During the last few years the significance of the coagulation time of the blood and the importance of its accurate determination have become progressively more appreciated. It is now a routine in the more up-to-date hospitals to estimate the blood's coagulability in various classes of cases in which hemorrhage is liable to occur, especially in typhoid fever, and in cases of gall-bladder and gallstone diseases

before operation. The number of methods which have been evolved and the variety of the instruments invented for this purpose suggest that as yet no absolutely satisfactory means of estimation of this characteristic of the blood has been obtained. In the *Berliner klinische Wochenschrift* for March 21, 1910, Werner Schultz reports a new method which has in its favor simplicity and rapidity of action. The apparatus consists of four inches of capillary tube which has been blown out into twelve or more tiny bulbs. The method of working the test consists in drawing the tube full of blood and then at definite time intervals breaking off the bulbs, one at a time, and shaking them in test tubes containing normal salt solution. When this is done the uncoagulated blood is at once shaken out of the bulb, while that which has coagulated shows as a clot, which remains inside. This method, which is in reality a modification of Wright's classical procedure, has the advantage over the latter that a smaller number of tubes are handled, and the complicated system of time keeping is done away with. It has the disadvantage that a new tube, requiring no small skill in glass blowing in its manufacture, is required for each estimation.

News of the Week.

Riot Among Paris Students.—A serious disturbance took place recently in the University of Paris. Dr. Doyen attempted to deliver a series of free lectures upon topographical anatomy. The first lecture was broken up by hired ruffians or "apaches" employed by some of the medical students. It is believed that the underlying cause of the opposition to the lectures is the enmity of other members of the faculty who consider that Dr. Doyen insulted them recently in a lecture in which he lamented the lack of a Molière who could adequately caricature the foibles of the modern physician. The "apaches" not only broke up the lecture but appropriated the watches of most of the students. The course was immediately canceled by the Faculty, but will be delivered by Dr. Doyen in a private hall.

Beriberi in South Carolina.—An epidemic of what appears to be typical beriberi has broken out in a colored convict camp at Ten-Mile Hell, near Charleston, S. C. Of the 31 convicts in the camp 17 are ill and two have died. During the past five years there have been two similar epidemics in this and another nearby convict camp. There have been eight deaths in all. The camp is reported to be in a high and dry location and in excellent hygienic condition, and the food is said to be good. There is no history of the eating of rice. The convicts had been working in drainage canals.

Hookworm in Virginia.—Examination of school children in Emmerton, Va., only a few miles from Washington, has shown that 37 of the 39 pupils were harboring the hookworm.

A Case of Leprosy in New York.—A case of leprosy was reported to the New York Board of Health recently. The patient will not be quarantined.

Board of Inebriety.—The bill authorizing a Board of Inebriety in New York City, which passed the Assembly recently, has been favorably reported by the Senate Cities Committee.

Writ of Mandamus Denied to Osteopath.—The Appellate Division of the Supreme Court in Brooklyn has handed down a decision upholding the action of Justice Crane in refusing to grant a writ of peremptory mandamus to an osteopath, who is seeking to force the Board of Health and the Coroner to accept death certificates signed by himself.

The County Medical Society Loses Suit.—A jury in the New York Supreme Court has returned a verdict of $7,500 against the Medical Society of the County of New York for false arrest. The plaintiff, who sued for $100,000, was arrested in 1907, on the instigation of the County Society for practising medicine without a license. He professed to have a patent medicine which would cure glanders.

Bellevue Internes Dismissed.—The two internes who were suspended from Bellevue Hospital for complaining to the newspapers about the food have been dismissed by the Board of Trustees.

A Law Requiring Dentists to Be Physicians was passed by the last legislature of the State of Virginia. By the provisions of the new law all dentists to receive licenses must first pass the Medical Examining Board and then the Dental Board.

"The New England Medical Monthly," for 29 years edited and published by Dr. William C. Wile of Danbury, Conn., has been purchased by the Annals Publishing Company of Boston and will be combined with the *Annals of Medical Practice*. Dr. Francis D. Donoghue editor of the *Annals of Medical Practice* will continue in charge of the consolidated journals.

Robbery at Bellevue Hospital.—Six hundred dollars worth of jewelry, money, and clothing were stolen recently from a locker in Bellevue Hospital. The property taken belonged to two surgeons who were operating. The thief forced the doors of the lockers. He was not caught.

A "Siamese Twin" a Mother.—A dispatch from Prague reports that one of a pair of "Siamese twins" recently gave birth to a son in a hospital in that city. The newly made aunt expressed great surprise.

The National Bureau of Health has recently received a strong recommendation in Washington. The Anticompulsory Vaccination Society of Washington has passed a resolution opposing the passage of the bill.

Bacteriology Staged.—A play in which all of the characters represented bacteria was produced recently by the women students of the bacteriological department of the University of Wisconsin. The play, which was entitled "Germland," represented the conflict between the human race and bacteria. It was produced under the direction of Dr. M. P. Ravenel.

Belmont Hospital Opened.—The new hospital at Hempstead, L. I., which was built by Mrs. O. H. P. Belmont as a memorial to her husband, was opened April 23. It is a three-story brick building. Mrs. Belmont is the president of the hospital and Dr. Louis Nott Lanehart is secretary.

The Metropolitan Insurance Sanatorium.—The Metropolitan Life Insurance Company has purchased two farms comprising 225 acres in Somers Center, Westchester County, N. Y., for its proposed sanatorium for employees suffering from tuberculosis.

Fire Threatens Sanatorium.—Forest fires seriously threatened the Rhode Island State Sanatorium

for Tuberculosis at Wallum Lake recently. The sanatorium staff, male patients who were physically able, and many men from nearby towns, fought the fires for many hours.

Addition to Hospital.—A three-story ward building, 34x122 feet, is to be built by the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, adjoining its present buildings.

Dr. Dain L. Tasker of Los Angeles has been elected president of the California State Board of Medical Examiners.

Honors to Dr. Jacobi.—On Saturday afternoon, April 23, exercises were held at the Mount Sinai Hospital in honor of the eightieth birthday of Dr. Abraham Jacobi. A bronze bust of the guest was presented to the hospital by the medical and surgical staff, and a new library named in his honor was given by the Board of Directors. At a dinner given the same evening by the Trustees of the German Hospital announcement was made that the new children's ward which Mrs. Anna Woerishoffer has given to the hospital will be known as "The Dr. Abraham Jacobi Division for Children."

An International Hygienic Exhibition will be held in Dresden from May to October, 1911, under the directorship of K. A. Lingner and Dr. Renk, director of the Central Office for Care of the Public Health, in Dresden. The general secretary for the scientific department is Dr. Weber, member of the Imperial Board of Health of Berlin. The exhibition will be divided into five sections, under the headings of scientific, historical, popular, sports, and industry.

The American Pediatric Society will hold its twenty-second annual meeting in Washington May 3, 4, and 5, 1910, at the New Willard Hotel. The president of the society is Dr. David L. Edsall, and the secretary is Dr. Samuel S. Adams, 1 Dupont Circle, Washington.

Obituary Notes.—Dr. Augustin Hardin Goelet of New York City died suddenly of heart disease on April 26, 1910, at the age of 56 years. He was a graduate of the Bellevue Hospital Medical College in 1874. A Southerner by birth, a native of Goldboro, S. C., Dr. Goelet had spent his professional life in New York City, where he had attained prominence as a surgeon and gynecologist. Besides belonging to the New York County and State medical societies and the American Medical Association, he was a member of the American Urological Association, the American Electro-Therapeutic Association, the New York Academy of Medicine, and the New York Urological Society, and had served as gynecologist to the West Side German Dispensary.

Dr. Charles Freiberg of Bay City, Mich., dropped dead on April 1, 1910. He was a graduate of the Saginaw Valley Medical College in 1902, and was a member of the Bay County Medical Society and the Michigan State Medical Society. Until recently Dr. Freiberg was Health Officer of Bay City.

Dr. Gordon King of New Orleans was killed in an accident on March 26, 1910. He was a graduate of the Medical Department of Tulane University in 1897, and was a member of the Orleans Parish Medical Society, the Louisiana State Medical Society, and the American Medical Association. Dr. King was surgeon in charge of the ear department of the New Orleans Eye, Ear, Nose, and Throat Hospital.

Dr. Charles B. Hammond of Nashua, N. H., died at his home, April 8, 1910, aged 57 years. He was a graduate of the Harvard Medical School in 1880, and was a member of the Hillsboro County Medical Society, the New Hampshire Medical Society, and the American Medical Association.

Dr. Charles B. Mallery of Aberdeen, S. D., died at his home, April 3, 1910, aged 45 years. He was a graduate of the Albany Medical College in 1886, and was a member of the Aberdeen District Medical Society, the South Dakota State Medical Association, and the American Medical Association.

Dr. George F. Simpson of North Adams, Mass., died at his home, April 10, 1910, aged 64 years. He was a graduate of the University of Vermont in 1873, and for many years was Health Officer of North Adams.

Dr. Clarence Vary of Battle Creek, Mich., died, April 7, 1910. He was a graduate of the Jefferson Medical College in 1898, and was a member of the Calhoun County Medical Society and the Michigan State Medical Society. Dr. Vary was a former Health Officer of Battle Creek.

Dr. John B. Woodward of Ravenna, Mich., died at his home, on April 4, 1910, aged 63 years. He was a graduate of Toronto University, in 1868, and had practised in Grand Rapids and Muskegon before moving to Ravenna.

Dr. George A. Bradbury of Troy, N. Y., died at his home, April 9, 1910, aged 52 years. He was a graduate of the Albany Medical College, in 1883, and was attending physician to the Leonard Hospital in Troy. He was a member of the Rensellaer County Medical Society, the Medical Society of the State of New York, and the American Medical Association.

Dr. Maurice F. Linquist of New Haven, Conn., died at his home, April 3, 1910, aged 84 years. Dr. Linquist was a native of Sweden and a graduate of the New York Homeopathic Medical College.

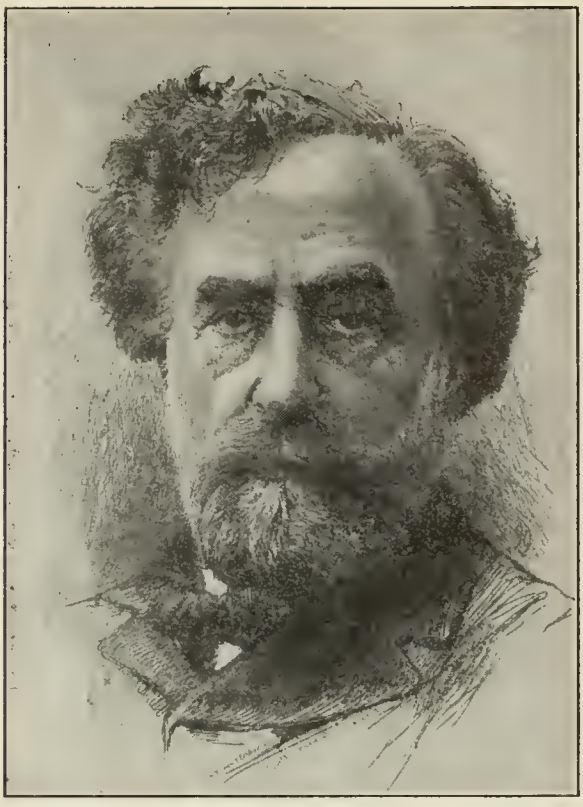
Dr. Newton Stephen Bell of Windsor, Conn., died at his home, April 11, 1910, aged 70 years. He graduated from the University of Vermont in 1864. Dr. Bell had been medical examiner and health officer of Windsor. He was a member of the Hartford County Medical Society and the Connecticut State Medical Society.

Dr. Charles P. Turner died at Philadelphia on April 13, from angina pectoris and pneumonia, at the age of 84 years. He was graduated from Jefferson Medical College in the class of 1851. He was a Fellow of the American Academy of Medicine and a musical composer of ability.

Dr. Edgar Pennypacker Brunner of Philadelphia died suddenly April 8, 1910, aged 61 years. He was a graduate of the Hahnemann Medical College of Philadelphia in 1869.

Dr. Alfred J. China of Sumter, S. C., died April 10, 1910, aged 72 years. He was a graduate of Medical College of the State of South Carolina in 1889, and was a member of the Sumter County Medical Society, and the South Carolina Medical Association. Dr. China served as a surgeon during the Civil War.

Dr. George A. Bradbury of Troy, N. Y., died at his home April 9, 1910, aged 53 years. He was a graduate of the Albany Medical College in 1883 and was a member of the Medical Association of Troy and vicinity, the Rensselaer County Medical Society, the Medical Society of the State of New York, and the American Medical Association. Dr. Bradbury was attending physician and President of the Board of Directors of the Leonard Hospital.



A LIFE FULL OF YEARS AND OF HONOR.

Dr. Abraham Jacobi, whose eightieth birthday will be celebrated next week, was born on May 6, 1830, in Hartum in Westphalia. While a student at the University of Bonn, from which he received the degree of Doctor of Medicine in 1851, he was drawn into the revolutionary activities which at that time were prevailing throughout Europe. From his political affiliations there followed certain results which enormously influenced his future career: he made the closest friendship of his life when through politics he learned to know Carl Schurz; he served two years in prison, under trial for high treason and sentence for *lèse majesté;* and he was obliged to leave Germany. Landing in New York in 1853, after a few unsuccessful months spent in Manchester, England, Dr. Jacobi opened an office in Howard street. Though but twenty-three years of age and a complete stranger, he was armed with an education superior to any obtainable in America in that day, and this, added to his force of character and his power of impressing his personality upon people, soon won for him a place in the hearts of the German inhabitants of New York. He soon became intimate with Dr. Noeggerath, at that time attaining his reputation as an obstetrician and gynecologist, and the result of their association was the production of their text-book on the diseases of children. At about the same time, at the request of Dr. Stephen Smith, then associate editor of the *New York Journal of Medicine,* he began to write a series of articles for that paper, consisting of abstracts of the current German work in diseases of children. His success in practice was immediate, especially among his countrymen, who had recently come to New York by the thousands as the result of the same revolution which had driven Dr. Jacobi from his native land.

In 1860 Dr. Jacobi's reputation as a pediatrist had increased to such an extent that he was appointed to the newly created chair of infantile pathology and therapeutics in the New York Medical College. The same year he was made attending physician to the Jews' Hospital, of whose destinies, under its earlier name as well as the present one of the Mount Sinai Hospital, he has ever since been one of the chief guides. In 1865, on the disbandment of the old school in Thirteenth street, Dr. Jacobi became clinical professor of diseases of children in the New York University, and, five years later, clinical professor of diseases of children in the College of Physicians and Surgeons of Columbia University. This position, and that of full professor he held until 1903, when his thirty-three years of service were rewarded with the position of professor emeritus. During this period, while particularly active at the Roosevelt Hospital, where he had his teaching ward, he was associated with many of the hospitals of the city, and is now on the consulting staffs of the Bellevue, Mount Sinai, German, Babies', New York Orthopedic, and Minturn hospitals, the Hackensack Hospital, and the Woman's Infirmary.

Dr. Jacobi has ever taken an interest in the social side of his profession. For forty years the German physicians of New York have held their meetings under his roof. The New York Academy of Medicine has been his especial care, and to his efforts is largely due the present efficiency of its library. Upon the foundation of the American Pediatric Society he was made its president, an office which he has also held in the New York County and State societies, the New York Pathological Society, the New York Obstetrical Society, the Academy of Medicine, the American Climatological Association, and the Association of American Physicians. Many of the medical societies of Europe have also honored him by their membership, and, indeed, he is enrolled as an active or honorary member of most of the great medical societies on both sides of the Atlantic. In 1898 the University of Michigan recognized his position among American scholars by awarding him the degree of Doctor of Laws, an example soon followed by Columbia, Yale, and Harvard.

Dr. Jacobi has always been a firm believer in the truth that to know the child one must know the man, and consequently he never confined his work strictly to the specialty of children's diseases but studied and treated young and old alike. Nevertheless, it is perhaps his achievement in pediatrics that has given him his greatest reputation. His establishment of the first teaching clinic in pediatrics in America, and his introduction into this country of the system of bedside teaching, in 1860, at the time when he held the only chair of pediatrics in any medical school on the Continent, have led to his being very justly regarded as the founder of the American school of pediatrics.

A German by birth he has become an enthusiastic American, as is shown not only by his active interest in subjects of civic, state, and national government, but especially by his refusal in 1894 of an offer to return to his native land, not to the prisoner's bench, which he left many years before, but to one of the highest honors which Germany has to bestow upon the scholar, a full professorship in the University of Berlin. In declining the offer Dr. Jacobi said that to America he owed his success in life and in America he preferred to remain.

The excellent portrait on this page is reproduced from the well-known etching drawn by the late James D. Smillie in 1899.

Correspondence.

FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

(From Our Regular Correspondent.)

MANILA, P. I., March 12, 1910.

THE first scientific session on protozoology and helminthology of the Far Eastern Association of Tropical Medicine met at 9 A. M., March 7, 1910, in the administration building of the new Philippine General Hospital.

There was a brief opening address by Dr. J. de Haan, who represented the Government of the Netherlands Indies, in which he emphasized the importance of such a gathering and the wish of his Government to enter into closer relations with regard to quarantine and other health measures. He felt that a mutual understanding on subjects of this kind could not help promote the interests of both countries.

The first paper read was entitled "Statistical Studies of Uncinariasis Among White Men in the Philippines," by Major W. P. Chamberlain, Medical Corps, U. S. Army, and chairman of the Board for the Study of Tropical Diseases. Major Chamberlain estimated from a study of the data furnished by the Bureau of Health, which comprised nearly 10,000 examinations, and the figures available from the Army posts, that the incidence of the disease in the Philippine Islands was probably about 15 per cent. In his opinion, the most interesting point in connection with his study of the hookworm in the Philippines was the discovery of the *Necator americanus*, which naturally led to much speculation as to how it arrived here. He stated that in the examination of the recruits at New Orleans who were destined to the Philippine Islands over 20 per cent. were found to be infected with hookworms, and from additional observation he was convinced that the Philippine Islands might have been infected with American hookworms by troops that were sent from the United States to the Philippine Islands. He questioned very seriously whether uncinariasis has the important influence on the morbidity and mortality of the residents of the Islands which is attributed to it in the southern part of the United States. He felt certain that the great majority of the cases presented no clinical symptoms of the disease, and that apparently they were not inconvenienced by it.

The next paper, entitled "Larvæ of Some Dipterous Insect Developing in the Deep Urethra and Bladder," was read, in the absence of Dr. R. Trible, by Surgeon Stitt, of the U. S. Navy. Briefly, the case was that of a sailor who was admitted to the hospital with retention of the urine. Upon passage of a catheter some obstruction was met with in the deep membraneous urethra which gradually gave way to pressure. The urine was then withdrawn without difficulty, and on examination it was found to be full of what was later identified as the larvæ of the *Musca domestica*. The bladder was irrigated with permanganate of potassium and the symptoms of vesicular irritation disappeared within a few days, as well as all of the larvæ.

The next paper, entitled "The Role of Arthropoda in Man's Life in the Tropics," was read by Mr. Charles S. Banks, of the Biological Laboratory of the Bureau of Science.

The next paper, entitled "Flies and Fleas as Factors in the Dissemination of Disease—the Effects of Petroleum as an Insecticide," by Dr. J. S. Purdy of Aucland, New Zealand, was read by title.

The next paper was entitled "Kala Azar," by Major C. Donovan, I.M.S., Madras.

The next paper, entitled "Treatment of Trypanosomiasis," by Dr. Richard P. Strong and Dr. Oscar Teague, was read by the former. If the results described in this paper prove to be permanent, its economic worth in saving the life of horses and other large animals in countries in which surra prevails can scarcely be estimated as yet. It will probably be remembered that considerable success has been had in the treatment of surra and other trypanosome infections in small animals and that failure has been almost invariable with large animals. Later Dr. Ehrlich of Germany made further investigations with the result that he produced a substance which he names arsenophenylglycin. This has been used by Drs. Strong and Teague for injection in animals. A number of horses were injected seven months ago, and since that time they have remained entirely free from trypanosomes and are apparently in good health. The principal difficulty with the remedy up to the present time is that the dose which is lethal for the trypanosomes is very close to the dose which is lethal for the animal, and the greatest care must be exercised in its use.

The next session on cholera, plague, leprosy, and immunity began at 9 A. M., March 8.

The first paper was a joint production by Dr. Francis Clark, Medical Officer of Health, Hongkong, and Dr. John M. Atkinson, Principal Civil Medical Officer, Hongkong, upon plague and the measures for its eradication and prevention. They gave an outline of the difficulties which were encountered in Hongkong in eradicating this disease, and laid particular stress upon the advantages of combating plague along the lines of its flea transmission. Dr. Clark stated that one of the most important methods for eliminating rats was by destroying their breeding places and that much had been done in Hongkong toward this end by the removal of the ceilings, especially in Chinese houses. He stated that actual experience had shown that the space between the ceilings and the under portion of the floor above furnished a most frequent breeding place, and that its removal was necessary in order to be successful. Dr. Atkinson drew special attention to the seasonal prevalence of plague, and laid special stress upon the fact that each year when the thermometer reached its high point, between 90 and 100 degrees Fahrenheit, the disease invariably disappeared. He stated that this has been observed in Hongkong for more than five years.

A spirited discussion ensued after this paper and many practical points were brought up. Dr. Brooke of Singapore stated that in spite of the fact that Singapore was but a few days' sailing distance from many plague infected ports, so far it had remained singularly free of disease, and during the first times it was imported it was eradicated with very little difficulty. He thought that the principal reason for this was the fact that the ordinary plague rat, the *Mus rattus*, which was the one that harbored the plague flea, *P. cheopsis*, was almost entirely absent in Singapore, and for that reason he believed that the ordinary means of transmission did not exist in that port, hence plague gained no foothold. He expressed the opinion that the reason which Dr. Atkinson gave, that on account of the great heat of Singapore plague did not spread there, did not apply.

Dr. Castellani of Ceylon stated that almost the same conditions prevailed with regard to communication with plague infected countries as those stated by Dr. Brooke, and that they also remained free from the disease. They attributed their freedom from the disease largely to the fact that nearly all vessels anchored in the bay and did not come alongside of wharves, and that the cargo that came to Ceylon was not of a character which would be likely to carry rats with it.

Dr. Heiser stated that he was very much interested in the paper on plague, and more particularly in that portion by Dr. Clark in which he gave the measures which, in his opinion, would be successful in eliminating this disease from Manila. On account of the fact, however, that it had been so long since there had been plague in the Philippines they had almost forgotten the measures which might have seemed desirable to put in force here It might be of interest, he said, to state that the efforts here were finally rewarded with success as soon as the theory was accepted that it would be impossible to eradicate all the rats in Manila. He stated that it would perhaps be remembered that the method finally used was to draw radiating lines from each center of infection and then to catch rats along those lines leading outward as long as infected rats could be found. When no more plague rats were encountered, the points of these radiating lines were connected by a theoretical line, and the entire available sanitary force of the Bureau of Health was stationed on this line, the force gradually moving inward to the common center, catching rats as they went Such areas were then made as rat-proof as possible by cementing ground surfaces, destroying harboring places, etc. In this way, one infected center after another was eliminated and plague soon disappeared from Manila. Since that time, at weekly intervals, it has been the custom to catch rats at the wharves and other places which were formerly infected, and at numerous other points throughout the city, and have them bacteriologically examined. In the event that a plague rat were found the same measures described above were again invoked and the area soon rendered free from infection. Since these methods had been adopted there had been no cases of human plague since 1906 and no plague among rats since 1907. Dr. Heiser stated that he also agreed with Dr. Clark as to the danger from infected rats which is to be apprehended from vessels coming alongside docks. Here it is the custom to use a special form of rat funnel, which in-

cludes a rat trap as an integral part thereof, upon all lines leading to the shore. In addition to this, he stated, the new wharves of Manila have been rat-proofed, and a good breed of rat catching cats is to be kept constantly on the docks.

The next paper, entitled "The Present Position of the Leper in View of the Resolutions passed at the International Conference on Leprosy at Bergen, 1909," by Sir Allan Perry, was read by the Secretary. Dr. Perry laid special stress upon the work of the Bergen conference and drew attention to the fact that the principles involved in the resolution had, to his personal knowledge, already been in force in the Philippine Islands during the past few years, and that the success which attended their enforcement was all that the most ardent sanitarian could desire. A general discussion followed with regard to the treatment, segregation, isolation, etc., of leprosy, and a special committee was appointed to draw up a set of resolutions which are to be acted upon at the business meeting of the Association which is to be held March 14.

The next paper, entitled "The Preservation of Vaccine Virus," was read by Dr. E. H. Ruediger of the Biological Laboratory of the Bureau of Science. He stated that considerable experimenting had been done at the Bureau of Science for the purpose of producing a vaccine which would keep at temperatures between 90 and 100 degrees Fahrenheit. Experience in the Philippine Islands has well shown that the ordinary glycerinized lymph will not remain potent for more than 5 to 7 days under such conditions. His experiments were not attended with any great success, but he had discovered that vaccine prepared with lanoline would keep for a period of approximately three weeks without losing all of its potency.

The next paper, entitled "Cholera and Other Similar Vibrios Encounters in the Philippines," was read by Dr. A. J. McLaughlin. Dr. McLaughlin drew special attention to the change which takes place in the morphology of the cholera organism and pointed out that extraneous vibrios are frequently encountered in water supplies coincidently with a cholera vibrio. He referred particularly to the recent work of Zabolosky's, and stated that his findings were practically confirmed here.

The next paper, entitled "Treatment of Asiatic Cholera," was read by Dr. A. W. Sellards, Biological Laboratory, Bureau of Science. This paper gave a series of cases of cholera that had been treated at the San Lazaro Hospital upon the theory of using large quantities of alkalies for overcoming the acid urea which had been observed in cholera cases. While no improvement in the treatment of the disease was noticed in which large quantities of alkalies were given, yet it was demonstrated that very much larger quantities of substance like sodium hydrate and other alkalies were necessary in order to produce an alkali urine than was the case in normal individuals. In the discussion which followed he also reported upon cases which were treated upon the Rogers hypertonic salt solution method, but this series of some thirty in number did not show a much improved death rate over those treated by the ordinary intravenous injections of normal salt solutions. In this same discussion Professor Aron of the Philippine Medical School stated that he was able to confirm the statement of Rogers that there was reduction in the salts of the blood of cholera patients, but in addition there was even a greater reduction in the fluid contents of the blood and for that reason the percentage of salt in such blood was not materially altered, consequently the conclusions which Rogers had reached were erroneous.

The next paper, entitled "Further Observations Upon the Specific Treatment of Cancer," by Dr. Arthur Coca of the Biological Laboratory of the Bureau of Science and Dr. Philip K. Gilman of the Philippine Medical School was read by the latter. Dr. Gilman stated that a vaccine was prepared by taking a section from a cancer tumor mass and grinding it thoroughly in ordinary salt solution and making one injection into the patient to be treated of from 20 to 30 grams of the substance. He gave a list of cases in which this had been used, which list he divided into operable and nonoperable cases. He drew special attention to the latter class in which they had made injections in 11 cases, 4 of which injections had been given 7 months ago, and as yet the patients showed no recurrence of the disease. He further stated that a few days after the injection was given the cancerous growth underwent softening, and within a few weeks entirely disappeared.

The next paper, entitled "Treatment of Plague," by Sorab K. Engineer of Bombay was read by title.

The next scientific session on surgery and obstetrics and diseases of children was held at 9 A. M., March 9.

The first paper, entitled "A Case of Congenital Absence of Both Upper Extremities," by Dr. James Norwood, Lieutenant-Colonel, I.M.S., Civil Surgeon, United Provinces, India, was read by the Secretary. This was simply the report of a case in which the upper extremities were congenitally absent. Photographs of the same were shown.

The next paper, entitled "Operations for Liver Abscess With a Demonstration of a New Operation," was read by Dr. John R. McDill, Philippine Medical School. This operation consists in resecting the ribs over the liver in a midaxillary line. This method, Dr. McDill states, gives much greater possibilities of the discovery of liver abscess than approaching the liver through the anterior abdominal wall.

The next paper, entitled "Clinical Remarks on Seventy-seven Abnormal Cases in the Obstetrical Department of the Philippine Medical School," by Drs. Fernando Calderon of the Philippine Medical School and Victor Sevilla, Philippine Medical School, was read by the former.

The next paper, entitled "Report of Cases Treated by Opsonotherapy," by Dr. Henry Fitzbutler, Biological Laboratory, Bureau of Science, gave a list of cases of skin diseases, boils and similar infections in which this form of treatment had been used. The results reported were similar to those observed in other portions of the world.

The next paper, entitled "Studies of Infant Mortality," by Dr. A. J. McLaughlin, Public Health and Marine Hospital Service, Assistant Director of Health, and Dr. Vernon L. Andrews, Biological Laboratory, Bureau of Science, was read by the latter. This paper created greater attention and interest than any that had yet been read. The work done by the authors showed that this was the first instance in which the study of infant mortality was placed upon a definite basis. The authors approached the problem by making diagnoses at autopsy, and of the ninety cases so reported it was found that only approximately twenty had been correctly diagnosed by the attending physicians. A large percentage of the cases that were clinically diagnosed as meningitis were found to be cholera. The most constant lesions found, however, were a suffused swelling of the face and neck, edema of the legs, and an enlarged heart with a dilated right side which was most characteristic in appearance and was almost identical in all cases of this kind. The authors, for the want of a better name, called this condition moist beriberi.

In the discussion which followed Dr. Musgrave stated that the cases which were diagnosed as moist beriberi presented a set of lesions that were not necessarily pathognomonic of beriberi, but were a group of lesions which had been observed in many parts of the world. He also took exception to the statement that 70 per cent. of the infants that were breast fed died while 30 per cent. of those that were artificially fed died. He stated that these figures must be fallacious because it is a well-known fact that Filipino mothers, in addition to feeding their children at the breast, were constantly known to give them solid food. Dr. Aron of the Philippine Medical School stated that the pathological conditions which had been described and called moist beriberi could be produced experimentally by overfeeding with carbohydrates and that when he read his paper he would show some dogs in which this condition had been experimentally produced.

Dr. Highet of Siam also questioned the figures on mortality of natural and artificial feeding of infants. Dr. Clark of Hongkong called attention to the fact that the high morbidity rates for children which had been found in cases that had been diagnosed as meningitis do not obtain in Hongkong. Dr. McLaughlin, one of the authors of the paper, stated that the term "moist beriberi" was not used for the purpose of claiming that the condition observed was beriberi, but that it was used for the want of a better name; it was merely intended to apply to a definite group of pathological lesions which were invariably found in these cases; and if anyone had a better name to suggest, he would be only too glad to adopt it.

Dr. Clements stated that his experience in the Philippine Islands, which was a considerable one, led him to believe that up to the age of three months infants were not artificially fed, but that whatever artificial feeding was done, was done after the period of three months had elapsed.

Dr. Heiser stated that this most interesting paper was a most valuable contribution on this subject to the Philippines, and was, he believed, in spite of all that has been said and written upon this question, the first scientific work which had been done for the purpose of securing the actual cause of death in a series of cases. With re-

gard to the statistics of natural and artificially fed infants, he said he felt that a statement should be made, that several years ago the Bureau of Health was requested to collect statistics showing whether the deaths which occurred among infants under one year of age were in cases which had been naturally or artificially fed; at that time he demurred on account of the improbability of obtaining reliable statistics of this nature by the inquiry of a statistical clerk, that it was well known to those who had experience in the Philippine Islands that almost from birth it was the custom to give rice, potatoes, and other solid food to children that were nursing, that anyone who had the least doubt with regard to the accuracy of this statement could easily satisfy himself by going through any native town and observing the children, and that in a comparatively few observations he would witness mothers engaged in this practice. Furthermore, it was characteristic of the more ignorant classes to reply to questions of this nature in the manner in which they believed an answer was desired, so that when death certificates were presented and the family was asked whether the child had been artificially fed or breast fed, that the mother would probably reply breast fed and perhaps deny other forms of feeding if she thought such an answer was desired. One year ago, at the urgent request of a number of physicians of the city, he stated that he reluctantly gave instructions to have statistics of this kind gathered, and, according to them, 70 per cent. of naturally fed children have died, which fact alone indicates that from our present knowledge of infant feeding these figures are not likely to be correct. He desired to disclaim all responsibility on behalf of the Bureau of Health for the statistics which had been used in the paper just read covering this particular point. In view of the showing made, however, he stated that an investigation would be made on this point which would be based upon actual observation of infants in their homes. The authors were to be congratulated upon the excellent manner in which they had presented this matter and the concise and clear arrangement of their statistics; they had made a valuable contribution as to the cause of infant mortality in the Philippines, and, with the data brought to light by Dr. Aron, we should soon be in position to take effective steps to reduce the mortality.

The last paper of the day was entitled "Contribution to the Physiology of Growth and Nutrition of Children in the Tropics," by Dr. Hans Aron, Professor of Physiology in the Philippine Medical School. Dr. Aron showed by experiments which he had conducted upon dogs that the overfeeding by corbohydrates produced a set of lesions which resembled very closely those described as having been found in cases that were diagnosed moist beriberi in the paper on "Infant Mortality" by Drs. McLaughlin and Andrews. In confirmation of this claim he exhibited a number of dogs in which this condition had been experimentally produced. The author was of the opinion that this matter was very closely associated with one of the more common causes of infant mortality in the Philippines, and believed that the subject was one of such importance as to warrant a further study of the same.

The fifth session of the scientific program was on fevers in the Tropics, including malaria, typhoid, etc., and was begun at 9 A. M., March 10.

The first paper, entitled "A New Bacillus Which is Apparently an Etiological Factor in Conjunctivitis Recently Observed in Singapore," was read by Dr. Gilbert E. Brooke, Delegate from the Straits Settlements, Singapore. Dr. Brooke took up the question of trachoma and contageous conjunctivitis and described an outbreak which recently occurred at Singapore in which the new bacillus was found to be invariably present. In the discussion which followed Dr. Fraser called attention to the fact that the bacillus seemed to correspond to the *Bacillus xerosis* which he had observed some years previously. Dr. R. P. Strong of Manila requested information as to how this organism differed from the *Bacillus xerosis* which they had observed at the First Reserve Hospital in Manila in 1900. In concluding his remarks, Dr. Brooke pointed out a few minor differences which existed between these two bacilli, and stated that a thorough laboratory differential test had not been made.

The next paper, on "Malarial Fever in the Puerperium," was read by Dr. John M. Atkinson, Victoria Hospital, Delegate from the Government of Hongkong. He gave a brief account of the differential diagnosis between malarial fever and septic infections during the puerperium, and laid special stress upon making a blood examination in these cases.

The next paper, entitled "The Parthenogenesis of the Female Cresent Body," was read by Captain H. M. Neeb, Medical Officer of the First Class, Delegate from Her Majesty's Government of the Netherlands Indies. This proved to be one of the most interesting papers which had been delivered at the meeting. Dr. Neeb showed drawings of the different stages of the parthenogenesis and stated that his observations had been confirmed by the School of Tropical Medicine at Hamburg as well as by other competent observers.

In the discussion which followed Dr. E. R. Stitt of the U. S. Navy stated that after many years' effort he had never been able to see anything under the microscope in the development of the malarial body which resembled parthenogenesis, and that he had many opportunities for studying such cases, especially among some sixty marines who suffered from malaria and were transferred from Panama to Washington. Within the past few months, however, a case of malaria was admitted to the Cañacao Hospital at Cavite in which he observed the phenomenon which Dr. Neeb had described and he was fully satisfied now that parthenogenesis did take place.

The next paper, entitled "Myzomyia Rosii as a Malarial Carrier," by Dr. W. T. de Vogel of Java, was read by the Secretary. This paper emphasized the importance of *Myzomyia rosii* as a malarial carrier and was confirmatory of the publications of Dr. Charles Banks, who reported the transmission of malaria by this mosquito two years ago.

The next paper, entitled "Antimalarial Prophylactic Measures and Their Results at the Naval Station, Olongapo, P. I.," by Surgeon A. W. Dunbar, U. S. Navy, was read by Surgeon E. R. Stitt. In this paper it was pointed out that the marines who went on the target range invariably contracted malaria, but that after Dr. Dunbar cleared a camping place within 100 yards of the sleeping quarters of the tall grass, the malarial fever entirely disappeared.

In the discussion which followed, Dr. Banks stated that Dr. Theobold had confirmed the view that *Myzomyia ludlowii* were absolutely identical with *Myzomyia rosii*, and for that reason the statements made by him in previous publications with regard to *M. ludlowii* also applied to *M. rosii*. He again invited attention to the fact that this mosquito did undoubtedly breed in salt water which had the composition of sea water and gave as an instance his experience at Olongapo, where he found them breeding in the ramifications of the Bay of Olongapo, which connected directly with the China Sea, and that the composition of this water upon analysis was found to correspond with the ordinary sea water. Dr. R. P. Strong stated that last year he had made a considerable number of experiments with the *Myzomyia rosii* but had absolutely failed to transmit malaria with them, nor had it been possible for him to discover zygotes in *Myzomyia rosii* which had been fed on malaria patients. Dr. Clark of Hongkong drew attention to the fact that the ordinary distance of 100 yards, which was accepted as being sufficient distance in which to clear an area of mosquitos, had proved to be insufficient at Hongkong, that is to say, that for the first year or two the plan was entirely successful, but that if there was any standing water within 400 yards in which anopheles could breed, it was likely that they would again become factors in the transmission of malaria.

The next paper, entitled "Incidence and Complications of Malaria in the Philippine Islands," was read by Dr. F. B. Bowman. This paper simply gave a statistical résumé of malarial fever in the Philippine Islands and drew attention to the fact that the Bureau of Health records showed that probably about 12,000 deaths occurred annually from this disease in the Philippine Islands. He also drew attention to the fact that at the outpatient clinic of the Philippine General Hospital it was observed that many of them complained of symptoms that were ordinarily classified as beriberi but which promptly disappeared upon the exhibition of quinine. He gave the histories of a number of cases in which arsenophenylglycin had been used but without success. Dr. Castallañi of Ceylon stated that he had observed many times similar malaria cases that presented symptoms of beriberi and that a different diagnosis between the two exclusive of the microscopic examination was sometimes most difficult.

The next paper, entitled "The Incidence and Treatment of Malaria in Infants and Children," was read by Dr. H. D. Kneedler of Manila.

The next paper, entitled "Macroscopical Method in the Typhoid Laboratory," was read by First Lieutenant J. R. Barber, U. S. Army. This was a brief résumé of a practical method which may be used in detecting typhoid organisms by physicians who do not have the facilities of a laboratory at their disposal. This plan is at present

taught in the Army Medical School for Officers at Washington.

The sixth session of the scientific program on dysenteries and beriberi was held at 9 A. M. at the Administration Building of the Philippine General Hospital.

The first paper read, entitled "The Etiology of Beriberi," by Dr. J. de Haan, Delegate from Her Majesty's Government of the Netherlands Indies. Dr. de Haan gave a brief résumé of the work which had been done with regard to the etiology of beriberi and more particularly that of Java. He presented much evidence to show that experimental beriberi produced in chickens was essentially the same as the beriberi of human beings. This finding was most important in view of the papers which were to follow.

The next paper, entitled "Etiology of Beriberi," was read by Dr. H. Frazer, Delegate from the Government of the Malay States, Kuala Lumpur. Dr. Frazer stated that Dr. Stanton and himself had undertaken a study of the etiology of beriberi in view of the report of Fletcher and others several years ago that persons who used parboiled rice did not contract beriberi, but that those who used the ordinary polished or Siam rice did contract the disease. With the view of confirming this observation and also ascertaining the exact cause thereof, they commenced further researches. His first experiments were made upon chickens which he used in groups of twelve. The first group were fed upon the ordinary white polished rice, an equal number were fed upon parboiled or unhusked rice or perhaps more clearly described as unpolished rice, also frequently known as red rice. In the first group, or that fed upon polished rice, between the sixtieth and seventieth day, eight cases of beriberi appeared. There were no cases among the adjoining group that was fed upon the unpolished rice. The experiment in these two groups was continued for a number of weeks thereafter, and the polished rice chickens gradually died off while the others remained healthy. This experiment then was repeated among many groups of chickens and the same result was obtained in each instance. The next experiment consisted in feeding the beriberi chickens with unpolished rice, whereupon they promptly recovered. The first experiment was then modified; the chickens that were sick with beriberi were fed with unpolished rice and the well chickens were placed upon polished rice with the result that the sick chickens soon became well, and after a period of sixty days or more, the chickens that were now being fed upon polished rice developed beriberi. This experiment was also repeated many times with the same result in each instance. After this it seemed most desirable to have these experiments confirmed in human beings, but considerable difficulty was experienced in obtaining conditions which were suitable for the experiment and which would not be questioned. Eventually such an opportunity presented itself; in a section of the Straits Settlements in which beriberi was heretofore unknown a railroad was to be constructed. Two hundred and fifty laborers were sent to the interior to work on this railroad, 125 were placed on unpolished rice and 125 were placed on polished rice. Every precaution was taken before these laborers were sent into this section to make a most careful examination for the purpose of determining whether they were affected with beriberi, and no one with beriberi symptoms was sent into the interior. Beginning with the sixtieth day cases of beriberi commenced to appear among the groups of laborers that were being subsisted upon polished rice, while no cases appeared among the laborers who were taking unpolished rice. This was continued for some weeks. Then the process was reversed; the unpolished rice was given to the polished rice group and *vice versa*, with the result that the beriberi soon disappeared among the laborers who had formerly been taking polished rice and after sixty days cases of beriberi commenced to appear among the heretofore healthy laborers who were now taking polished rice. The above experiments seemed to show conclusively that the ordinary polished rice was concerned in the etiology of the disease. In view of the fact that it is customary for the Straits Settlements to boil the rice before it is husked, it was thought possible that the difficulty was of bacterial origin, and a long series of experiments was made but with negative results. It was then thought that possibly some strong poison was generated in the white rice, and a large series of chemical experiments was made, but also with negative results. Next, sections were made of unpolished rice and of polished rice and a large series of these showed that the arrangements of the cells in the outer border of the unpolished rice were much closer and different from the arrangement of the cells in the polished rice; in the latter they were definitely uniform, at the center and at the periphery. Chemical experiments were then made of the polishings of the polished rice, and it was found to be very rich in pentoxide of phosphorus and that only small quantities of phosphorus pentoxide were present in the rice after it had been polished. This pericap, or polishings, was then fed to chickens which were sick with beriberi, with the result that they promptly recovered from the disease. Another series of experiments with chickens was then undertaken; chickens were fed upon polished rice and in addition with the full amount of polishings which would represent that present in the rice had it not been polished, and no beriberi developed. The amount of polishings were then gradually reduced. Beriberi began to appear when the amount of polishings given corresponded to about one-half of that which would be present in unpolished rice. During the past year unpolished rice has been substituted in all public institutions in the Straits Settlements with the result that beriberi has disappeared at all places in which this class of rice has been regularly used.

The next paper, entitled "Beriberi in Siam," was read by Dr. H. Campbell Highet, Delegate from His Imperial Majesty's Government of Siam. In this paper the author showed that beriberi appeared in Siam coincident with the steam milling of rice, which simply meant that as soon as rice was used which had been polished or which did not contain the pericap with its essential properties, that the disease made its appearance.

The next paper, entitled "Food and Metabolism in Beriberi," was read by Dr. Hans Aron, Philippine Medical School. In this paper the author independently and almost coincidently reached similar conclusions with regard to the etiology of beriberi as did Dr. Fraser in the Straits Settlements. Dr. Aron, in examining some Japanese agricultural reports, was struck with the fact that polished rice had less phosphorus than did unpolished rice, and, keeping this in mind, he carried on a series of experiments on chickens and obtained results almost identical with those of Dr. Fraser. He next had an opportunity to analyze the diet of a prisoner in the Philippines who had been placed upon bread and water as a punishment and found that it was very deficient in phosphorus. This prisoner, after being on this diet for forty-five days, showed the typical symptoms of beriberi, and when the polishings of rice were added to his diet the symptoms of the disease disappeared. Later he had an opportunity to analyze some rice which was used on a vessel carrying coal between Norfolk and Cavite, P. I. Among the Indian crew, who lived almost entirely upon rice, an outbreak of beriberi had occurred. This rice was very deficient in phosphorus. When a rice richer in phosphorus was used the disease disappeared. The author next carried on a series of experiments upon monkeys, which are now under way, and the observations made already indicate that the results will be practically the same.

In the discussion which followed, Dr. Shibayama stated that he was recently a member of a beriberi commission which had been working for the past year in Japan on the etiology of beriberi, and while they did not look for phosphorus particularly, they had made various analyses of rice and other diets which were being used by persons who were afflicted with beriberi, but found the normal amount of carbohydrates and protein to be present. He gave a history of an outbreak of beriberi in a tin mine which was apparently in no way connected with rice.

Dr. Brooke stated that a case of beriberi had recently come under his observation at Singapore, in one of the employees of the quarantine station, who had contracted beriberi while his five fellow co-workers, who lived under identically the same conditions, remained free. On account of the character of their work, the conditions could be vouched for as being the same. Dr. Highet stated that the evidence presented by Drs. Shibayama and Brooke was altogether deficient, and in his opinion did not detract from the facts advanced by Drs. Aron and Fraser in any way, nor did it introduce any factors which could not be readily explained.

Dr. Aron stated that he desired to be distinctly understood as not claiming that the lack of phosphorus was alone responsible for the symptom complex known as beriberi because he believed that the solubility of the phosphorus, the amount of time that the rice had been stored, and probably other chemical factors were concerned. Dr. Fraser stated that he desired to be distinctly understood also as not attributing the disease to lack of phosphorus alone, but that he did know that tropical beriberi could be caused by feeding persons upon an exclusive diet of polished rice. There seemed to be no question but that other conditions could cause multiple neuritis which might be termed beriberi elsewhere.

The next paper, entitled "The Bacteriology of Bacillary Dysentery in the Philippine Islands," was read by Major Eugene R. Whitmore, U. S. Army. Dr. Whitmore gave a brief history of an outbreak of bacillary dysentery which occurred in the Province of Batangas during the year. He stated that the different strains and organisms which have heretofore been described by Shiga, Flexner, and others were found.

The next paper, entitled "The Incidence of Infantile Beriberi and Its Diagnosis," was read by Dr. José Albert. The author gave a short series of cases of infantile beriberi, but the majority of his work had already been included in the paper of Drs. McLaughlin and Andrews and he therefore only gave a brief outline.

The next paper, "Ipecac in the Prevention of Liver Abscess Following Amebic Dysentery," was read by Dr. F. W. Dudley. Dr. Dudley was emphatically of the opinion that the ipecac treatment of amebic dysentery has a most important influence in reducing the number of hepatic abscesses following this infection. He also considers it to be the best form of medical treatment for amebic dysentery, as well as when hepatic abscesses are actually present.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

SERUMS — ANGINA — LATENT MALARIA — HYDROCELE — PERNICIOUS ANEMIA—CANCER OF LIVER AND OTHER SPECIMENS IN PATHOLOGICAL SECTION—ITEMS—OBITUARY.

LONDON, April 8, 1910.

SERUM treatment is being tested on an extensive scale if we are to judge by the numerous preparations offered for our use. Most of these, however, seem destined to pass into the limbo where their predecessors are already forgotten. As a topic of conversation they are not very interesting, unless an ardent worker is present, for the attitude of the practitioner is generally skeptical. One remarked there are "not half a dozen" which have proved of real value, and the reply to him was that we may "speak of units, but it is much too soon to talk of dozens"—that is, in reference to their therapeutic use. Their investigation by experts is, however, watched by the general practitioner, who is always ready to try a suggestion which seems reasonable, especially on intractable cases.

The last serum—or nearly the last, for it is not easy to keep pace with their multiplication—is proposed for rheumatic diseases, acute or chronic. This is a fairly large demand on our credulity, considering that we are not agreed upon their causes nor as to the degree of their affinity. Take acute rheumatism, however, which some think is due to a microbe of some unascertained kind. How can a horse be immunized against such an uncertain cause? Assuming the disease to be an infectious fever and that it is possible to infect an animal and that in such animal it will run the same course as in man, is assuming much that ought to be proven before we conclude that the blood of the animal can be immunized against this infective fever. Skepticism is certainly natural in this case, as in many other proposals of the kind. Further, considering the proved value of the salicylates, practitioners will be in no hurry to adopt substitutes until they have abundant evidence that such substitutes are more effectual. If you demand strict evidence of the value of a serum in a single infective fever, what would you think of a proposal to use one as a sort of general immunizer against various diseases? A story of that kind has been put forward this week and found its way into some of our newspapers. It comes from the Continent, so you may possibly hear of it from your other correspondents.

Professor Osler, in his Lumleian lectures, noticed in my letter of the 25th ult., referred to cases of angina pectoris which seem to be brought on by repeatedly witnessing attacks in others, which he called "imitative." He instanced the well-known case of Senator Sumner and his physicians, as well as several others—some of his own. Among these he named one in which a "reassuring prognosis was all the treatment required to prevent any further attack in a robust patient who had been almost frightened to death" in this way. Certainly the recorded cases of emotional angina afford a wide field for the study of the effects of the mind on the body. The lecturer next considered the primary features of angina, viz., pain and sudden death. The pain is paroxysmal, intense, usually pectoral, with well-known lines of radiation; the death usually sudden, more frequent than in other disorders. The secondary features are of subsidiary interest. Pain may result from an alteration in the working of the muscle fibers in any part of the cardiovascular system, giving rise to disturbed tension of a section of the heart. As to the sudden death, which is the quickest we see, the functions of life appear to stop abruptly—a gasp or two and all is over. Some cases mentioned by Professor Osler were specially interesting as having been observed by himself. Of these one was of an old doctor who stopped at his house to write a prescription and died at his desk, pen in hand. Another fell over on his bed while talking quietly, both pulse and respiration stopping simultaneously. It seems to be vagal death, a sudden inhibition of the inspiratory center, a feeble heart-beat continuing sometimes, as we see in death from chloroform. A man of 48 was talking hopefully to Dr. Osler about going back to his work, when with a sudden cry he clasped his hands over his heart and was dead after two respirations; no pulse could be felt at the wrists, but feeble heart-sounds were heard for three minutes. Of course, such extremely sudden deaths do not often take place in the presence of a skilled observer, so the observations are the more interesting and instructive. A second mode of death described by Dr. Osler follows a series of severe attacks, the heart growing feebler and progressive asthenia, often with Cheyne-Stokes respiration, closing the scene. A third mode is seen in cardiac complications, when, after repeated attacks, cardiac insufficiency is established, even with dyspnea, and the patient sinks slowly, not so suddenly.

The latency of malarial infection is usually supposed to last for only about three years, and in a paper at the Tropical Society on March 18, Dr. Oswald Baker said he had long considered that view as correct. But he had had to abandon that belief and he related a case in which, after thirteen years of freedom, the patient had again been attacked. Clearly the plasmodium might remain latent in some circumstances for long periods.

At the same meeting Dr. A. C. Lambert gave some account of febrile cases with urticaria which had been observed of late in the Yangtse Valley. Pyrexia, rash, and prostration, followed by protracted convalescence, but mostly ending in recovery, were the symptoms, and they usually came on a few days after contact with the mud in the paddy-fields or creeks about the Yangtse. This suggested that the infective agent might be a biting fly or insect frequenting the water or some animal inhabiting the mud of the shallows. The disease has not been met with as yet except in the immediate neighborhood of the river.

Rupture of the tunica vaginalis in hydrocele is of more frequent occurrence than is usually supposed, according to the experience of Mr. Somerville Hastings, M.S., F.R.C.S., who brought the subject before the Surgical Section (Royal Society of Medicine) last month. Although it may occur as the result of traumatism, that is not often the sole cause. In fact, in most cases attributed to it additional causes must be admitted, the traumatism being of the slightest, while rupture may result from muscular action or even take place spontaneously. Further, in nearly every case in which careful examination of the tunica vaginalis has been made it has been found diseased at the point of rupture. Only the serous layer is usually involved, but occasionally the fibrous tunic is also torn. After the accident the hydrocele slowly refills, or a hematocele may follow; rarely a spontaneous cure results. The best treatment Mr. Hastings held to be radical cure of the hydrocele and the best time for operation when the greater part of the effused fluid has been absorbed.

In the Pathological Section Dr. F. H. Thiele commented on some points observed in pernicious anemia, founding his remarks on fifteen cases which he had examined. In two cases the blood was like that seen in secondary anemia. In all cases the marrow was just as had been shown by Muir to be typical. The liver, spleen, and kidney contained excessive amounts of iron. Some alimentary lesions were found in all; changes in tongue, mouth, stomach, or intestines, and pyorrhea was almost constantly noted. In some cases a streptococcus was detected. Altogether the cases go to confirm Dr. Hunter's views. Dr. Thiele detailed also two cases of "aplastic" anemia, in both of which the anemia was profound, and there was pyorrhea and a lesion of the tongue. In one there was great excess of iron in the viscera, the marrow in the long bones

was yellow, in the ribs, fatty in patches. It seemed a case of very rapid Addison's anemia.

Dr. Parks Weber showed a specimen of primary carcinoma of the liver in which there were a number of green plugs between the cells, consisting of inspissated bile. The chief part of the growth was necrotic, and the secretion of bile was considered as only what is known to occur in other glandular carcinomata.

Mr. Shattock showed a specimen of amyloid degeneration in a hepatic adenoma. This form of degeneration in a new growth has not been previously observed. The structure of the growth closely resembled the hepatic tissue which exhibited the same degeneration, the disease in both being confined to the vessels.

At the thirty-ninth annual meeting of the Chelsea Hospital for Women a deficiency in the annual receipts was announced, following a similar falling off in the previous year. Much good work is being done in the hospital and the result of advances in medical science was pleaded as the cause of extra expenses for appliances, etc., required by the medical staff. As proof of the value of these advances the report mentioned that ten years ago twenty-three operations for fibroids were performed with two deaths and last year 113 were performed without a single death.

Lady Tate, during the year, gave £1,000 to endow and name a bed.

The Midwives Act, 1902, came fully into force on Friday last. Henceforth no woman may "habitually and for gain" attend women in childbirth unless certified under the act.

The Postmaster-General has appointed a departmental committee to inquire into the cause of telegraphers' cramp and what means may be adopted for its prevention.

The death has just taken place of the Rev. T. W. Belcher, M.D., D.D., etc., the second oldest Fellow of the Royal College of Physicians of Ireland. He was educated at Trinity College, Dublin, took his M.D. and practised in Dublin, where he was physician to the Fever Hospital and became censor and librarian of the College of Physicians. He was also a regular contributor to the medical press, but in 1869 he gave up medicine and entered the church and in due time became a D.D and was rector of a parish for about twenty-five years.

Mr. Frederic Victor Milward, F.R.C.S., whose case of fatal spinal anesthesia I mentioned last week, died on the 31st ult., aged 40, after a short illness. In fact, he lay dead in his house at the time I was writing in commendation of his view that every fatality under the spinal injection plan should be recorded authoritatively.

Dr. David Davies, J.P., F.R.C.S., of Aberdare, of which he was Medical Officer of Health for forty-four years, died on the 17th ult., aged 89. He practised all through his career at Aberdare, was consulting surgeon to various collieries, and while Medical Officer of Health great advances were made in sanitary matters. He retired about three years ago. He took the M.R.C.S. in 1843 and proceeded to the Fellowship in 1862. He was a county magistrate.

Scotland's senior practitioner, Dr. John Burns of Glasgow, died on the 24th ult. in his ninety-fifth year. He qualified in the Glasgow Faculty of Physicians and Surgeons (1846), of which he later became vice-president. He retired from practice in 1905, having reached the age of 90. He traced his descent from the family of the Scottish poet.

Dr. Charles Perks, surgeon to Burton-on-Trent local hospital, and Medical Officer of Health, has also died this week. He qualified in 1864.

Progress of Medical Science.

Boston Medical and Surgical Journal, April 14, 1910.

Diagnosis and Treatment of Peritonitis of the Upper Abdomen.—J. B. Deaver says that peritonitis of the upper abdomen may result from the perforation of a viscus or from extension through its walls. The latter form is most frequently seen as a result of the passage of infectious agents through the walls of an inflamed gall-bladder. The most frequent causes of the former variety are perforations of gastric and duodenal ulcers. Sudden pain always follows such perforations, sometimes shock and regularly a board-like rigidity of the abdominal muscles, the cardinal symptoms being pain, rigidity, and tenderness whatever may be the site of perforation. Early in the disease an acute pancreatitis may give rise to symptoms which resemble those of perforation and peritonitis. So also acute intestinal obstruction and ptomaine poisoning, both come into the question of differential diagnosis. The author gives the histories of several clinical cases which illustrate the points made and he passes in review the various operative procedures he has found of benefit. As a rule, he says, patients do not require anything in the shape of food by the mouth for three or four days after operation. He has never had any trouble in caring for them by bowel salines and expressed beef juice. He long ago abandoned the use of general peritoneal irrigation and is convinced that the same course is best for upper peritonitis. In every case a suprapubic drain should be inserted. Early diagnosis and early treatment alone offer any reasonable chances of success. If we find the gall-bladder hopelessly diseased cholecystectomy is advisable unless there is a condition of the ducts which would lead us to desire temporary or long-continued drainage. He does not believe that removal of the bladder should be done heedlessly. It is always an avenue of possible drainage if nothing else.

The Treatment of Paralytic Deformities.—R. W. Lovett makes the following varieties: A. 1. Distortion due to gravity in a wholly paralyzed and flaccid limb. 2. An adaptive shortening and lengthening of the paralyzed soft parts induced by malposition. 3. Shortening of non-paralyzed and a lengthening of paralyzed muscles. 4. Static distortion from weight-bearing in paralyzed or partly paralyzed limbs. 5. Fixed deformity of the trunk resulting from an effort to secure equilibrium. 6. Bony deformity following persistent malposition. 7. Dislocation from infantile paralysis. B. The prevention of paralytic deformity. C. Treatment of the same. 1. Mechanically. 2. By stretching of contracted tissues. 3. Shortening of lengthened tissues. 4. Influence toward normal growth by apparatus. Operative treatment includes tendon transference, arthrodesis, tenodesis and silk ligaments and finally nerve grafting. Following all these comes the matter of developmental treatment. At present the matter of tendon transference overshadows the other surgical procedures. This operation is new and easy to execute but it has been performed on many unsuitable cases, often by those who were not cognizant of supplementary mechanical and developmental measures or by those who, while cognizant of them, were not able to follow them out. Experience must come into play in the selection of proper cases. Out of thirty-seven American orthopedic surgeons thirty-one of them report that the results of their later operations were more satisfactory than those of their earlier ones.

New York Medical Journal, April 16, 1910.

A Case of Acquired Syphilis in an Hereditary Syphilitic.—O. L. Suggett has been a man of 20 years' bearing unmistakable evidences of hereditary syphilis such as the saber-blade tibiæ, enlargement of the ephiphyseal ends of the humerus, scaphoid scapulæ, serrated teeth, etc., which came under observation with a mixed sore, the size of a quarter dollar in the sulcus back of the corona glandis, the chancroidal features predominating in its make-up. The incubative period could not be determined. Bubo followed. The patient passed from under observation but two months later he reappeared with a profuse specific eruption presenting the usual polymorphism, the miliary papule predominating, interspersed sparsely with lenticular papules and macules. There was a slight fever and considerable headache. Contrary to some authorities, the acquired disease was exceedingly severe and virulent, as well as precocious, all probably due to the vulnerability of his inherited disease or rather from his dyscrasia therefrom. The author says that he has known this patient for some years and that he has not presented the appearance of being cachectic but on the contrary hardy. The history of the case given in full by the author controverts Profeta's Law as this law is interpreted by some authorities. The author is in doubt if the case falls within the category of this law, for his understanding of the latter is that the child inherits merely the immunity and not the disease, as did this patient, and furthermore, that this means an immunity *in utero*, against the mother's infection. He would welcome comment upon this point. It would seem, however, if Profeta's immunity means protection after birth, that if a child who had received only the antitoxins, born apparently healthy, enjoyed it in even a relative degree, that the child who received the virus, as evidenced by its active symptoms, and protected, therefore, by an autogenous rather than a "stock" antitoxin, should be absolutely immune. The failure of the inherited disease to confer immunity as exemplified in the case re-

ported being an unexpected condition of affairs, not having heretofore been reckoned with, may throw some light upon the supposed transmission to a third generation.

Some Points in the Differential Diagnosis of Locomotor Ataxia.—In a clinical lecture C. W. Burr says that this disease has so many manifestations that errors of diagnosis are frequently made when the patient first comes under observation. Many of these patients complain of rheumatism or muscular rheumatism. Sometimes they fall and cannot rise, telling the physician that they think the knee is out of joint but very little painful. It will be found that the pain is slight and examination shows the joint to be much disorganized. These arthropathies are always painless while arthritis and synovitis are always painful. Vomiting and gastric pain may occur, leading occasionally to abdominal exploration although the case is tabetic. Sexual desire and power, often diminished, may at the outset be increased. Rectal crises may occur suggesting neurasthenia. Optic atrophy with very little ataxia has been found. In all these cases careful observation will eventually bring out the existence, the classical triad, of tabetic symptoms, deep or superficial pain, lost knee jerk, and Argyll-Robertson pupil. Other conditions of the nervous system which require differentiation are chronic alcoholic multiple neuritis and coexistence of tabes with aortic aneurysm which has gone on so far as to produce erosion of the bodies of the vertebræ. Since syphilis is a frequent causative factor in the production of both aneurysm and tabes it is not surprising that they are both quite often found in the same patient. It is not at all common for the aneurysm to become so large as to produce vertebral erosion. Often it is only found at autopsy and not even suspected during life. When vertebral erosion does occur, however, there is set up an adhesive meningitis, and this, in addition to the direct pressure of the aneurysm, causes a compression myelitis. We may have, therefore, the clinical picture of a transverse myelitis in the legs, the local signs of tabes in the arms, and in addition to these its general symptoms. The combined picture may be so complex as to put us entirely at sea unless we remember that aneurysm may and does occur.

A Case of Disease of the Hypophysis.—This case is reported by F. W. Marlow, whose patient was a woman of thirty-six years of age. Briefly summed up it may be stated that she presented the following symptoms: amenorrhea, polyuria (six quarts in twenty-four hours); some thirst; some headache; numbness of the hands; and increase in fat; in addition to the peculiar defect in vision which led to the diagnosis of the disease. Her symptoms may be entirely accounted for by assuming an increase in the size of the hypophysis with a diminution of the functional activity of its anterior lobe. The assumption of increase in size is necessary to account for the visual symptoms which surely point to pressure on the chiasma. An *x*-ray picture is given of the head and several diagrams illustrating disturbances of the usual field.

Principles of Röntgenotherapy.—This subject is discussed by S. Tousey who describes the application of the ray to various clinical conditions. Nothing new is brought out. Concerning its use in cancer of the breast and tuberculosis the author says that it sometimes happens after the first mild application to a cancer of the breast that a toxemia occurs. A patient of the author had a cancer of the breast which she concealed as long as possible and she also concealed the recurrence of cancer in the operation cicatrix and also in the other breast until removal was absolutely contraindicated. The first mild application over this large breast made up of cells especially susceptible to the *x*-ray, caused an amount of internal disintegration and absorption which produced a rise of temperature and other symptoms of toxemia. These symptoms did not recur after subsequent treatments. It has been very distinctly proved that *x*-ray treatment does not cause metastases and internal involvement but on the contrary has the strongest tendency to prevent them, and if this treatment is adopted before the disease has become disseminated some patients may be entirely cured. Tuberculosis of the bones, joints, and lymphatic glands is often curable by the *x*-ray. A tuberculous gland treated in this way undergoes a change into a small fibrous nodule, and the lymphatic channels connected with it are converted into fibrous cords. The tendency is not only to cure the local disease but also to prevent systemic infection. Tuberculosis of the larynx was cured or at all events healed in one of the author's cases, but one lung was already badly affected and the patient died of pulmonary tuberculosis. The *x*-ray alone will not cure the latter disease, but it is a valuable adjunct to outdoor life, climate, hygiene, and the application of high frequency currents. In tuberculosis as well as in other diseases the benefit from the *x*-ray is not due to a direct effect upon microorganisms but to an effect upon the tissue cells.

Journal of the American Medical Association, April 16, 1910.

Ocular Palsies in Tabes.—W. C. Posey remarks on the importance of eye examination in tabes and particularly notices the palsies of eye muscles so frequently observed. These, while resembling the palsies from other causes, possess certain characteristics peculiar to themselves. The first is their transient tendency in the early stages of the disease, a character also marked, though less prominently, in the later stages. A history of diplopia can often be elicited from patients who are loth to believe that it has any connection with the later symptoms. In addition to the transient tendency there is the marked disposition to recurrence. The palsy may last only a few hours or even persist for years and the return of the muscle to its normal action even after long periods should be recognized as a possibility in tabetics and tend to discourage operation in such cases. Their tendency to occur early in the disease has been noted by most observers though they may occur at any stage. According to statistics given by Uhthoff and others, palsy of the eye muscles in tabes in adults is more common than optic atrophy, which is seen, according to Uhthoff's figures, in from 18 to 20 per cent. of all cases. They are not so common in the initial stages, however, as the Argyll-Robertson pupil or as lancinating pains or loss of reflexes. Rarely, muscles other than ocular may be palsied at the same time, such as those of the palate and vocal cords. It is worth remembering here that that form of tabes beginning with optic atrophy is often for a long time combined with loss in power of the roots of the thoracic nerve when all other symptoms are absent. Posey finds from his experience that inequalities in the size of the pupil and disturbances of its reaction are found in the early stages of cerebral syphilis, often associated with optic neuritis, while palsies of the extraocular muscles as a rule belong to the later stages. Contrary to the rule in tabes, they develop more gradually and persist longer instead of showing a tendency to early disappearance and frequent recurrence. Conjugate deviations and ophthalmoplegia externa are caused almost exclusively by syphilis. Uhthoff has suggested that a nontabetic ophthalmoplegia can readily be differentiated from one of true tabes by the presence of an unaffected pupil. We must remember, however, that a true syphilitic ocular palsy may coexist with tabes. In fact, tabes often cannot be distinguished clinically from nervous syphilis. Posey thinks that there is good evidence that tabes is not directly the result of syphilitic virus, but results from parasyphilis from some toxic substance produced in the body. The pathogenesis of ocular palsies in tabes is still in doubt but the common view is probably that they are either pathological occurrences superimposed on the general disease or that they are part of the latter, *i. e.* that they are syphilitic ocular palsies occurring in tabes or they are simply a manifestation of the general motor disturbances observed in that disease. Fraenkel's view is that in their earlier stages they are simply due to loss of tonus which is mediated through the disease of the sensory neuron, while later on, when, owing to the long duration or severity of the process in the sensory neuron, the motor neuron has undergone secondary changes, palsies are more lasting, more extensive, and their immediate cause is found to exist anatomically in degeneration of the nucleus, nerve trunk, or muscle.

The Eye in Idiocy.—L. Pierce Clark and M. Cohen have studied the eyes of idiots to observe the fundal changes and find in fully three-fourths of all cases out of a total of 129, varying degrees of retrobulbar neuritis of a degenerative character. The eye defects, however, do not seem usually to extend beyond a functional incompetence of vision and this may be explained perhaps by the defective central innervation. External changes in the organ of vision were found in but few. The pupillary reflexes to light accommodation, etc., were present in all but sluggish in the idiots. The acuity of vision, the field of vision and the refractive errors could not be determined. In 29 feeble-minded individuals but 9 exhibited normal fundus and but 15 in 24 imbeciles. But 2 out of 53 idiots showed normal fundus. The appearances found most frequently in all three classes were pallor of the temporal half and edema of the nasal half of the disc, and incipient atrophy as shown by generalized pallor. One imbecile and three idiots showed well-marked atrophy of the disc. No specific cause is offered to account for these findings but their constancy in the majority of cases is emphasized.

Trichinella Spiralis.—E. M. Packard reports a case of infection by this parasite in which the trichinella was found in the circulating blood of an Italian woman who had been suffering for three weeks with headache, pains over the whole body, anorexia, occasional diarrhea, and weakness. She was markedly prostrated and had had several attacks of epistaxis. Until recently no proof had been furnished of the passage of this organism in man from the intestines to the muscles by way of the chyle and blood streams, and Packard offers the case as evidence of the fact.

Difficult Surgical Problems.—J. A. Wyeth gives details of a number of difficult operations illustrating surgical principles, including the transplantation of the proximal end of the ulna to the distal end of the radius in an ununited Colles' fracture; fracture of the radius with faulty union causing complete loss of pronation and supination treated by refracture of bone with divulsion of contracted muscles and resulting in reunion and restoration of function; the reproduction of the carpal end of the radius after destruction by gunshot wound; the treatment of fracture of the femur in a new-born infant; also his views in regard to certain special surgical features. Among these are his method of treatment of caries of the lumbar spine by continuous extension, the treatment of vascular tumors of the neck by injection of water at a high temperature, experimental studies on animals, and operations on human beings of permanent arterial occlusions after deligation by the use of broad animal ligatures, ligation of the external carotid artery, and his method of bloodless amputation of shoulder and hip joints. blood streams, and Packard offers the case as evidence of the technique. The article is illustrated.

Intraspinal Tumors.—C. A. Elsberg reports a case of extramedullary tumor of the cervical region which was operated on by removal of the spines and laminæ of several lower cervical and the first dorsal vertebræ. When the dura was incised the tumor extruded, but owing to the patient's condition further immediate operation was deferred and the wound closed. A week later the wound was reopened and it was found that a tumor, measuring 5 cm. in length and 3.5 cm. in breadth, had been almost entirely extruded from its bed under the pia mater so that it lay outside the cord substance and could be removed with great ease and with the minimum of danger to the cord. A fuller report of the case will be published by him and Dr. Fraenkel at a later date. This preliminary report is given on account of the suggestion it offers for the treatment of similar cases. He believes that operation for tumor of the spinal cord should be made always in two stages and that the first stage should end, not with the laminectomy, but with the small incision in the dura and also in the pia if the growth is subpial. If the tumor is subpial or intramedullary the dura may be closed at the end of the first stage. A fuller discussion of the advantages and disadvantages of the method is promised in the future publication.

The Lancet, April 9, 1910.

Effects of a Serum Upon a Carcinoma Occurring in Mice.—C. Walker gives a description of experiments performed by him and several microscopic pictures of his findings. It appears that while normal rat serum under the conditions of his work leaves a large number of cells of the particular carcinoma employed in mice in an apparently healthy condition at the end of forty-eight hours, the serum of rats treated with a mouse's testis produces a reduction of the tumor cells, although it apparently allows at the same time other cells to proliferate. A large number of these small cells which take the place of the cancer cells are apparently leucocytes. A comparison between them and the spleen and bone marrow of the mouse makes this obvious without going into particular details. It is, of course, possible that some of the cells may not be normal leucocytes or derived from leucocytes. The conditions being obviously abnormal, it is only to be expected that if they are all of them leucocytes, as the author is inclined to think, the appearance in many cases must vary considerably from the normal varieties of leucocytes. A large number of them are typical, being mainly lymphocytes and polymorphonuclear leucocytes. Some, too, contain granules. There is also apparently an increase of connective tissue cells. The general results seem to show that what happens upon the treatment of a mouse suffering from cancer with the testis serum is rather upon the stimulation of the leucocytes to multiply and replace the tumor cells than a direct destructive influence on the part of the serum upon the cancer cells themselves.

Experimental Diminution of Resistance to Mouse Cancer.—A. Leitch says that injections of a fluid prepared from an adenocarcinoma, instead of increasing the resistance to test inoculations, had a marked effect to the contrary. In ten days' time of 27 treated mice that remained alive 18 showed tumors. A week later 21 out of the 27, or 78 per cent., had growing cancers. The controls gave 9 tumors in 27 mice, or 33 per cent. There is a striking disparity in the two sets. But this disparity is all the more marked when we take into account the size of the tumors produced in both cases. By carefully mapping out the contours of the tumors on graph paper it was found that the average area covered by the growths in the treated set was approximately 110 square millimeters, as compared with an area of 39 square millimeters in the case of the controls and the average mass was much larger. From these experiments it is evident that the injection of cancer cells which are physically disintegrated without being probably chemically altered had markedly affected the resistance toward living tumor cells. So far from conferring anything like immunity, it undoubtedly exalted the susceptibility.

Notes on the Use of Adrenalin Chloride in the Treatment of Plague.—E. N. Thornton has had experience in 50 cases, of which 15 died. For adults 30 minims of a 1/1000 solution were at first usually given by the mouth, with 10 minims of tincture of strophanthus every four hours for the first three days and three times daily for the following fourteen days. Later, if the patient was very ill, the adrenalin was given hypodermically or intravenously in somewhat smaller dose. The mixture for oral administration was made up freshly as required. In the worst bubonic cases it was customary to commence with an injection of 20 minims of the adrenalin chloride in the neighborhood of the buboes, especially where the latter were unusually painful or where much extravasation was occurring into the surrounding tissues. In general the hospital mortality from the lesion (excluding septicemic cases) in those cases not treated with adrenalin has been 37.4 per cent., as compared with a mortality of 26 per cent. only among those treated with adrenalin. This lower mortality does not appear to have been due to the fact that the adrenalin patients had the disease in an unusually mild form, for if anything they appeared to be somewhat worse than were the majority of cases under treatment, especially those toward the middle and end of the series. Autopsy showed in nearly all the cases in which the remedy has been employed and failed a marked diminution in the usual congestion of the organs, no hemorrhages or petechiæ, less effusion into the pleuræ and pericardium, less enlargement of the liver and spleen, and very little enlargement or alteration in the appearance of the suprarenal glands.

Arthritis Deformans.—R. L. Jones says that under this heading we have to distinguish three varieties of cases: (1) Rheumatoid arthritis or atrophic arthritis, (2) osteoarthritis or hypertrophic arthritis, and (3) infective arthritis. He passes in review the pathological changes in each of these forms and passes on to consider the nature of the new bony formations which appear sometimes in these cases. Sometimes, also, complete cases appear in which skiagraphy will show no new bone formations. These are not to be regarded as essential to the disease, but are rather secondary features. The author is not disposed to agree with those who believe that their presence is evidence of the transition of a condition of rheumatoid arthritis into one of osteoarthritis, but says that the morbid process in the former condition is one of rarefaction and softening. Consequently it follows that by reason of this pathological change these structures are peculiarly susceptible to stresses and strains. In other words, the ends of the bones tend to undergo plastic adaptations in their shape as the result of the retraction of the skin and pericapsular tissues aided by the pull of the related muscles. The testimony of skiagrams tends, the author says, to strengthen his views on this point. Hoffa has said that these proliferations are in proportion to the amount of atrophy that has occurred and he would regard them as reparative in nature. Now, were the proliferative changes in rheumatoid arthritis of the same nature as those in osteoarthritis, one would expect that their size would be in relationship to the length of the disease. On the contrary, it would appear from the experience of various authorities that, notwithstanding the existence of the disease for prolonged periods, bony outgrowths were

absent, whereas in much shorter cases they were present.

British Medical Journal, April 9, 1910.

Nourishment in Acute Diseases.—F. G. Haworth notes that it is quite a common experience to find a patient out of bed for the first time not more than a quarter of an hour, quite depressed and sometimes in tears because of the unexpected weakness, and this after a great deal more nutriment has been taken than often happens when in normal health. Physiologically we do not draw our strength from our food. Surely the whole of that goes to make good the loss of tissue which is always going on in the economy. Dead tissue is constantly being thrown off and new cells are born and go to make good this loss. Hence comes the popular saying that "we have a new body every seven years." Of what avail, then, is all the nutriment we take? None, says the author, except to build up the burnt-out tissues the result of an attack of, say, pneumonia. But with a temperature of 104°, a furred, foul tongue, and pronounced anorexia, loading up of the bowels with accumulated waste, and innumerable organisms of infinite variety and infection, it is better to wait for convalescence, with its rested and recuperated stomach, cleared out bowel, and a mind free from the terrors of delirium. We should watch the pulse and improve this by increasing the blood pressure by means of copious draughts of hot water or saline injections by the rectum, or by both, and we shall not need to fear collapse or heart failure.

Pigmentation of the Buccal Mucosa in Pernicious Anemia.—T. G. Moorhead records the history of a case of this disease in a man of 28 years of age. He presented the usual symptoms of the malady, but the most striking feature was the pigmentation of the lips and mucous membrane of the inner aspects of the cheeks. The lower lip on its inner aspect was of a bluish, inky color, and this discoloration was prolonged on the inner aspect of the mouth on both sides, principally on the line of junction with the teeth in the form of scattered inky patches. Similar patches less deep in color were also present on the inner aspect of the right cheek below the level of the teeth. Under arsenic the case was doing well when reported. The pigmentation was lessening, doubtless owing to the fact that the contrast between it and the remaining mucous membrane is not so sharp, owing to the gradual return of the latter to its normal color. The author has been able to find on record only four cases with this special location of the pigmentation.

Berliner klinische Wochenschrift, March 28, 1910.

Transplantation of the Kidneys.—Ernst Unger reviews briefly Carrel's results with kidney transplantation and reports two attempts of his own to transplant the organs between monkeys and human beings. The first experiment followed the technique of Carrel, except that the donor was a still-born baby and the receiver a medium-sized baboon. Through technical errors the animal died. The second experiment was in transplantation from a monkey to a human being. The patient was a 21-year-old girl with advanced nephritis and very marked edema. The prognosis being hopeless, the operation was undertaken. The donor was a *Macaccus nemestrinus*. From this ape both kidneys were removed *en masse* in the usual manner, with the adjoining portions of the aorta, vena cava, ureters, and bladder. An incision was then made in Scarpa's triangle in the patient, and the fragments of aorta and vena cava were implanted into the femoral artery and vein. The skin was undermined in the thigh and the ureters and fragment of bladder were passed under this, the latter being sutured into an opening made through the skin in the anterior internal aspect of the thigh. The patient, who was *in extremis* before the operation, died thirty-two hours after it. The circulation had remained good in the implanted kidneys. At autopsy these kidneys showed no signs of degeneration. Whether they had functionated or not could not be said definitely, as edema fluid was discharging from the opening in the skin.

Deutsche medizinische Wochenschrift, March 17, 1910.

Operations with the Electric Spark and Diathermia.—Vincenz Czerny has investigated the effect of fulguration, high-frequency currents, and Nagelschmidt's diathermia upon carcinomata in various locations. From these experiments and observations the author concludes that in these therapeutic procedures we have means of destroying local cancers, but, at least in cases previously operated upon, they do not prevent recurrence any more certainly than any other previously used methods. However, we are rarely able to use the method in the early stage of cancer, when it might be of some value in treatment if the patients would consent to the bloodless destruction of the tissue as readily as to the bloody operations. He considers it important that the methods be given further trial in order to prove, as may be the case, that by electrical treatment the deep lying cancer germ may be so debilitated by the currents that the natural curative power of the body, helped possibly by artificial aids, may destroy it and thus bring about a cure. Further experience will teach the true value of the various methods and show us how far we should go with them in order to obtain the best results. The experience which the author has had with fulguration leads him to offer the warning that only such physicians should make use of diathermia, the electrocaustic, and the spark as have operative experience, technical skill, and physical knowledge of the high-frequency currents, or else can command a technician or physicist to be on hand with advice and help. These very energetic currents may easily do great damage.

A Simplification of the Neisser's Stain for Diphtheria Bacilli.—Paul Sommerfeld has proposed a modification of the Neisser stain which is simpler and requires fewer staining reagents than the original. The stain is based upon the fact that the granules, when once stained, retain their color better than the bodies of the bacteria under decolorizing agents. The method is as follows: The smear, dried and fixed in the usual manner, is overstained with methylene blue (Loëffler's, alcoholic, or watery), washed off with water, or dried with filter paper, and then placed in equal parts of 40 per cent. formalin and alcohol until the color has disappeared. It is then washed with water and dried. The granules stain a dark blue, the bacterial bodies a light blue. Counter staining is quite unnecessary, but can be done if desired with vesuvin, chrysoidin, or eosin.

The Wassermann Reaction and Narcosis.—Georg Wolfsohn has studied the Wassermann reaction in fifty operative cases immediately after the operation, under morphine-scopolamine-ether narcosis, and again several days later. He found that in 22 per cent. of the cases a positive reaction was obtained during the narcosis, which disappeared in a few days. One must, therefore, be careful not to make a positive diagnosis of syphilis from the results of a test made while the patient is under the effects of a narcosis. This anomaly of the reaction probably has some relation to the effects of narcotics, which are supposed to act by dissolving the lipoids out of the brain and the association of lipoids with the Wassermann reaction.

Hecht's Modification of the Wassermann Reaction.—König discusses the Wassermann reaction and especially its modification made by Hecht. He says that the fact that in a certain proportion of the cases of untreated syphilis the Wassermann reaction is negative and the consideration that possibly these failures are dependent upon the complicacy of the method is the reason for changing and simplifying the original method. A modification of a test is indicated if it fulfills the following three requirements: (1) It must be based upon a scientific foundation; (2) it must be simpler and more delicate than the original method, and (3) it must never give fallacious results. All of these requirements are fulfilled by the Hecht modification, which depends upon the fact that normally human serum is capable of dissolving ten times its volume of a 2 per cent. solution of sheep's blood. For Hecht's test one needs only active serum, 2 per cent. sheep's blood, and antigen. The modification gives very good results and never fails if one uses fresh serum only and works with a dose of antigen which is not bound by twice the amount of normal serum.

Anatomy of the Male Urethra.—De Meritt says that surgically it is more convenient to recognize six divisions of the urethra than the three usually given by anatomists. These divisions with their logical names are : (1) the glandular, (2) the cavernous, (3) the bulbar, (4) the pretrigonal, (5) the trigonal, and (6) the prostatic. The first three divisions are contained within the corpus spongiosum.—*Journal of the Medical Society of New Jersey.*

Book Reviews.

The Practice of Medicine. A Text-Book for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By James Tyson, M.D., Professor of Medicine in the University of Pennsylvania and Physician to the Hospital of the University; Physician to the Pennsylvania Hospital; President of the College of Physicians of Philadelphia; Member of the Association of American Physicians, etc. Fifth edition, revised and enlarged. With five plates and 245 other illustrations. Philadelphia: P. Blakiston's Sons & Co., 1909.

It is a pleasure to welcome the fifth edition of this well known text-book on the practice of medicine. It has always been one of the best books of its type, especially as it is largely written from the author's own vast clinical experience. Despite the difficulties which must be encountered in attempting to keep a volume of this magnitude up to current practice, it would seem to the reviewer that the aim had been admirably accomplished. The new sections on the use of tuberculin, on the Cammidge and the Wassermann reactions, and on other clinical laboratory methods are sufficient to give the student an idea of the main points of the procedures, while not attempting to supplant the standard text-books on laboratory diagnosis. Evidences of the thorough revision of the section on tetany, with full recognition of the important work of MacCallum on this problem, show that the author has succeeded in covering the latest literature of this complicated and still rather obscure subject. An excellent discussion of the treatment of exophthalmic goiter, especially the anti-serum method proposed by Rogers and Beebe, also shows how fully the work has been revised. Many other new points have been inserted which need not be mentioned here, but it is sufficient to say that the volume offers a most valuable guide to the student of medicine. The only possible criticism is directed largely at the proof-reading, a number of misprints, especially in the names of authors, occurring throughout the text.

A Manual of Medical Jurisprudence. for the Use of Students at Law and of Medicine. By Marshall D. Ewell, M.D., LL.D., late President and Dean of the Kent College of Law, Chicago; Lecturer on Medical Jurisprudence at the University of Michigan, etc., etc. Second Edition. Boston: Little, Brown & Co., 1909.

Some text-books on medical purisprudence should be in the possession of every physician and every lawyer. Usually it is best to select a work of considerable breadth and scope, for reference; but for the student and as a hand volume, Dr. Ewell's book may be recommended. The first edition appeared in 1887, and the present edition shows relatively few changes, considering the time which has elapsed and the advance which has been made since then in medical science. The author states, however, in his preface that this advance has been taken into consideration in his examination of the text; and it will be noticed that references have been added to each chapter for the convenience of further study of any particular topic. These references are both to text-books and to cases cited from medicolegal practice in the courts. Too little attention is still paid to this practical and important branch in the medical college, and perhaps also in the law school. At any rate, both physicians and attorneys seldom exhibit a good knowledge of the subject. The usual topics are considered in the book: Evidence, experts, compensation, signs, modes and causes of death, personal identity, abortion, infanticide, rape, legitimacy, life insurance, feigned diseases, malpractice, toxicology, insanity, etc. Of necessity all subjects are treated briefly. The chapter on insanity, from a medical point of view, is not well brought up to date. The important classification of Kraepelin, for example, now universally used, is omitted.

The Campaign Against Microbes. By Etienne Burnet, M.D., of the Pasteur Institute, Head of the Vaccination Service of the City of Paris. Translated from the French by E. E. Austen, F.Z.S. New York: William Wood & Company, 1909.

The first chapter in this work deals with the subject of cancer. A full description of the experimental work being done is offered the reader, together with the hypothesis at present popular. The *pro* and *con* of the various theories are considered and we are left with the conclusion that it is due to some unknown parasite. The second chapter takes up the subject of tuberculosis, and although we know much about this disease, the author points out how little has been accomplished aside from hygiene in its therapeutics. The results of Von Behring's bovo-vaccine are considered as failure pure and simple. The following pages present the work done on sleeping sickness, tetanus, and diphtheria, where scientific investigation has helped us to offer relief and cure. The chapter on intestinal microbes is most interesting and deals with the work of Metchnikoff and his new ideas of limiting the growth of the harmful ones by substituting a more beneficent variety. Vaccinia and variola are the subjects with which the work ends.

The author has given a fair minded exposition of modern scientific investigation, and makes no attempt to force his own conclusions on the reader, but allows him to form his own unbiased opinions. The descriptions are clear, the language as untechnical as it is possible to use on such a subject. It is a book of value to physician and patient, provided he takes a normal and not morbid interest in such knowledge.

The Morphia Habit and Its Voluntary Renunciation. A Personal Relation of a Suppression After Twenty-five Years' Addiction. With Notes and Additional Cases. By Oscar Jennings, M.D. (Paris), Fellow of the Royal Society of Medicine. New York: William Wood & Company, 1909.

This book of nearly 500 pages sounds an optimistic note in the treatment of drug addiction. The author deplores the pessimism with which the profession treats of this subject and explains the reasons of so many failures. He disclaims the necessity of coercion or restraint and lays great stress on the reeducation of self-control. The aim is not only to suppress the use of opium, but also to suppress the desire. It must not be understood that the writer decries the medicinal treatment which must accompany the psychic. He fully realizes the necessity of ameliorating the misery of abstinence and uses sedatives at appropriate times. In fact, he lauds the use of heart tonics, of agents which neutralize acidity, and the Turkish bath. The environment of the patient, the education of his confidence in his adviser and in himself, the attention to detail are all emphasized as important. The value and drawbacks of sanatorium, hypnotic, and suggestive treatment are duly considered. The latter part of the book deals *in extenso* with the histories of various habitués, with those who also have added other addictions, such as tobacco, cocaine, and alcohol; with cases complicated with heart disease, and rheumatism, etc. His results of 90 per cent. successes should stimulate the profession to emulate his example and imitate his methods.

A Text-Book of Medical Treatment (Alphabetically Arranged). By William Calwell, A.M., M.D., Physician, Royal Victoria Hospital, Belfast; University Clinical Lecturer on Medicine, Queen's University, Belfast; Consulting Physician, Ulster Hospital for Women and Children, the County Antrim Infirmary, the Throne Consumptive Hospital, Belfast, and the Old Charitable Institute, Belfast; Lord Chancellor's Medical Visitor in Lunacy, Belfast District; ex-President, Ulster Medical Society, etc. London: Edward Arnold; New York: Longmans, Green & Company, 1910.

This work is the outcome of twenty years' teaching, and as such is unusually complete and satisfactory. The subjects are arranged alphabetically, thus making them readily accessible to the hurried reader. The diseases usually coming under the management of the internist compose most of the text, although many other subjects are included. Under appendicitis we notice the recommendation that opium be employed for the control of pain, and the author seems unduly pessimistic about the results following early operation in fulminating cases. Throughout the book the author shows his knowledge of contemporary practice and has evidently kept pace with the literature of his subjects. He gives the best and accepted treatments, and is evidently safe and sane and without dangerous enthusiasms. His attitude toward specific treatment of tuberculosis shows conservatism, hope for a development of the same and yet a true dependence upon fresh air and food as the best therapy that is at our disposal up to date. He gives the details of methods at present under trial and reserves judgment. Such methods as are being generally accepted, like Flexner's serum in spinal meningitis, he recommends.

The broad-minded clinician appears throughout the book, drugs are used, and the limitations and advantages thoroughly recognized, but in addition much stress is laid on dietetics, hydrotherapy, hygiene, rest and exercise, climate, *x*-rays, electricity, and such physical measures as are gradually supplanting the more mystic prescription for drugs.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held March 10, 1910.

DR. ELI LONG IN THE CHAIR.

A Case of Salaam Convulsions.—Dr. SIGMUND ARTHUR AGATSON presented a boy, four years old. His father and mother were first cousins, with normal mental and physical conditions. The child was born at the seventh month. During the first six months of life he gave no trouble; then he began to cry frequently unless taken up and carried. During the first year he never had any convulsions. His present trouble began at the age of fourteen months when the mother noticed that upon awakening the child would bow the head and bend the trunk; these attacks recurred from eight to ten times a day, and were most marked after sleep. They came on without any premonition. There was a sudden bowing of the head, the chin touching the sternum. Simultaneous with this there was an inclination of the trunk to about an angle of 60 degrees when in the sitting posture. The right arm, partially flexed at the elbow, was brought forward in slight abduction until it reached the level of the shoulder, the palm with fingers extended pointing downward and inward. During the spasms there appeared to be a momentary loss of consciousness. Between the spasms the child appeared to be contented, at times smiling and clasping his hands in apparent joy. Each attack consisted of twenty or thirty spasms, lasting about twenty seconds, occurring at intervals of fifteen to thirty seconds. The child had been under observation for eighteen months and there was no perceptible improvement in his condition.

A Case of Tetany in a Child Eleven Months Old.—Dr. WILLIAM SHANNON presented a baby, eleven months old, who had been apparently well up to three weeks ago. When Dr. Shannon saw the patient, while perfectly relaxed at times, as soon as touched the spasms characteristic of tetany were created, with the hands assuming the usual position, wrists flexed and fingers in the well-known position peculiar to the disease, and thumb extending across the palm, strongly adducted almost to the little finger. Both hands were drawn somewhat to the ulnar side. When the spasms were severe the arms would be flexed on the chest. The feet also assumed the characteristic position, being extended and the toes flexed. During the spasm the plantar surfaces became arched and the dorsum prominent. A peculiar feature in this case was that the infant assumed the position of opisthotonos, probably because the muscles of the trunk were involved in the spasm. Trousseau's phenomenon was sometimes present, and the facial phenomenon was well marked. The knee reflexes were greatly exaggerated. There were no symptoms of brain pressure. The diagnosis of tetany was made because of the exaggerated reflexes, the bilateral spasm which could be excited or increased by pressure on the nerves, no loss of consciousness, and the presence of gastrointestinal disturbance. The infant was placed on oatmeal, and later hominy, etc., with a dose of castor oil and calomel every day. At the end of one week the child was practically well. The mother, however, neglected the instructions given her and the convulsions came on again. Dr. Dana had confirmed the diagnosis.

A Case of Cerebrospinal Syphilis.—Dr. KAUFMAN SCHLIVEK presented a boy, eleven years old. The father had an ulcer on his penis when the mother was pregnant with this child about four months. He was treated with mercurial inunctions. When four weeks old the baby had what was probably a specific epiphysitis, and was treated with mercurial ointments. His present illness began about three years ago with a gradual onset. He became listless, could not find his way home, ate food from barrels, complained of headache and poor vision, and always pointed to one spot on the top of his head as being very painful. When the headaches were severe he vomited frequently. He looked like an imbecile. The skull was very sensitive to pressure and percussion. The left pupil was larger than the right; both pupils reacted to light. The tongue protruded to the right. The hands and feet were cold and cyanotic. The skin over the dorsum of the second phalanx of three fingers was infiltrated. There was a double pes planus. The gait was slightly spastic and waddling. There was no ataxia. The knee jerks were markedly exaggerated, and there was ankle clonus. The Wassermann and Noguchi tests were strongly positive. Without the serum tests the diagnosis would have been very uncertain. The prognosis was bad, for the lesion was of a sclerotic condition, and the patient had not responded to treatment.

Gonococcus Vulvovaginitis in Children, with Results of the Vaccine Therapy in Out-Patients.—Dr. B. WALLACE HAMILTON read this paper. During the past three years a careful record had been kept of these cases referred to the Vanderbilt Clinic. There were 344 cases observed, the average age being 5.1 years. There were 151 cases under the age of five, and 193 cases over this age. Strangely enough there were but four cases of ophthalmia from autoinfection. There were 260 cases treated by irrigation; 158 were cured, 53 not cured, 49 lost. There were 84 cases treated with the vaccines; 76 were cured, five were not cured, three were lost, giving a percentage of 90. The average length of time under active treatment by the irrigation method was 10.1 months; by the vaccine treatment, 1.7 months. The five cases that were not cured by the vaccine treatment were all over five years of age, two being over nine. Three cures were obtained in young infants under one year of age, the youngest being three weeks old. In conclusion Dr. Hamilton said that vaccine therapy had a place in the treatment of this affection in little children for the following reasons: (1) The short time required for a cure in over 85 per cent. of the cases. (2) The ease of administration of the vaccine; no special apparatus or knowledge of technique being required. (3) The vaccine was apparently harmless when used under aseptic precautions. (4) It was not necessary to take the opsonic index, with its complicated technique. (5) It eliminated irrigations which directed the child's attention to its genitals, which at times encouraged precocious masturbation. The frequent douches necessary in the irrigation treatment would, with the best care and gentleness, produce some injury when continued over a long period of time.

Dr. GODFREY R. PISEK said that vulvovaginitis was such a bugbear to those who did much work in the hospitals that they were very glad to have such a paper showing the results, especially consecutive results, because heretofore their time had been almost wasted in the treatment of these cases. He had used the vaccines in the treatment of this condition and probably he had used all the irrigation treatments mentioned and a few others as well, with no success in the great majority of the cases. He never felt that any of the cases were absolutely cured; even in those cases where the child was discharged as cured, basing this statement on the smears made, he felt that in after months or years the gonococcus would again be found. Cures should never be recorded until the patients were examined one or two years after treatment. Every girl who entered the hospital had a smear made before admission, as well as subsequently. In the way of prophylaxis, the argyrol ointment and suppositories were used, even though there was no discharge. Such children went through the hospital without becoming contaminated. He had employed

in children as much as five million dead bacteria at once and he had never seen any bad results from such a large dose.

Dr. L. E. La Fétra said he had seen most of these cases and confirmed what Dr. Hamilton had stated in regard to the satisfactory results obtained from the vaccine treatment. For three years at the Vanderbilt Clinic all forms of irrigation treatment had been employed, and finally Dr. Hamilton had resorted to the vaccine treatment for the first time in dispensary patients, and with extremely satisfactory results. About 80 per cent. appeared to be cured. This treatment offered a new hope for these patients who heretofore had proved trying accumulations for any clinic.

On Preliminary Examination of Children at the Dispensary, as a Means of Protection Against Contagious Diseases.—Dr. Sara Welt-Kakels read this paper and offered the following conclusions: (1) There was at present an evident lack of prophylaxis in handling contagious diseases at the dispensary. (2) As at present conducted, dispensaries contributed to the dissemination of infectious diseases among the poor, by contact infection in the common waiting room. (3) If not entirely eliminated the danger of infection was lessened by the preliminary inspection of children, a prophylactic measure, which aimed at an early detection and exclusion of contagious cases and "suspects" before entering the common waiting room. (4) Preliminary examination had been conducted at the Mount Sinai Hospital Dispensary since April, 1907, with satisfactory results. (5) Its establishment in similar institutions was required as a sanitary safeguard and on the ground of public economy.

Dr. Godfrey R. Pisek said that every precaution should be taken to prevent the spread of infectious diseases in the dispensaries. It was very difficult, however, to exclude such diseases as scarlet fever, especially in the early stages, by merely a cursory examination. Most of the dispensaries had common drinking cups; the use of these should be condemned.

Dr. F. L. Wachenheim said that there were some details which Dr. Welt-Kakels had not had time to go into sufficiently. The examination of the throats of all the children was made very carefully, and especially were they on the lookout for Koplik's spots; if a child had any redness of the throat, the chest was examined. These examinations were made by the house staff, and it was rather interesting to note that in January and July, when a new member of the staff entered upon duty, some cases slipped through; but as time went on, there were fewer and fewer that got through their hands. The spread of pertussis could not be stopped in the dispensary. It seemed strange to him that more dispensaries had not adopted such a plan as was now in vogue at Mount Sinai Dispensary.

Helminthiasis in Children.—Dr. Oscar M. Schloss presented a summary of his investigations undertaken to determine the following: (1) The frequency with which intestinal worms were harbored by children between two and twelve years of age. (2) The species of parasite harbored and the relative frequency of their occurrence. (3) The number of cases in which the common intestinal worms were responsible for symptoms, and the nature of the symptoms produced. (4) The occurrence and significance of eosinophilia in infections with the common intestinal worms. He had examined 310 children and, for purposes of convenience, he divided them into two groups, one of 30, the other of 280. The first group was made up entirely on the basis of suspicious symptoms and was of little statistical importance. The second group of examinations were made as nearly consecutive as possible with reference to the presence or absence of symptoms, and 80, or 28.57 per cent. of the children harbored intestinal worms. There were 31 cases of infection with the whip worm without symptoms. In the cases of the other parasites the most common nervous symptoms were restlessness at night, night cries, and general irritability. The gastrointestinal symptoms varied with the parasite. In the cases which presented symptoms, the eosinophile cells were usually above 6 per cent. with the exception of the long-standing infections. In the cases without symptoms, eosinophilia was absent. The only satisfactory means of diagnosis of intestinal worms was the detection of the parasite in the stools.

Dr. Godfrey R. Pisek asked in regard to the nationalities of most of the cases, and what relationship the parasites bore to the food ingested; also what data Dr. Schloss had in regard to contact of the infected children with domesticated animals. The cases always had an albumin loss eventually producing anemia; the parasites also could act as foreign bodies, often invading the appendix, or they might be vomited; again they produced a toxin which no doubt accounted for very many of the reflex symptoms.

Dr. Schloss, in answer to Dr. Pisek's questions, said that there were not more than ten or fifteen of foreign birth among the patients he reported, although about one-quarter of them were of foreign parentage. It was well known that the common tape worm was transmitted by the so-called "measly beef." An infected water supply might be the means, however, of the spread of other parasites. He said he had not examined domesticated animals for the parasites. The most common means of transmission of the common intestinal worm was through the ova passed in the feces of infected patients.

Cerebrospinal Meningitis in an Infant Two Months Old.—Dr. Louis Fischer reported this case and presented the patient. The chief symptoms were the following: The sudden onset with vomiting; loss of appetite in an otherwise normal breast-fed infant; rigidity of the extremities and convulsive movements; anterior fontanelle open one-half an inch and slightly bulging; posterior fontanelle closed; pupils equal but reacting sluggishly to accommodation and to light. Three successive lumbar punctures were made with dry tappings; because of this and the symptoms of rigidity, opisthotonos, fever, and twitchings it was decided to tap the lateral ventricles, about 15 c.c. of a turbid fluid containing pus were withdrawn. The smears showed intracellular Gram negative meningococci. The ventricles were irrigated with normal saline solution and 25 c.c. of antimeningitis serum were slowly injected into the ventricles. This procedure was repeated. The amount of serum injected altogether was about 100 c.c. The child was brought to the hospital October 2, and was discharged cured December 16. The quantity of serum injected should never exceed the quantity drained. The success in this case was due to persistence in the method outlined, to the removal of a sufficient quantity of the purulent fluid within the brain, and to the injection of the serum.

Dr. Simon Flexner said that the case presented by Dr. Fischer was the first example of recovery in epidemic cerebrospinal meningitis that came to his knowledge in which there was an impassible obstruction at the foramen of Majendie and in which a purulent exudate was proven to be present in the ventricles. The recovery in this instance was attributed to the use of the antimeningococcus serum, and he thought it was fair to attribute the recovery to it. While they were all glad to accept the case as proof that recovery did follow the administration of the serum, yet it was not impossible that the washing out of the ventricles might have contributed to the favorable result; there had been several instances recorded in which the ventricles had been tapped and serum injected; but Dr. Fischer's case was the first that had terminated in recovery. Dr. Cushing had had a case that ended in death; Dr. Knox of Baltimore had also had a fatal case, and Dr.

Netter of Paris reported another case, and this patient died. A very striking thing was that such a considerable operation could be carried out in these young children and without any danger so far as he knew from the half dozen cases recorded; there had been no ill effects from the intraventricular injections. It was very hopeful, therefore, to see such a splendid recovery and to think that possibly some of the cases of obstruction which formerly terminated fatally might now be saved. One could speculate on how the communication between the ventricles and the subdural space was re-established; and conclude that the foramen of Majendie became again patent. It was also possible that the formen of Luschka contributed to the re-establishment of communication, but for the present this was merely speculation. Perhaps at some time an opportunity would be presented to make observations that would clear the point up.

Dr. Alfred N. Strouse said that the case was of special interest to him because of the presence of an amblyopia which was unassociated with any perceptible changes in the media and fundus. Careful and repeated examinations failed to disclose the slightest evidence of an edema or swelling of the nerve, or retinal congestion. In fact, the examination was purely negative.

Dr. Samuel J. Kopetzky said that in otitic meningitis he had performed intraventricular puncture with a resulting cure, but his mode of procedure was different; he perforated the ventricle through the tegmen cellulæ of the mastoid process. When the ventricle was distended with fluid it was easily reached; the needle was passed through in a slanting direction for from four to six centimeters. Tapping the ventricle through the fontanelle could be done in an infant; but in older patients with meningitis from whatever source the ventricle could be tapped through either of the other routes, and the required amount of liquid withdrawn and quicker results would be obtained than if an attempt was made to obtain the fluid through the spinal column. The advantages of ventricular puncture in the cases which gave "dry" taps from the spinal column were so obvious as hardly to need comment.

Dr. Louis Fischer said that the case presented was not the first in which he had employed intraventricular injections. An infant seven weeks old had symptoms of cerebrospinal meningitis; after a series of lumbar punctures, resulting in "dry" taps, the ventricles were punctured and pus containing the meningococcus was found. The ventricles were irrigated and the serum was injected. The patient lived thirty-six days. These two patients were very young and, therefore, it was made possible, because of the open fontanelles, to utilize them for diagnosis as well as for treatment. When "dry" taps were obtained, after entering several interspaces, and if the meningeal symptoms plus the bulging fontanelle continued, then one was justified in tapping the ventricles; if in an infant, through the open fontanelle; if the fontanelle was closed, then the Kocher method of entering the skull should be chosen.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held March 24, 1910.

Dr. S. M. Brickner in the Chair.

Uterine Tumor with Bilateral Ovarian Tumors.—Dr. Herman J. Boldt presented a number of specimens. The first was removed from a woman, thirty-four years old, who complained of nothing else than abdominal distention which had gradually increased during the last three years. The abdomen was very prominent; it seemed as though a little withered woman less than four feet in height were attached behind it. Although the abdomen was distended by a tumor practically up to the diaphragm, there was no interference with respiration. A tentative diagnosis of uterine tumor with malignant changes and ovarian tumor was made. The operation was difficult, particularly the extirpation of the cervix, which was deemed essential because of the clinical diagnosis of probable malignancy of the uterine tumor. The pathologist reported the growths to be subserous fibromyoma, papillary cystoma, and double hematosalpinx. After the operation the patient improved markedly.

Fibroid Tumor of the Ovary.—This specimen was removed from a woman, forty-five years old. Her abdomen was greatly distended with ascitic fluid, and she complained of pain in the lower abdomen. The clinical diagnosis was that the large amount of ascites was caused by a pedunculated fibroid, which was freely movable and caused peritoneal irritation. This growth, however, proved to be a fibroid tumor of the left ovary. Whether any degeneration had taken place or not must be determined by the pathologist, who had not yet reported upon it.

Other specimens presented were of a fibromyomatous uterus, a large ovarian cyst mistaken for pregnancy, a dermoid tumor with twisted pedicle, a uterus with adnexa removed by abdominal section, a papillary cystoma of the ovary, a dermoid tumor complicating pregnancy at the third month, a large cystadenoma of the ovary, and a myomatous uterus. Dr. Boldt also showed a uterus and adnexa which were removed per vaginam because of recurrent attacks of pelvic peritonitis and menorrhagia. The patient was forty years old, had been ill for several years, and had been treated without beneficial result. The pathological change consisted in an increase of the connective tissue and a thickening of the blood-vessels.

Hematosalpinx.—Dr. C. C. Sichel presented this specimen, removed from a woman forty-one years old. She complained of pain in the right side of her abdomen which shot down her right leg. Upon opening the abdomen he found a pedunculated hematosalpinx which probably contained water at first and later blood. The growth was twisted six or more times. The patient made a good recovery. Dr. Sichel also presented two specimens of pyosalpinx and one of ectopic gestation.

A Catheterizing Cystourethroscope.—Dr. Leo Buerger presented this instrument.

An Improved Modified Kelly Cystoscope.—Dr. H. D. Furniss presented this instrument.

Functional Disorders of the Bladder in the Female Simulating Cystitis.—Dr. Arthur Stein said that it was no infrequent occurrence to have women make the statement that they had bladder symptoms of some sort, consisting usually in frequent and painful micturition, and at times they stated that the pain occurred before, during, or after emptying the bladder, or that the pains were more marked during the menstrual period. These women had already been treated by their physician who concluded that, from the subjective symptoms, they had a cystitis. A great many ailments situated outside the bladder could give symptoms which correspond to those of a cystitis. The general practitioners, as a rule, believed that a cystitis must be present whenever there was a frequent desire to urinate. Dr. Stein thought, therefore, that it might be of interest to review those conditions in the female which could cause bladder symptoms without a true cystitis being present. He made three subdivisions: (1) The cases in which there was some pathological change or irritation of the nerve center of the bladder wall itself. (2) The cases in which there was some pathological change in the genital organs. (3) The cases in which they were dealing with some general nervous trouble or systemic disease. Certain anatomical facts taught that they were dealing with an independent center in the bladder or with bladder ganglia; changes here must, therefore, cause symptoms resembling those of a true cystitis, although the latter was actually absent. Many of the so-called hysterical bladder symp-

toms were of neuritic origin; these patients should have their attention distracted from the bladder by psychical and general treatment. Under the first subdivision Dr. Stein included those cases in which the bladder was irritated by chemical changes in the urine, with typical symptoms of cystitis resulting. In his second subdivision, in which there was some pathological change in the genital organs, he carefully examined the histories of 54 patients; 30, or 55.5 per cent., made no reference to the bladder; 18, or 33.6 per cent., complained of urinary symptoms which were found not to be due to changes in the bladder itself; only in 6, or 11.1 per cent., were the symptoms due to inflammatory conditions in the bladder. In other words, one-third of the women seeking advice for some gynecological trouble complained of urinary symptoms, though no real disease of the bladder was present. The menstrual period might be accompanied with bladder symptoms, because the bladder took part in the general congestion that occurred at this time. A careful analysis of the pains during urination was most important. If they occurred before urination and diminished during the act, this pointed to a true cystitis; if they were most marked during urination urethritis was the most likely diagnosis; when the pains were referred to the lower portion of the abdomen, occurring immediately after urination, and continuing for some time, the peritoneum was probably involved. Among 1,674 cases of myoma Kelly and Cullen found an increased desire to urinate in 109, or 6.5 per cent. In 20 cases there was a partial or complete retention of urine; in seven there was partial or complete incontinence; in only two was there a true cystitis present. A retroflexed pregnant or non-pregnant uterus, hematoceles, ovarian cysts, and cystoceles might all mechanically cause bladder symptoms of various kinds. An anteposition of the uterus, and a retroflexioversion had the same effect on the bladder as a retroflexion. A carcinoma of the uterus which was beginning to involve the perivesical tissue would give rise to bladder symptoms. Tumors, malpositions of the uterus, cystoceles, inflammations, etc., caused frequent or painful urination when they did not cause bladder symptoms. In his third subdivision, cases in which they were dealing with some general nervous or systemic troubles, he believed that the expression hysteria and irritable bladder should be avoided, for they could nearly all be explained on some anatomical basis. A few, however, would have to be classed as hysteria. He felt certain that most bladder symptoms which were called hysterical were in reality due to inflammatory processes in the pelvis. Under this subdivision he also included those cases of so-called reflex incontinence which was caused by masturbation, by a hypertrophied clitoris, or by a thickened hymen. Many of these cases were still diagnosed as hysteria or even as cystitis. About 50 per cent. of all tabetic patients had distinct bladder symptoms and, as a matter of fact, they were among the initial symptoms of the disease. The patients complained of a frequent desire to urinate, of unpleasant sensations during micturition, and occasionally of pollakiuria. In progressive paralyses they also encountered similar symptoms. Compression myelitis, multiple sclerosis, syringomyelia, and tumors of the vertebral column might all cause bladder symptoms; also, cortical lesions and those of the crossed pyramidal tracts. Dr. Stein ended his paper by referring to various kinds of general poisoning which had an influence upon the bladder. He trusted that he had made it clear that every bladder symptom, whether it was painful urination, frequent desire to urinate, or purulent urine, was not necessarily due to a cystitis. Bladder disturbances might be due to various diseases and often they were the symptoms of a most grave systemic disease.

Dr. W. Gill Wylie emphasized the importance of making a correct diagnosis. Many of these cases were treated as disease of the bladder, the subjective symptoms from the bladder leading to the making of this mistake. In private practice they had the most trouble from the gonococcus infections; they should not be interfered with except when absolutely necessary.

Dr. Herman J. Boldt said that if one took the trouble to reexamine these patients a large number that complained of bladder symptoms would be found to have no pathological lesion demonstrable by the cystoscope. In that particular class of cases that give symptoms referable to the base of the bladder, overdistending the bladder with boric acid solution or even water gave the best results, especially when combined with what he termed vibration of the neck of the bladder.

Dr. Gustave Siligman said that he had been astonished to find at operation how often they found the bladder involved from the abdominal side; often there was an involvement of the bladder by carcinoma which grew towards the bladder and without giving bladder symptoms. He asked regarding the frequency of urination, not at the end of pregnancy but at the beginning.

Dr. Brooks H. Wells believed that the crux of the whole matter was the importance of diagnosis; this was important not only in diseases of the bladder, but in every department of gynecology and obstetrics. To make a diagnosis of cystitis in women it was not only necessary to make a bimanual examination of the patient, but also to make use of the microscope, the cystoscope, and the ureteral catheter. They then would be in a position to make an intelligent diagnosis and state if there was anything which produced tension on the bladder, or if there was anything present which might produce congestion, or cause pain in the adjacent structures, in the rectum, parametrium, tubes, or ovaries which might cause bladder symptoms. A short time ago he saw a woman who complained of frequent micturition, and a diagnosis of cystitis was made. An examination of the urine, however, proved it to be absolutely normal. The cystoscope showed a normal bladder. The bimanual examination revealed the presence of extensive adhesions posterior to the uterus. He thought that the frequent micturitions were caused, not by any cystitis, but by these adhesions, yet he was not satisfied with this diagnosis. Through somebody's advice she tried the wearing of a rubber band and then she found she did not have to urinate so frequently. Dr. Wells' point was that often when they thought there was some organic or physical condition at the base of the bladder to account for its irritability they might have a mental or psychical condition behind it which should not be overlooked.

Dr. H. D. Furniss said he had seen two or three cases of carcinoma of the bladder, an extension of the disease from the uterus, which caused no bladder symptoms. Retroversion of the uterus causing bladder disturbances was often mentioned, but in the majority of the cases one would find a coexisting urethritis. He said he had come to the conclusion that in many cases of retroverted uteri, of pelvic adhesions, and urethritis the cause was the same, usually the gonococci. When cystitis was encountered it was his belief that it was a complication, often of kidney origin, due to a pyelitis, a pyelonephritis, or stone. He had recently seen two cases of severe cystitis due to trouble in the kidney; in both cases there was found a mild pyelitis due to an upward extension.

Dr. Robert L. Dickinson said that the use of the cystoscope had given practitioners the ability to make a diagnosis, but had not offered much in the way of treatment perhaps. Among the more common conditions that were not cystic, but caused bladder symptoms, the question of residual urine was a matter worthy of consideration. Also varicosities, at the base of the bladder, and erotism would also cause bladder irritability. He believed

that this principle might be enunciated concerning outside tumors, growths, and inflammations, that one could do almost anything to any part of the bladder as long as they left its base alone.

Dr. Leo Buerger said that not long ago he saw a patient who interested him very much. She was an erotic, nervous woman, and had been operated upon three years before, and had been catheterized for the first time. Ever since she had complained of bladder symptoms. The cystoscope revealed nothing. She urinated every two hours, and often every hour. Two years after the operation she urinated every fifteen minutes, with the urine perfectly normal. The cystoscope was again used, and he found on either side of the trigone small granulations, which he cauterized with an electric cautery, then gave gradual dilatation, and after four weeks' treatment she was perfectly well and had remained well ever since. This case simply showed how a small lesion could give rise to such symptoms when, under ordinary circumstances, it should give rise to none at all.

Dr. Arthur Stein said that the term irritable bladder meant nothing, and the expression should be dropped. One should go back to the changes in the nervous system to obtain a suitable term for the condition. He agreed with what was said about adhesions; but there were many cases he had seen in which he could not find any other trouble. With regard to the frequency of urination at the beginning of pregnancy, he thought that the increased blood supply to the pelvic organs at this period was responsible for this more than the increased nervous reflexes.

Philadelphia Neurological Society.

At a stated meeting held March 25, Dr. Philip F. Williams presented a colored man who was rather suddenly seized with weakness in the left upper extremity and the development of asteroegnosis. Under emotional influences the phenomena disappeared, but they gradually reappeared in somewhat lesser degree. Dr. Williams exhibited also a patient with weakness and increased reflexes in the left lower extremity and various disturbances of sensibility in the right lower extremity. Dr. Alfred Gordon exhibited "A Case of Brain-Lesion or Brain-Malformatoin in a Boy of Eight." Enlargement of the head had been observed in childhood, with the development of epileptic convulsions of varying frequency and severity. The head was dome-shaped and the eyes were prominent. Intelligence was average. Nystagmus was present and also optic atrophy. *X*-ray examination disclosed great thickening of the cranial bones, with excavations on the inner table into which the convolutions fitted snugly. Dr. Gordon exhibited also "A Case of Bitemporal Hemianopsia followed by Optic Atrophy of Traumatic Origin." The patient was a man who had fallen a considerable distance, with the appearance of symptoms of fracture at the base of the skull. He presented bilateral optic atrophy with temporal hemianopsia and deafness on one side. Drs. J. T. Rugh and J. Hendrie Lloyd presented "A Case of Muscular Dystrophy with Hemophilia." The patient was a young man, 21 years old, who since the age of four years had had repeated attacks of rheumatoid character with articular swelling and fever, frequent hemorrhages from the mucous membranes and beneath the skin, wasting in the lower extremities, absence of the knee-jerks and extensor contracture of the right foot. The affection was thought to be due to derangement of some internal secretion. Dr. Augustus A. Eshner presented "A Case of Total Ophthalmoplegia, with Bilateral Facial Palsy." The patient was a man, 45 years old, who shortly after exposure to draft noticed lacrimation, diplopia, and pains about the face and head. On examination the eyes were found staring and capable of little movement in any direction, with pupillary reaction to light, but deficient reaction in accommodation and convergence. Facial movements were greatly restricted and there was difficulty in closing the eyes and opening the mouth. Mastication was embarrassed and speech was interfered with. Sensibility was preserved. Other than pallor of the discs there was no noteworthy change in the fundus oculi. The condition was thought to be due to disease of the nuclei of the third, fourth, sixth, and seventh nerves, probably of infective origin. A certain measure of improvement in the movements of the facial muscles had taken place under treatment with mercuric chloride and potassium iodid, although there was no history of syphilis. Dr. Wm. G. Spiller presented a communication entitled "Conjugate Deviation of the Head and Eyes in Cerebellar Lesions." He pointed out that in connection with cerebral lesions deviation of the head and eyes toward the seat of the lesion and away from the paralysis is the rule, but he knew of no observations as to the character of the deviation, if any, in cases of cerebellar lesions. He had observed a case in which in addition to hemorrhage into the right cerebral hemisphere, with paralysis of the left side of the body, there was also a lesion of the left cerebellar lobe, with deviation of the head and eyes toward the side of the latter lesion and in the direction of the paralysis. Dr. Edward Mercur Williams reported "Three Cases of Rhizomelic Spondylosis," in one of which the symptoms were of syringomyelic type, that is with spastic paralysis and wasting on one side and sensory dissociation on the opposite side. Dr. John H. W. Rhein read a paper entitled "A Case of Congenital Hemiplegia with General Choreiform Movements," in which post-mortem examination disclosed a rather diminutive brain, with an absence of ganglion cells in parts of the anterior horns of the spinal cord. Dr. Rhein also exhibited "A Specimen from a Case of Tumor of the Pons." The clinical course was characterized by an irregular evolution, with oclar and other palsies, making the diagnosis exceedingly difficult. Post-mortem examination disclosed a new growth surrounding and involving the pons. Dr. Albert C. Buckley presented "A Case of Associated Psychosis and Spinal Cord Disease." The patient was a man of scientific training, who presented varied delusions, together with symptoms of lateral sclerosis and with slightly narrowed somewhat sluggish pupils. Venereal infection was denied. The association was thought to be an accidental one. The society adopted a minute on the death of Dr. Wharton Sinkler, one of its founders.

Pathological Society of Philadelphia.

At a stated meeting held January 27 Dr. Milton B. Hartzell exhibited "Sections of Granuloma Annulare." This is a somewhat uncommon disorder, variously designated, appearing on the extremities as a circle of papules and characterized by cellular infiltration and mucoid degeneration. Dr. John Funke exhibited a specimen of "Cyst of the Frontal Lobe." The patient was a young woman who for three years had been having fainting attacks without loss of consciousness. The exact nature of the cyst had not been determined. Hooklets were not found in the contents, but cholesterin was present in the lining of the walls. Dr. Funke exhibited also a specimen of "Sarcoma of the Frontal Lobe" on the right side, and another of a similar growth on the left side. In both cases there had been headache with nausea and vomiting. Dr. Funke exhibited also a specimen presenting the histologic characters of "Cylindroma of the Brain," and also one of "Gliosarcoma of the Pontine Angle." Dr. Joseph McFarland exhibited a specimen of apple-worm obtained from the nostrils of a patient suffering from pulmonary tuberculosis. The localization was to be explained through the expulsive effect of cough on food in process of deglutition. Dr. H. T. Karsner exhibited sections of "Fibroma of the Kidney" from a case of general adiposis and multiple lipo-

mata, and also sections from a case of dermoid cyst containing tissues of stomach and bowel. Drs. E. C. Hirst and B. S. Veeder reported "A Case of Pancreatic Cyst" successfully extirpated, and they described at length the chemical characters of the contained fluid and the histologic structure of the sac. The formation was thought to be a retention cyst. Drs. Leo Loeb and M. S. Fleisher presented a communication entitled "Absorption from the Peritoneal Cavity." They reported the results of three years' experimental study from which they concluded that the use of such agents as adrenalin and digitalis acted not so much by causing absorption of fluid effused into the peritoneal cavity as by preventing further effusion.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

La Fonction du Sommeil. Par le Dr. Albert Salmon. 8vo; paper; 4 marks. Vigot Frères, Paris, France.

The Practice of Surgery. By Spencer and Gask. 8vo; cloth; 1234 pages; illustrated; $5.50 net. P. Blakiston's Son & Co., Philadelphia, Pa.

Remedial Gymnastics for Heart Affections. By John George Garson, M.D. (Edin.), etc. Cloth; 128 pages; illustrated; 5 shillings net. Swan, Sonnenschein & Co., London.

High Frequency Electric Currents in Medicine and Dentistry. By S. H. Monell, M.D. Cloth; illustrated; 465 pages; $4 net. Wm. R. Jenkins Company, New York.

Theoretical Principles of the Methods of Analytical Chemistry Based upon Chemical Reaction. By M. G. Chesneau. 8vo; cloth; 184 pages; illustrated; $1.75. The Macmillan Company, New York.

Modern Methods of Street Cleaning. By George H. Soper, Ph.D. 8vo; cloth; 201 pages; illustrated. Engineering News Publishing Company, New York.

Emergency Surgery. By John W. Suss, A.M., M.D. 12mo; leather; 748 pages; illustrated; $3.50 net. P. Blakiston's Son & Co., Philadelphia, Pa.

Atlas und Grundriss der Zahnärztlichen Orthopädie. Von Zahnartz Emil Herbst, DD.S. 12mo; cloth; 403 pages; illustrated; marks 14. J. F. Lehmann, München, Germany.

New and Nonofficial Remedies. 12mo; cloth; 256 pages; 50c. American Medical Association, Chicago, Ill.

Hand Book of Therapy. 12mo; cloth; 421 pages; $1.50 net. American Medical Association, Chicago, Ill.

The Prolongation of Life. By Elie Metchnikoff. 8vo; cloth; illustrated; $1.75 net. G. P. Putnam's Sons, New York.

Duodenal Ulcer. By B. G. A. Moynihan, M.S. (Lond.), F.R.C.S. 8vo; 379 pages; cloth; illustrated; $4.00 net. W. B. Saunders Co., Philadelphia, Pa.

Text-Book of Pathology. By Joseph McFarland, M.D. 8vo; 856 pages; cloth; illustrated; $5.00. W. B. Saunders Co., Philadelphia, Pa.

Osler's Modern Medicine. Edited by William Osler, M.D. 8vo; cloth; 969 pages; illustrated. Lea & Febiger, Philadelphia, Pa.

Spa Treatment and the Choice of a Suitable Spa. By Neville Wood, M.D., M.R.C.P. 59 pages; 8vo; 1/6 net. Adlard & Son, London, England.

Prescription Writing and Formulary. By John M. Swan, M.D. 12mo; leather; 185 pages; $1.25 net. W. B. Saunders Co., Philadelphia, Pa.

La Toxémie Neurasthénique. Par le Dr. Maurice Page. 12mo; paper; 244 pages; 3 fr. 50. Vigot Frères, Paris, France.

An Outline of Individual Study. By G. E. Partridge, Ph.D. 12mo; 240 pages; $1.25 net. Sturgis & Walton Company, New York.

Report of the Commissioner of Education, 1909. 8vo; cloth; 1,373 pages. Government Printing Office, Washington, D. C.

Die funktionelle Herzdiagnostik. Von. Dr. med. W. Janowski. 8vo; paper; 159 pages; illustrated; 4 marks. August Hirschwald, Berlin, Germany.

Studies in Immunity. By Prof. Paul Ehrlich. 8vo; cloth; 712 pages. John Wiley & Sons, New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of April 23, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	858	185
Diptheria	546	50
Measles	1,317	33
Scarlet Fever	783	31
Smallpox	4	1
Varicella	122	—
Typhoid Fever	23	5
Whooping Cough	42	4
Cerebrospinal Meningitis	11	12
Malarial Fever	—	—
Totals	3,706	321

The compulsory State system of sickness insurance instituted in 1884 in Germany has proved a powerful factor in combating tuberculosis. No less powerful have been the public sanatoria, the number of beds in which have increased during the past fifteen years from 243 to 8,422. Of the 200 tuberculosis sanatoria and hospitals in Germany, 35 are supported by the carriers of sickness insurance. The statistics of the Imperial insurance department show, that as many as 42 per cent. of the number of persons treated in these institutions remained in good working health five years after being dismissed from the sanatorium.

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 22, 1910:

		CASES	DEATHS
CHOLERA.			
India, Calcutta	Feb. 28–Mar. 5..	..	49
Rangoon	Feb. 28–Mar. 5..	..	1
Java, Batavia	Feb. 28–Mar. 5..	1	1
Samarang	Feb. 28–Mar. 5..	30	20
Philippine Islands—Provinces:			
Bataan	Feb. 20–26	1	1
Bohol	Feb. 20–26	3	2
Pampanga	Feb. 20–26	19	20
YELLOW FEVER			
Brazil, Manaos	Mar. 13–26	..	6
Para	Mar. 20–Apr. 2..	18	15
Venezuela, La Guaira	April 1	1	..
PLAGUE			
Chile, Antofagasta	Mar. 19	4	..
In the lazaretto.			
Iquique	Mar. 20	..	Epidemic
China, Amoy	April 15	..	Present
India, Bombay	Mar. 9–15	..	26
Kurrachee	Mar. 6–12	74	73
Rangoon	Feb. 28–Mar. 5..	..	9
Japan, Kobe	Mar. 6–12	1	1
Peru, Mollendo	Mar. 17	8	3
Turkey in Asia, Jiddah	Mar. 25–27	10	10
SMALLPOX			
Austria, Bohemia	Mar. 13–19	1	..
Galicia	Mar. 13–19	2	..
Canada, Nova Scotia—Halifax	April 3–9	4	..
Ceylon, Colombo	Feb. 20–Mar. 5..	2	..
Chile, Antofagasta	Mar. 19	..	Present
China, Amoy	Feb. 28–Mar. 5..	..	4
Hongkong	Feb. 20–26	4	2
Shanghai	Mar. 7–13	2	7
Deaths among natives.			
Egypt, Cairo	Mar. 12–25	10	..
Port Said	Mar. 19–25	1	..
France, Paris	Mar. 20–26	7	1
Germany, general	Mar. 20–26	18	..
Bremen	Mar. 28–April 2.	1	..
Great Britain, Bristol	Mar. 20–26	1	..
On a steamship from Bombay.			
Sheffield	Mar. 27–April 2	1	..
Hawaii, Honolulu	April 15	1	..
On U. S. S. Albatross from Yokohama.			
India, Bombay	Mar. 9–15	..	63
Calcutta	Feb. 28–Mar. 5..	..	2
Madras	Mar. 5–11	..	3
Rangoon	Feb. 28–Mar. 5..	..	36
Italy, general	Mar. 21–27	11	..
Naples	Mar. 21–27	14	2
Mexico, Aguascalientes	Mar. 28–April 2..	..	6
New Providence, Nassau	April 2	..	1
From S. S. Vigilancia.			
Philippine Islands, Manila	Feb. 20–26	..	5
Portugal, Lisbon	Mar. 20–26	40	..
Russia, Libau	Mar. 20–27	4	1
Moscow	Feb. 20–Mar. 12.	71	27
Odessa	Mar. 20–26	74	9
Riga	Mar. 20–26	..	2
St. Petersburg	Mar. 13–19	39	13
Spain, Barcelona	Mar. 22–28	..	3

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Original Articles.

CELLULAR ACTIVITY; THE EPITOME OF RATIONAL MEDICINE.

WITH ILLUSTRATIVE CASES.

By MARGARET A. CLEAVES, M.D.,

NEW YORK.

A RETROSPECTIVE analysis of the cases of our unphysiological contingent is as illuminating as the retrospective analysis of life. Given the requisite fundamental grounding, experience is ever the best of teachers. In the care of chronic conditions, covering the entire range of medicine as known under a diffuse and varied nomenclature, the concept of the cell, the relation of cellular activity to normal chemicophysical action, its disturbances whether manifested in a pathological physiology or an actual pathological lesion, changing anatomical characteristics as well as physiological function, must ever be to the fore.

In disturbed or disorganized cellular activity is epitomized the whole story of rational medicine. It does not matter what expression of unphysiologic condition is taken on, whether a hysteroepilepsy, an epilepsy, a manic-depressive insanity, a melancholia, a neurasthenia, a neuritis, a rheumatism, a rhinitis, tonsillitis, bronchitis, pneumonia, a chronic nephritis, a hepatitis, a gastroenteritis or an enteritis, an endometritis, salpingitis, a uterine atrophy, hyperplasia, fibroid, or hemorrhage, a cystic ovary, an appendicitis, a degenerative moral change, not even excepting pregnancy and childbirth; the fundamental truth remains the same.

The manifestations of disturbed cellular activities are like the evils of Pandora's box in their multiplicity and incongruity. The physician's duty lies in relating them to the fundamental truth and in caring for them with the breadth of therapeutic horizon inculcated by the point of view. That physician is best equipped for his work, whether as attendant or consultant, call him what you will—an internist, a surgeon, a neurologist, a psychiatrist, an obstetrician, or a rhinologist—who possesses this comprehensive outlook. No narrower vision will suffice for successful therapy.

In this twentieth century disturbed cellular activity is very prone to manifest itself in disturbed function of nerve and brain. But as that thought leaves my pen, I am reminded of the endless series of cases, subjected to the minute qualitative, quantitative, and microscopical examination of the highly specialized laboratorian, with the telltale evidence of degenerative visceral changes, especially in the kidneys. It is in this way that the integrity of cellular activity is ever guarded, as well as by the full insignia of clinical evidence.

The concept of the vital integrity of the cell points with etiological finger to the anguished dread of mankind—cancer.

In the rôle of cellular activity there is no uncertain note; it is the cell which in its myriads keep up life's ceaseless activity. Again, if we accept the theory of a well-known physicist, it is the cell freed from all its struggles with impurities which is the seat of the soul and which takes on immortality as a soul particle or *psychomere* in the radiance above and beyond our earth-bound lives.

To be earth-bound: The story is told in living bronze, the work of a creative genius, but it is told equally in the tortured nerve, the congested and confused brain, the thickened and irritated skin, the painful and creaking joint, the swollen, sensitive muscle, the engorged liver, the weakened kidneys, the irritable, palpitating, and irregular heart, the heaviness, eructations, flatulence, the disordered function of the entire gastrointestinal tract, the inflammations with their serous and purulent effusions, their organized exudates, and likewise in the uncertain, irritable tempers of the unphysiological contingent.

Earth-bound, because of the struggle of the cell to meet the demand laid upon its chemism by the individual. That nerves, brain, skin, muscle, joints, organs, whether vital or not, cry out is because cellular activity is disturbed or degenerating. The clean-cut cellular activities of physiological lives are transcended by reason of a disproportion between agent, reagent, and energy values.

The struggle of the cell with untoward toxic conditions comes not of necessity from ingestion of too much or wrong assimilable material, although far too often such is the cause. Its normal function is prejudiced as well by all the conditions of life; anxious care, worry, grief, fatigue, wrong habits, lack of fresh air, lack of radiance, changes in barometric pressure, atmospheric and electrical conditions, rarely by overwork, but often by too constant work without change. The story receives its final, not its first, expression in organs. In fundamental physiological activity of the cell is to be found health; in its aberrations the rational explanation of disease.

The best, speediest, and most lasting results are to be obtained by full recognition of all the influences potent etiologically. Only then can all the therapist's forces be marshaled in such a way as to make every agent, whether mental, moral, or physical, do effective work. It is necessary that there should be an intelligent and discriminative use of all means of stimuli tending to the production of physiological cell activity. In this way only can the bloodstream approximate, reach, or be maintained in the purity and richness in red blood corpuscles essential to physiological well being. The wonderful prevision of Shakespeare, ever to the fore, was never more so than when he uttered the

famous line, "The life of all's in the blood." Many a brain has passed under the most careful macroscopical and microscopical examination without revealing any telltale evidence as to why the intelligence had been distraught. With others I ever looked for some definite finger-mark and wondered that I found it not. The influence of life upon a mechanism, which is after all at one with the natural phenomena of the physical world, should never be lost sight of. To this end not only must the value of expenditures of energy be appreciated, but its conservation as well.

As a result of life's activities there comes to be in a greater degree to some than others, markedly diminished energy values. To the end of the best for the individual this must be reckoned with and nature's forces conserved. It is the careful examination of end products that tells the story of cellular activities and ever elucidates the case. Especially is this true in nerve and mental conditions where the influence of a toxic and irregularly circulating bloodstream prejudices the viewpoint of the ego, rendering the patient's record of symptoms of doubtful value. In the vitiation and pollution of the bloodstream is to be found the prolific cause of human anguish; in its purity and radiance the joy, uplift, and beauty of life.

The following cases are quoted as illustrative of accomplished work: May 14, 1908.—Miss D., æt. 51, teacher. Hysteroepilepsy, duration five years; seizures from two to fifteen months apart. A six months' holiday in Europe was unquestionably an influence in the longer interval. Menstruation irregular. No pelvic pain. Constipation for most of adult life. Under my care in 1890 for an endometritis and salpingitis with right lateral posterior displacement, characterized by excessive purulent discharge of more or less periodicity and by dysmenorrhea; constipation; nerve weariness. Surgical intervention strongly advised by former attendants. Pelvic symptoms dated from an attack of scarlet fever in early menstrual life. Parents tuberculous and patient had pulmonary hemorrhages as a young woman. She recovered under conservative treatment and able to keep constantly at work. For thirteen years I was in touch with the patient, but for five years preceding May of 1908, a change in our addresses made it difficult for her to come to me for advice. From March, 1903, to May, 1908, she had had thirteen seizures, varying in severity.

Characteristics: Time of occurrence nocturnal or early morning; unconscious; apt to be found on floor by bedside in the morning; involuntary discharge of urine; loss of memory; more or less aphasia; speech thickened; difficult cerebration on return to consciousness; disturbed circulation; face greatly congested at time of attack—almost purple; impaired motor power for several days to several weeks after an attack and able to walk only by aid of a cane. Also conscious of sense of weakness in facial muscles; no loss of power, however. The attacks were followed by loss of weight, especially about hips.

Mental condition following attack: Increased impairment of memory; cerebration slow; concentration impossible; great fear of being alone; sense of dread and impending danger; usually most courageous.

Physical examination: Inspection; countenance worn and anxious; pallor of skin; sometimes facial flushing. Had aged perceptibly beyond her years. movements lacking in definite precision; speech a little slow; words difficult of recall; circulation impaired; feet, legs, and hands cold. Abdomen normal in outline; percussion note dull over the entire colonic area; constipation. Hypogastrium: No departure from normal; no sensitiveness. Vaginal examination: Right lateroposterior uterine displacement; uterine hyperplasia; congestion of pelvic tissues; tubes normal to feel; no discharge. Menstruation irregular. Attacks preceded or followed the physiological function.

During the years from 1903 to 1908, when I did not see her, she had variously electrical treatment, massage, osteopathic manipulation, and the usual round of suggestive attention.

Attack of May 4, 1908: Ten days prior to visit, attending physician said he could do no more. A gynecologist was consulted, who insisted upon an immediate surgical operation as the only means of relief. Patient came to me for opinion as to need of operation. Urine analysis revealed the presence of albumin, indican, and calcium oxalate. My opinion was that surgical intervention was unnecessary, and conservative measures were advised; prognosis under careful following of advice good. Nature was the kindest physician, but must be intelligently guided and skilfully aided.

Indication: Stimulation of normal cell activity to the end of relieving constipation, improving pelvic, intraabdominal, and visceral circulation. The patient was seen twice a week at first, then once for the first seven weeks, when she left the city for the summer holiday. For the nine months from September 16, 1908, she was seen from once a week to once in two and three weeks. Since September, 1909, has been seen but seven times. Is kept under observation, for preventive work is ever the best. In the almost two years she has had three slight attacks, precipitated in every instance by disturbances of cellular activity, resulting in diminished and erratic energy, constipation, and pelvic congestion. She has taken on extra work happily and has grown younger in looks and feeling.

May 28, 1908.—Mar. V. H., æt. 80. Arteriosclerosis, chronic rhinitis with mucopurulent discharge. Urine exhibited high urea, with trace of albumin and a few casts; reaction for indican very decided; calcium oxalate present; cylindroids. Measures were adopted to free the nasopharyngeal sinuses of mucopurulent secretion, to establish the best circulatory conditions possible in this tract, also in the spinal, intraabdominal, and visceral systems. Diet prescribed.

June 4, 1908.—Urine analysis: Decided drop in specific gravity and urea, with but faint traces of albumin and indican; no casts in centrifugal sediment; no calcium oxalate; no cylindroids. General condition better; less headache; less depression. Treatment discontinued. Reported to show improvement in cellular activity as indicated by urine in a week's time.

November 20, 1909.—Mr. S. L., æt. 45, merchant, married. Four children. Referred by Dr. Allard of Paris. Evidences of disturbed physiological functions for over a year. Fermentative conditions; autointoxication; neurasthenic; impairment of sex function; mental depression; profoundly apprehensive; irritable heart. He had made the usual round of care, baths, and sanatoria in France and Italy.

Urine analysis: Sp. gr. 1034; highly acid; heavy pinkish granular sediment; urea 24.8 grams per litre (10.8 grains per oz.); albumin trace; indican ex-

tremely decided; much sodium urate; occasional cylindroids. Indicanuria with renal congestion.

November 26.—Sp. gr. and urea near normal; albumin faintly persistent; indicanuria entirely cleared up. Under care one week; en route from Paris to the West Indies. Steady improvement, with marked symptomatic relief, not only in function, but in the mental uplift, optimistic outlook, loss of apprehension, buoyancy, and renewed courage. Subsequent advice by letter.

October, 1906.—Mrs. W. L., æt. 45, married at seventeen; has five children. Labors normal save puerperal infection at fourth. Father, mother, brother, and sister dead of degenerative visceral changes. Immediate cause of death in sister, uterine hemorrhage. A family of "good livers" for generations. Patient was well as a child. Health more or less impaired since puerperal infection. Albumin and casts in urine for years. Weak, inefficient, and irritable heart action; irritable nerves, mental depression, apprehensive to a degree of terror; frequent attacks of very marked edema of the eyelids, one or both effectually closing the eye; great photophobia; uterine hemorrhages; disturbed digestion.

Physical examination: Excess of fat, flabby tissues; enlarged and flatulent abdomen; inefficient and irregular heart action. Pelvic examination: Tissues relaxed; circulation disturbed; no abnormalities of position or structure, save enlarged and flabby uterus.

Condition dependent on disturbances of the general circulation. There is neither tone nor elasticity of heart muscle and blood vessels. The patient is subject to attacks of cardiac insufficiency, in which the pulse becomes almost imperceptible; exhaustion profound, even to point of unconsciousness; great pallor; response only to nitroglycerin and strychnine hypodermatically.

During these three years she has had two serious attacks of this sort, requiring energetic measures promptly. None since last June. Urine has been free from albumin and casts save when she has overindulged in eating, been unduly anxious from one of the many causes entering into most lives, and taken insufficient exercise. These periods are always characterized by lessening cellular activity and a taking on of fat. Then albumin and casts will appear again, the heart becomes weak and irregular, flesh flabby, and menstruation excessive to the point of an exhausting hemorrhage; also prolonged. The casts have been of the following types: granular, hyaline, epithelial, and waxy. Condition: Chronic interstitial nephritis; fatty infiltration of the heart.

Present condition: Increased muscular activity; diminished weight; skin clear, eyes bright, tone good; no more attacks of edema of eyelids; nerves less irritable; no mental depression; no longer fearful and apprehensive. Appetite good; digestion good; improved bowel action. Menstrual function continues, but has become irregular. Walks, climbs when in the mountains, drives, motors, goes to theater, opera, and shops. This year has taken up Latin, not touched since school days. The lack of energy value has ever to be reckoned with, but by careful supervision she is living her life happily and well despite her physical handicap and hereditary strain. In the last attack of cardiac weakness, June, 1909, every resource of the physician's art was requisitioned and for three hours I worked, not pausing to remove my hat even.

May, 1907.—Miss J., æt. 63, single. Seen as consultant. Of good birth; always well. A year previously had a great grief, shock and loss of financial support; became profoundly neurasthenic with all the symptoms of nerve irritability, mental anguish, profound depression, sleeplessness, muscular and nerve pains, swollen, hot, and painful hands and feet, disturbed digestive function, almost loss of vision in one eye, much headache. The oculist could find no trouble with the lens; at the same time he denied any albuminuric retinal inflammation. Urine was not examined. Diet and regime not cared for. Condition of eye an albuminuric retinitis or incipient cataract. As I did not see the patient personally, I could not be sure of eye condition.

May 13, 1907.—Urine analysis: Urea 11.5 grams per liter; albumin; indican; hyaline, granular, and epithelial casts; uric acid abundant.

May 27, 1907.—Urea 3.6 grams per liter; faintest trace of albumin; no indican; no casts, save an occasional hyaline; no uric acid; occasional cylindroids.

June 15, 1907.—No casts: faint trace of albumin and indican; no uric acid; an occasional cylindroid.

October 21, 1907.—Only a faint trace of albumin and indican. During preceding four months evanescent lapses from grace.

November 4, 1908.—The last four examinations have been normal in their findings.

Present condition: Is in better health than for over four years. Impairment of vision permanent. Have referred her to Chicago, for further examination of eyes and oculist's opinion. Has diminution of energy value and in overdoing or too constant doing, there is a sense of less well being. The attending physician to whom I sent urine analysis was of the opinion that "a few casts were not of much moment." The few casts seen on a microscope slide, however, represent the irritant action of disturbed cellular activity upon the tubule linings in a single drop of urine only. To estimate the extent of the mischief the number of drops in twenty-four hours must be considered. He also wrote that "as she improved he trusted she would take a less disheartening view of life than she had." Why trust? Stimulate cellular activity; remove the toxic condition and with purity and richness of the bloodstream, the outlook upon life becomes optimistic even though 63 is reached and life's activities in the way of finance have come to naught. The patient looks younger, and was able to cope with great grief, some eight months since, more readily than others in her family; is better poised, less nervous, vision not improved, appetite good, digestion good, goes on well unless she eats excessively or overdoes. Lack of energy is always to be reckoned with.*

March 5, 1908.—Miss A. J., single, æt. 29. Of good family. One child. Referred by Dr. Elwood Worcester, Emanuel Church Movement, through pastor of church, with which patient's family were affiliated. As a child, she was well, but not of alert mentality. Matured at the usual time. Menstruation normal. Gave birth to an illegitimate child six or seven years before consultation. Cared for in private hospital; child given away; never seen by mother, who returned to her home and took up life as the youngest daughter. While active in household duties, in connection with Sunday school and church, singing in the choir, she showed a deficient mentality and a markedly impaired sense of morality. She could not be trusted away from the

*An examination of the urine of patient, made March 24, 1910, shows continued freedom from casts.

home, but as no restraint was imposed other than watchfulness, she often absented herself, visiting the rooms of young men.

To such an extent was this her mode of life, despite the position of the family, that she was practically ostracized and had to give up affiliation with her societies—Daughters of the Revolution for example—and active work in the church. Social recognition was withdrawn. This was her course of conduct up to the time of being placed under care.

She was overheard by the pastor soliciting the organist of the church choir. His interest was awakened and he believed, that, while apparently a case of moral degeneracy, certainly a defective intelligence, an effort should be made to awaken her moral sense. The Emmanuel Church Movement invited his attention, but Dr. Worcester told him to consult me. Under care from March 5, 1908, to June 29, 1908, and in charge of a trained nurse.

Physical examination: Height five feet, seven inches; well built; undue fat but muscular; unprepossessing facial characteristics, speech, and conduct; manner bold and defiant outwardly; a good deal of sensitiveness under her outward boldness. Brow low, skin thickened, oozing oil globules; blackheads and acne spots. Abdomen: Inspection and palpation normal. Percussion dullness over colonic area, especially descending colon; constipation. Hypogastrium: Inspection, palpation, and percussion normal.

Pelvic examination: Tissues about introitus vaginæ bathed with a creamy discharge; labia thickened and reddened; clitoris: intense thickening of all the surrounding tissue; not hooded. Vaginal examination: Ovaries and tubes normal in position and structure. Uterus enlarged, subinvoluted, congested, mucopurulent discharge. No sensitiveness nor pain. Microscopical examination of discharge negative; a gonorrheal infection was suspected.

During the almost three months in the city under care, she gave absolutely no trouble. Daily visits, then five times a week, afterwards four and three times. The best of the therapist's armamentaria was called upon from the chemical, physical, mental, and moral side to the end of establishing normal cellular activities and to the unloading of overburdened cells primarily, tissues and organs secondarily. Great care was taken of every hygienic detail; baths and cold showers were obligatory; diet was supervised; meat cut down to the minimum; local treatment directed to the establishment of the best circulatory conditions; exercise ordered; reading prescribed and carefully overlooked to the awakening of the best of her intelligence.

She was trusted in every way that her sense of moral responsibility should be aroused while the chemism was carrying on its activities and a nontoxic bloodstream was flooding every tissue and organ, above all the brain. There was no preaching, no questioning as to her conduct, no blaming for the past, but ever an attempt to show her the joy and beauty of a physiological life and to help her to know that while nature had endowed her with certain desires, they were not to be met irrespective of her relation to the social fabric.

Improvement in physical condition began at once. Skin cleared up, blackheads and acne spots disappeared, eyes grew brighter, manner became more gentle, appetite good but not overindulged; bowels regular, vaginal discharge greatly diminished and changed to a mucoid nature, and general circulation greatly improved. The urine which was of high specific gravity, high urea and with decided trace of albumin, became normal.

The patient was discharged June 29, 1908, radiant, happy, interested in books to the limit of her intelligence, in the larger world but with a limited horizon.

December 27, 1908.—Letter telling of a useful life; of trust; of the happiest Christmas she had known in years; of the Christmas tree, the dinner, and guests, the pastor of the church and wife, and of being remembered as never before in her life.

July, 1909.—The pastor of the church reported that he had neither heard nor seen anything to cause him to think that she was not all right. She had taken up vocal music; was raising poultry in addition to her household duties. "So far as I can judge," he wrote, "she is very much better than for a long time before she went to you. I see her frequently, almost every Sunday in the church, and often visit at her home." Morals and manners are amenable to the influence of a nontoxic blood as well as aches, ills, and madness.

These are but a few cases from the many in which improved cellular activity is evidenced, not only by the laboratory examinations, but by disappearance of the symptoms due to a toxic bloodstream.

Cases of cerebral congestion, of mental confusion, of melancholia, of neurasthenia, of neuritis, of rheumatism, of uterine hemorrhage, of rectal hemorrhage, of eczema, acne, of chronic cystitis with pus in urine, as well as all the conditions in medicine named as more or less distinct entities, could be detailed. In chronic cystitis the pus has disappeared entirely from the urine without local intervention. In some instances the way to betterment lies in stimulating local cellular activities, in others relief of a local manifestation is established only through a general stimulation of the chemism.

Physiological cleanliness of accessory sinuses and mucous cavities, as well as of the gastrointestinal tract, is imperative. With the latter comes physiological cleanliness of the blood.

The neurasthenia of man as that of woman, which is climacteric, is prone to occur about fifty years, although sometimes its manifestations are earlier in both sexes. The characteristic evidence is to be found in disturbed cellular activity, metabolic depression, autointoxication, and markedly lowered vitality.

It is not necessary to theorize that insufficiency of thyroid, for example, as has been recently done by a French physician* in an analysis of 201 cases, accounts for the climacteric neurasthenia of men, characterized as it is by all the evidences of a poisoned, sodden circulatory stream from disturbed and disordered cellular activities. Nor, again, is there any cause for wonder in the fact that humanity's complement shares alike the phenomena of a definite physiological change as the fourth decade merges into the fifth.

Disturbances of the chemism's normal cellular activity prevents the rhythm of life, diminishing energy values. The diminution of energy value may find its expression in a weakened vitality, or in the more robust in the disruptive and erratic manifestations of the hysteroepileptic.

Woman may forfeit her divine right—motherhood, without so unfortunate a sequel, but only if the best of cellular activity is kept up, especially in

*DeFleury: Bull. de l'Academie de Medécine, December 21, 1909.

the decade that environs her physiological change. The truth remains, however, that the years of unbroken and ever-recurring periodical function, the incessant use of brain rather than body, increases susceptibility to such cyclonic disturbances in the predisposed. Energy has been diverted and in its diversion cellular activity inhibited. On no organ does the blood—an "altogether peculiar juice" as Mephistopheles says in "Faust"—tell more quickly when toxic than on the brain.

Preventive medicine is ever the physician's stronghold, but the complexity of life, the inability of the generations as they succeed one another to profit by the experience of others, will ever keep a vast unphysiological contingent in need of care.

There is no work of greater importance. Great acclaim is the surgeon's, and justly, for his bold, brilliant, decisive initiative in the moment of danger. But in the careful guarding of cellular activities, the need for the surgeon's knife would be markedly lessened, as well as for serum and vaccine therapy. Operations for appendicitis would be reduced to a minimum and infective conditions practically disappear, for through physiological activity of the cell, immunity to the specific bacteria is maintained.

Still further in the disturbances and degenerations, even in their beginning, the best results are to be obtained by the recognition of every known means of stimulating physiological cell activity.

If the response does not come through the agency of one of the many means at the therapist's command for the stimulation of cell activity, still another and yet another must be selected.

The paramount importance of a knowledge of the physical properties and physiological action of the various physiological stimuli, whether chemical, physical, mental or moral, must never be lost sight of.

Success can be attained only by their skilful and discriminating use, often extending over long periods of time.

There is a more brilliant and spectacular side to professional work, but none which, after all, so fully compensates in its influence upon the lives of others as does the physician's careful, painstaking effort toward the perfect and harmonious cellular action of the chemism embodying the ego.

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THE ACTION OF INTERMITTENT X-RAYS ON GENERAL METABOLISM AND CHRONIC DEGENERATIVE DISEASES OF THE EYE.*

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In the Medical Record of November 14, 1908, in an article entitled "*X*-ray Flashes, or Intermittent *X*-rays," the writer presented a new method of *x*-ray treatment, which contrasted the regenerative action obtained by intermittent exposures with the degenerative action, which usually followed the use of continuous exposures. The flash treatment which consists in making and breaking the primary current to give a period of rest after each explosive bombardment resulted from futile efforts to maintain a simple stimulative action, in chronic degenerative conditions of the eye, with the routine method of treatment.

*Read before the Academy of Pathological Science, February 25, 1910.

The first attempt to utilize *x*-ray energy in the eye was in February, 1907, when a young lady, aged 27, whose left eye was the seat of a congenital posterior polar cataract, and who was suffering from local pain, associated with a low general vitality, had herself suggested and requested the experiment. Competent oculists had advised against any operative procedure, on account of the arrested development (deficient generation) of the retina and optic nerve, and regarded the case as a hopeless one. After the second or third treatment with systematic continuous exposures, she suddenly experienced relief from the subjective symptoms, and was conscious of an improvement in vision, which gradually continued until at the end of the twelfth treatment she was able to thread a needle and read ordinary print with the eye, in which she had been practically blind from birth. An examination under atropine at this time revealed no change in the cataract and the improvement in vision was attributed to a possible dilatation of the pupil which, however, was not perceptible. Shortly after resuming treatment, the subjective symptoms recurred with a sudden retrogression in vision, and upon dilating the pupil several small areas of cataractous degeneration were noticed in the periphery of the lens. It was evident that a primary stimulating and tonic action had become an irritant and consequently all treatment was abandoned.

Another attempt to relieve blindness with the continuous method was made in the case of an old lady, aged 90, who had been totally blind in the left eye for thirty-five years, and in the right had only perception of light for seven years. The left eye presented a mature senile cataract. The right, a contracted pupil, with an exudate in the lenticular capsule, a cataract having been successfully extracted fifteen years previously, restoring vision, which she held for eight years. The eye with the cataract, being selected for treatment, was exposed through a small opening in a sheet of lead foil, which completely covered the other eye, together with the head and face. Rays of medium intensity, distance of tube 10 inches, amperes 5, time of exposure 5 minutes, constituted the treatment. After removing the lead shield from the protected and supposedly untreated eye, the patient exclaimed that she could see. The pupil was seen to be dilated, the lens capsule was transparent to light, and the fundus showed the red-réflex. She was able to recognize friends at a distance and to find her way with ease. After several weeks' treatment she was able to read ordinary print with the assistance of her convex lens. A pericorneal injection appeared in the eye with the cataract, and it became very sensitive to light. These symptoms persisted after abandoning treatment, and six months later that eye became the seat of an acute exudative inflammation resembling glaucoma, from which she eventually recovered, with no impairment of the vision in the other eye. This case, like the former one, served to demonstrate a dual action of continuous *x*-rays in the eye.

It was now recalled that a number of patients who had received *x*-ray treatment for various conditions had spoken of a relief from eye-strain and of an improvement in vision. Ripening of senile cataracts occurred in several well advanced cases that had been radiated for chronic skin lesions of the face, and in one case in particular it was evident that *x*-rays had fortified the organ for the radical operation.

From this experience it now occurred to us that it might be possible to open a new field for radiant energy in chronic diseases of the eye, if we could form some conception of the general laws which govern the action of more familiar forms of energy in cellular regeneration and degeneration.

When we consider the influence of other forms of energy on metabolism, it is quite apparent that they have a dual action. This action must consist in either an acceleration or inhibition of metabolic processes, for otherwise their action would be negative. But the influence of various types of energy, as chemical, mechanical, light, heat, baterial, and electrical, upon both animal and vegetable cells is equally conducive to both regeneration and degeneration.

For example, a certain amount of heat is essential for animal and vegetable generation, but excessive heat is equally destructive to both. Electrical energy is employed to stimulate and to inhibit cellular function, or to suspend and to resuscitate vital phenomena. Drugs which are sedative in different dosage become stimulant. Bacterial energy so essential to many vital processes plays an important part in tissue necrosis. Under certain conditions we utilize the potential energy of toxines to check degenerate tissue changes, which in turn are the result of the same type of energy. Light is essential for the generation of cells specialized for vision, but too intense or too prolonged exposures induce cellular degenerations.

X-ray energy is certainly no exception to the rule; under certain conditions it promotes metabolism and stimulates cellular proliferation—under other conditions it inhibits metabolism and destroys living tissues. Both clinical and pathological observations afford ample proof of both regenerative and degenerative tissue changes. *X*-ray degenerations vary from the acute degenerations associated with exudative inflammation to the chronic degenerations associated with an interstitial or productive inflammation leading to fibrosis and atrophy or a typical senile degeneration.

The variations in dosage which correspond to these various pathological tissue changes consist in alterations of quality and quantity or intensity and duration. Continuous *x*-rays are sedative, stimulant, irritant, or excharotic in proportion to an increase in intensity and duration. The higher the intensity the more acute the degenerations, and the resisting exudative inflammation. A lower degree of intensity and longer period of action, a chronic epithelial degeneration with a chronic exudative inflammation. The mildest intensity with the longest duration, the chronic productive inflammation or senile degeneration. The vascular changes consist in a vessel-stasis in the acute, and an arteriocapillary fibrosis in the chronic tissue degenerations. Inasmuch as these tissue changes do not appear to differ essentially from those pathological tissue changes of other types of irritants, their careful study might serve to simplify the subject of general pathology.

In normal metabolism we assume a balance between those processes which result in the storing up and the expenditure of energy, or anabolism and catabolism, or rest and work, characterized chiefly by an O_2 intake and CO_2 output. Both may be proportionately inhibited, sub-metabolism, or accelerated, hypermetabolism, without any disturbance of the normal work to rest ratio, and resulting in mere functional disturbance. The vascular change accompanying normal cellular phenomena is one of rhythmic capillary dilation and contraction, an intermittent action. Generation, and hence regeneration, must demand the maintenance of an equilibrium between capillary contraction and dilation, and hence between cellular work and rest. However obscure and complicated the nature of *x*-rays may be, we know that it is an energy, and as such is capable of doing a great deal of work upon living cells. The local exhibition of continuous *x*-rays create a persistent and uninterrupted tissue resistance, or work without rest. Beyond a certain degree of intensity and duration of action, both undeterminable factors, it exhausts tissue resistance, produces either a neuroparalytic or myoparalytic hyperemia with capillary stasis, from which they either recover or go on to chronic degenerations.

Almost all agents employed for stimulation act intermittently—massage, vibration, high frequency, the static spark, galvanism, faradism, high degree of heat, suction hyperemia, etc., and they all have one object in common, *i. e.* local active hyperemia. *x*-ray flashes create a local active hyperemia.

Inasmuch as a passive hyperemia with statis dominate continuous *x*-ray and other degenerations, it is apparent that to secure a regenerative action it would be necessary to induce an active hyperemia without stasis; to secure an increased arterial blood supply to promote cellular nutrition and to eliminate the products of perverted metabolism. But cellular regeneration, as we observe it in local inflammatory and ulcerative conditions, does not include the regeneration of degenerate cells. Exemplifying as it does the universal law of the survival of the fittest, it is manifestly a two-sided process, by virtue of which the unfittest cells undergo a more rapid disintegration and exfoliation, being forced, as it were, from their nutrient resources by a positive vital force, expressed through the appearance of more vigorous cells, the embryonic cells of the surviving fittest. The mere presence of degenerate cells in so-called local diseases must be indicative not only of a local vital depletion, but of some impairment of the general circulation, and consequently of general metabolism.

The keynote of *x*-ray therapy consists in the fact that the local hyperemic action depends for the most part upon the potent influence of radiant energy on general metabolism through the general circulation, and although we are able to obtain, by modifications of technique, a predominence of either a local or general action, under no conditions is it possible to absolutely separate the two, and no doubt the degree of success which may attend our efforts depends in a measure upon the adjustment of these two factors to the special requirements of each individual case.

To appreciate fully the influence of the general action of *x*-rays in local cellular degenerations, as in chronic pathological conditions of the eye, it is best to cast aside all histological and physiological specialization and to look upon the organ as merely one of many groupings of cells, of mesoblastic and epiblastic derivation, which constitute the general organism. As other cells, through the medium of the circulatory and nervous systems, they render support to and in turn receive support from the organism as a whole. And when we reflect upon the great disparity between what they give and what they must receive for their mere sustenance, we are then impressed with the vast importance of the study of the general metabolism with reference

to any chronic local condition. Owing to an extensive field of action and unique penetrability, the latter quality distinguishing radiant from other forms of energy, we would naturally expect it to possess a general influence quite beyond the range of other types of energy.

No stronger proof of a general action is needed than the sustaining power in such diseases of metabolism as leukemia, pseudoleukemia, pernicious anemia, and deeply seated cancer. A full appreciation of the general and local action of *x*-ray flashes can only be obtained by observations of the immediate and at times radical changes in the general circulation. Such observations not only reveal the peculiar therapeutic efficacy of *x*-ray energy, but also show why the resulting local tissue changes have a permanent tendency and are invariably accompanied by an improvement in mental and physical stability.

We have then to observe the action of intermittent *x*-rays upon the heart, arterial, venous, and lymphatic systems. When the cardiac sounds are weak, the action is to intensify them. With an accentuation of either the first or second sound, the result is one of equalization. With a high arterial tension and an accelerated pulse, the tension is reduced and the pulse retarded. With a high arterial tension and a retarded pulse, the tension is reduced and the pulse accelerated. With a low arterial tension and a retarded pulse, it raises the tension and accelerates the pulse. With a low arterial tension and an accelerated pulse it raises the tension and retards the pulse. Under all conditions an increase in the volume of the pulse is a notable feature. The superficial veins often show a moderate distention such as might appear after some sudden physical exertion. An increased capillary circulation of the skin is shown by the flushed appearance and mild diaphoresis. From clinical evidence, however, it would seem that a promotion of capillary circulation is quite universal, and this is the only explanation we can offer of the multitudinous changes which take place throughout the entire economy. There is presumably an action on the lymphatic system, as observed in effusions, exudations, and altered conditions of lymphatic glands. We have also observed an increase in respiratory movements. As a result, therefore, of equalizing the forces that control and dominate the circulation, an increased volume of arterial blood is distributed to the cells for nutrition and function.

General Action of X-ray Flashes.—The following indirect changes might be mentioned as a result of the promotion of the general capillary circulation. We sometimes observe an immediate loss of weight of from one to several ounces after each treatment. This probably means an increase in CO_2 and H_2O output. There is a gradual loss of weight of several pounds, following systematic treatment, after which there is a gradual gain which has varied from three to twenty pounds, and follows an improvement in the appetite. In obese subjects there is some loss of adipose tissue, with little or no loss in weight. The greatest increase in weight is seen in emaciated patients, and accompanies a general muscular development, particularly apparent in the face. The general appearance is one of greater compactness.

The urine at first may show an increase in the total daily output of urea, phosphates, and chlorides, also an increase in quantity. The blood may show an increase in both the red and white cells. When there is a disproportion between the two, as in leukemia, etc., the tendency is to increase the one and to diminish the other, as it were, to establish a normal balance.

There is evidence of a promotion of general glandular activity, both excretory and secretory. On the general nervous system the action is that of a tonic, and tends to restore a balance in nervous phenomena. Hence exaggerated reflexes are inhibited and sluggish reflexes stimulated. In certain cases a complete mental change has been the dominating feature, marked by an increase in will power and self-control and the same equalizing tendency in mental function when sluggish or exhilarated.

Local Action of X-ray Flashes.—In acute inflammatory processes the symptoms are intensified, with a tendency to run a more rapid course. A copious discharge of blood may follow the incision of a localized abscess previously radiated. There is an increased growth of the hair and nails. The hair after a time becomes darker, gray hair at times appearing black in streaks or iron-gray. There is an increase in sexual power, and evidence is accumulating that would make it appear that there is an increase in both potency and fertility. Absorption takes place in edemas, as in local venous obstruction or mitral insufficiency; also in effusions as seen in chronic sprains, hydrops articuli, etc. Fibrous tissue becomes more vascular, with a tendency to absorption, and if recent and poorly nourished, may break down completely. There is a softening of sclerosed arteries and veins, generally observed in the temporals. In chronic catarrhal conditions of mucous membranes, the tendency is at first to increase and later to inhibit secretion. There has been an improvement in hearing, and in one case a dilatation of the thickened Eustachian tube was demonstrated. There is a promotion of ovarian and uterine function. Menstruation was reestablished in one case, six months after the menopause. Two hundred flashes brought on menstruation when it had been suppressed for two years, one hour and a half after treatment. Cessation of leucorrhea has been noted in several cases, with no attempt at local treatment.

The Action of Flashes on the Eye.—We have observed the formation of new bloodvessels in fibrous tissue, such as remains after extensive corneal ulceration or in the fibrous thickening of the lens capsule following cataract extraction, with a tendency to contraction and absorption. Also an increase in the terminal twigs of the retinal artery, with an enlargement of the main trunks when contracted. The most notable results of the hyperemic action of *x*-rays in the eye are seen in conditions of chronic exudation, serous, fibrinous, and membranous, and, as one would naturally expect, they tend to respond in the order named. We have noticed an increase in the pupillary reaction to light, and in incipient tabes a moderate reaction has been obtained when there had previously been a reflex immobility. When the intraocular tension is + the tendency is to reduce it, and in degenerative conditions, with tension —, the result has been to increase it. A vascular keratitis with corneal ulceration or degeneration undoubtedly affords the best opportunity to study the local regenerative action of intermittent *x*-rays. The larger blood-vessels are seen to contract perhaps immediately after the first treatment. Shortly their identity will be more or less lost, and in their place there will appear a diffuse capillary congestion.

The absorption of exudates is shown both by a clearing of the cornea and an immediate improvement in visual acuity. Proliferation of corneal or connective tissue cells encroach upon the periphery of the area of necrosis. The result, therefore, is the substitution of a capillary hyperemia for a vessel stasis, or the conversion of a chronic into an acute process. An absorbent action of *x*-ray flashes is shown in corneal opacities, pupillary opacities, opacities of the vitreous, retinal, and choroidal exudates, and in subretinal effusion. A tonic action is seen in asthenopia, either with or without errors of refraction. Eye-strain, with the attending reflex nervous disturbance, has responded in numerous instances to a surprisingly limited number of flashes. By relieving the tension on the ciliary muscles they relax accommodation in cases of apparent myopia. In progressive degenerative conditions quite beyond the possibility of any improvement in vision they tend to fortify the more viable tissues and to facilitate the natural reparative processes.

Report of Cases.—About three hundred cases of extreme ocular conditions have been submitted to the intermittent *x*-ray treatment during the past two years, the vast majority of which were considered hopeless from the standpoint of the ophthalmologist. While in many cases only a slight visual improvement was apparent, there were comparatively few absolute failures, and the work, on the whole, has been most gratifying. The following are a few selected cases:

Case I.—Mrs. M.; atrophy of the optic nerve. Referred by Dr. Bowles, who furnished the following history: First seen November 23, 1906. She had been suffering for a few days with what was considered la grippe. Found slight febrile disturbance, more or less stupor, pains in head, heavily coated tongue, constipation, and somewhat incoherent. Mind acted sluggishly. Pupils dilated and vision reduced to fingers at about one foot. The ophthalmoscope showed some prominence about the optic disc, but otherwise negative. No specific history, although the characteristic treatment was persisted in until January, 1907. At this time V = 20/200.

On January 15 received hypodermic injections of strychnine, and continued the same daily until the 31st. There was slight improvement in vision, but it seemed to reach a point where it remained without change. To-day, April 18, 1908, V = 15/200. The projection is good. After the acute congestion of the brain had passed and with the gradual improvement in sight the optic atrophy showed. Neurotic. Muscles flabby, considerable obesity. Pulse sluggish, 74; blood-pressure 90 mm.

Received twenty-one treatments, three times weekly. The following records show the vision at each treatment:

18th — 10/100, 20th — 10/70 (2), 22d — 10/70, 24th — 10/40 (3), 27th — 10/50, 29th — 10/40 (2), May 4 — 10/40 (2), 6th — 10/40 (3), 8th — 10/30 (2), 11th, ditto, 13th — 10/30 (3), 15th — 10/30 (5), 18th, ditto, 20th — 10/30, 22d — 10/30, June 8 — 10/20 (1), 12th — 10/20 (2), 17th — 10/20 (5), July 8th — 10/20.

Under treatment the arterial tension rose from 90 mm. to 185 mm. and pulse from 74 to 80. Later the tension dropped to 145, the pulse remaining at 80. Mental and physical improvements were as decided as the visual. She lost adipose tissue, and the muscles became more firm. The patient was seen February 16, 1910, one year and seven months after discontinuing treatment. Her general condition had continued to improve. V. = 10/30; pulse 80. Blood pressure, 110 mm. When seen by Dr. Webster December, 1906, the patient could barely count fingers, and atrophy of the optic nerve had set in.

Examination by Dr. Webster February 20, 1910: O.D.V. = 17/200; O.S.V. = 20/70. Both fields complete—discs too white, arteries small, veins normal. This patient had applied to a blind home for admission, having been forced on account of failing vision to give up her profession, which was that of a music teacher. She has now taught music very successfully for over a year, and claims to have no difficulty in reading musical notes.

Case II.—Mr. H., age forty-eight; painter; detachment of retina. Gave history of a gradual loss of vision for past three years and more rapid loss for past six months. Had been under the care of specialists in Germany, Austria, Italy, and America. It is now difficult to go about. Examination by Dr. Webster February 4, 1908. O.D. — has detachment of the temporal half and lower part. O.D. V. = a little more than the perception of light. O.S. — has some choroidal trouble. O.S.V. = 20/100, with 2.75 D.

First treatment February 4. Skin cold and clammy, superficial venules congested. Shows effects of excessive beer drinking. Pulse, 95, volume small, irregular; sys. pressure, 135 mm.; obese., muscles flabby. After 250 *x*-ray flashes, pulse dropped to 80 and pressure to 120 mm. Immediate improvement in general circulation and vision. At second treatment pulse was 90 and more regular. Sys. pres., 95 mm. After treatment pulse 80 and still more regular. Systolic pressure raised to 125 mm. Cardiac sounds more evenly balanced. After the third treatment, Dr. Webster reported February 10: "The improvement has been very great in the one week since he was here. Ophtholmoscopic examination shows a clearing of the media and a contraction of the detachment of the right retina. In the left a choroidal trouble is much less. One week ago, O.D.V. = shadows; To-day, O.D.V. = 6/200; One week ago, O.S.V. = 20/100; To-day, O.S.V. = 20/30 every letter." Received seven more treatments, three times weekly, when Dr. Webster made a second report February 25: "O.D.V. = 20/200 which previously had a little more than the perception of light; O.S.V. = 20/30 which before treatment was 20/100 with — 2.75 D. Still some detachment in inferotemporal region."

The patient was satisfied with the improvement and moved to his former home in Texas, having previously taken up his trade.

Case III.—Mrs. I., age 46. Double atrophy. Referred by Dr. Ohly. Seen March 26th, 1908. Vision had been failing for three years. After consulting several specialists she was placed under mixed treatment, which she continued for three months from January to April, 1908. O.D.V. = 10/100; O.S.V. = 0. Possibly light perception at intervals. Both discs very pale, vessels small. Pulse 94, irregular, small volume, pressure 115 mm. Numerous small glands in posterior cervical chains. Two gummata on left ankle. Received three treatments weekly up to June 20. Both the pulse and blood pressure were lowered after the first treatment. During May the blood pressure rose to 160 mm. although the pulse remained at 80

or slightly above. Later the pressure came down to 110 mm. March 28, O.D.V. = 10/70; O.S.V. = Light perception; April 5, O.D.V. = 10/50; April 21, O.D.V. = 10/40 (two letters); May 2, O.D.V. = 10/40 (three letters); June 19, O.D.V. = 10/40 (every letter); O.S.V. = Perception of light. Treatment discontinued. Was last seen Oct. 24, seven months later. O.D.V. = 10/40; O.S.V. = Perception of light. She gained 8 lbs. in weight. Muscles previously flabby became more firm. Enlarged glands and gummata disappeared under *x*-ray treatment. Oct. 24, 1908, examination by Dr. Webster: O.D.V. = 20/70; O.S. = Light. Moved to distant State.

Case IV.—Miss D., age 16. Ulcerative keratitis and old corneal opacity. O.D.—Corneal capacity since she was two years of age; O.S. — Repeated attacks of corneal inflammation, almost yearly since the trouble in the right eye fourteen years ago. Examined by Dr. Webster September 3, 1908. O.D. — Old corneal opacities, one of them over the center of the pupil; O.D.V. = 4/200; O.S. — Ulcerative keratitis, quite vascular and extending from the temporal margin nearly over to the center of the cornea; O.S.V. = 20/70. The lids are inflamed and the eye, irritable, watery, and sensitive to light.

Patient poorly nourished and undersized. Poor circulation. Father gave specific history. After five treatments Dr. Webster made the following report, Sept. 13: "Inflammatory symptoms much improved. The ulcer nearly healed. Vascularity much diminished and the general redness, lachrymation, and photofobia are decidedly less. Vision of the right remains the same. The left has improved from 20/70 + to 20/50 +. After six more treatments, Dr. Webster reported Sept. 29 as follows: O.D.V. which was 4/200 is now 16/200 (old opacity); O.S.V.—the same. The keratitis is gone, the vascular redness having entirely disappeared. Nov. 9: O.D.V. = 20/100; O.S.V. = 20/30 with astigmatism corrected. Patient continued to receive treatment irregularly for more than a year and while no further visual improvement was obtained there was a gradual improvement in her general condition, marked by a better circulation, increase in muscular strength and endurance. She has had no further attacks since her first treatment. She gave up her position in a blind institute and is now able to use her eyes for her self-support, which prior to treatment was an impossibility.

Case V.—Mr. D., age 55. Optic atrophy. First seen June 5, 1908. Suddenly lost all sight in left eye twenty-four years previously. Specific infection at twenty-five years of age. Otherwise negative. During the past year the sight of the right eye had been gradually failing. Had been under the care of several specialists. Had taken 180 grs. of K. I. per diem, for the past year. Laterly had begun injections of strychnine but with persistent failure in vision. Poorly nourished, muscles flabby, neurotic. P. 80, Systolic pressure 250 mm. Discs showed atrophy. Marked contraction of the right visual field. O.S.V. = 0; O.D.V. = 1/2/200. Received in all ten treatments, once weekly. The record of vision was as follows: O.D.V. — 1/2/200 — 2/200 — 1/2/200 — 5/200 — 10/200 — 10/70 — 10/50 — 10/40 — 10/30 — 10/20 — 10/15. Sept. 8, sat up till 2 o'clock in the morning to read a book of fine print. He awoke next morning in complete darkness. Sept. 9, examined by Dr. Webster. Diagnosis: Hemorrhage in vitreous. Vision reduced to light. Weekly treatments continued. October 8: V. — 1/200; November 27: V — 3/200. Later vision came up to 7/200 and the ophthalmoscope showed the red reflex in limited area. Patient unable to come to town for further treatment.

Case V.—Miss P., age 24. Central corneal opacities and pupillary membrances following needling operations for congenital contaract. Referred by Dr. Webster, January 11, 1908, with the following note: "Miss P. was operated upon by me for congenital cataract when eight years old. Both eyes were operated upon by needling and there were four or five operations in all. She now has central opacities of both corneæ and some pupillary membrane, reducing her vision to O.D.V. — 20/100; O.S.V. — 20/200. I would suggest that you first try to improve the sight of the poorer (left) eye. Treatment 100 Fl. High tube. Distance 8 inches. Right covered with lead foil. Both eyes responded to the first treatment. Before first treatment O.D.V. = 10/50; after 10/40. Before treatment: O.S.V. = 10/70; after 10/50. Before second treatment: O.D.V. = 10/30; after 10/30; O.S.V. = 10/50; after 10/40. After fourth treatment: O.D.V. = 10/20; O.S.V. = 10/40. The patient was not seen again for three months and during that time more than held the improvement. April 22: O.D.V. = 10/20 full; O.S.V. = 10/40. Received seven more treatments. May 4: O.D.V. = 10/15; O.S.V. = 10/20. Nearly six months later vision remained the same. Before treatment pulse was small, 95 and irregular. Poorly nourished, skin cold and clammy. Blood pressure 70. Effect of treatment: pulse 80, blood pressure 85. Physical and mental improvement. Previously helpless, she was making her own living when last seen, and claimed to be unconscious of any visual weakness.

Case VII.—Miss H., age 28. Double atrophy. Seen June 19, 1908. Twelve years ago she suffered with severe headaches at which time she had done an inordinate amount of reading, mostly in a recumbent posture. Blindness came on gradually. She had not made out objects for twelve years. No specific history. O.D.V. = Perception of light; O.S.V. = 0. Slight external strabismus of left eye and double rotary nystagmus. Under weight. Poor general circulation, neurotic. Pulse rapid, volume small. Low blood pressure. Received treatments, twice weekly for six months. June 30: O.D.V. = shadows; July 7: O.D. — perceived letters on Snellen's card, but could not distinguish them; August 7, read the top letter at 4 inches. This was the first letter she had seen for twelve years, and was slow in naming it, although she had traced it with her finger very readily. August 11: O.S.V. = Perception of light; November 27: O.D.V. = 1/200; December 2: 3/200. About a year later patient returned for further treatment. Vision remained about the same. The strabismus was less marked. Nystagmus decidedly less. Improvement in general circulation. No further improvement in vision.

Case VIII.—Mr. W., age 75. Double atrophy. Referred by Dr. Webster, May 29th, 1909, with the following history and examination: He has been unable to see when it becomes dark for six or eight years. Left eye never saw well. Had grippe several times and malaria several years ago. Had lead poisoning 25 years ago. He ate it, the lead having

been ground in the flour. Atrophy of both optic discs, with some atrophic excavation. Visual fields very defective. Lower part of right and upper part of left gone. Also nasal part of left absent and both contracted in all directions. Right eye also has incipient cataract. Anterior chambers rather shallow, tension plus? Pupils respond to light and accommodation sluggishly. He has exhausted K. I. mercury, strychnine, etc. I found the pulse irregular and of small volume, rather rapid. Blood pressure 110 mm., low for his age. Physical strength impaired and mentally irritable. Reflexes sluggish. Abdomen distended. Diminished respiratory capacity. After first treatment pulse came to 72 from 80, blood pressure from 110 mm. to 125 mm. More color and warmth to previously cold and pale skin. O.D.V. — from 10/40 to 10/40 full. O.S.V. — from 0 to light. Received six treatments and was then examined by Dr. Webster, who reported as follows: June 12, 1909: O.D.V. = 10/30; O.S.V. = Quick perception of light. The field of vision of O. D. is certainly appreciably larger. Continued treatments once a week. July 21: O.D.V. = 10/15; August 1: O.D.V. = 10/15, in spite of illness and no treatment since previous record. Being satisfied with improvement, as he is able to read and write, he discontinued treatment. Physically and mentally there was a decided improvement. In appearance and action he seemed younger. He mentioned a rapid growth of hair and beard. He felt stronger than he had for several years and had noticed a better general circulation, especially during the winter months. Pulse slower, more regular, more volume. Blood pressure higher and more stable. Temporals and radials softer.

Case IX.—Mr. M., age 26. Leucoma adherens. The Fourth of July, 13 years ago, an explosion of fireworks struck the left eye, leaving him with very little vision. Dr. Webster made an examination Sept. 23, 1908, which was as follows: "The large leucoma adherens at the inferotemporal portion of the cornea and the aphasia of the eye are sufficient to explain the reduction of its vision to ability to see objects, but he could not count fingers. I could not see the fundus, but the ophthalmometer shows that the irregular astigmatism is tremendous. The retina appears normal." O.S.V. = objects. Pulse small and irregular. Low blood pressure. Skin lacks warmth. Muscles flabby. Excessive adipose tissue. Received six treatments.

Dr. Webster's second examination, October 10: "There can be no doubt of the improvement of left eye. O. S. V. = 20/200 with + 12 D. He was carefully tested with + glasses and cylindrics at the first visit without improvement." Did not appear for further treatment.

Case X.—Mr. B., age 41. Detachment of retina. Referred by Dr. Franz Torek. Thirty-six years ago fell down the stairs striking his eye against a drawer. Totally blind in left eye for 20 years. Limited vision in right for 17 years. Dr. Webster's examination on Feb. 15, 1908: "O.D. — detachment of most of the retina; O.D.V. = 10/200; O.S. — mature cataract and probably total detachment."

Appeared for treatment March 17. Poorly nourished. Pulse 100, irregular. Systolic pressure, 125 mm. Body covered with small lipomata; one large one which covered the left eye removed by Dr. Torek. After first treatment, pulse, 90; systolic pressure, 115 mm. Immediate improvement in vision.

Second treatment: O.D.V. = 10/100. O.S.V. = Perception of light. Received 27 treatments. O.D. continued to improve, but no further change in O. S. Treatments, 3 times weekly.

March 21, O. D. V., 10/70; 22d, 10/50; 25th, 10/40; May 8, 10/30; July 11, 10/20 + Read J, No. 1.

Dr. Webster's report, Sept. 8: "The detachment is considerably less. This is accomplishing a good deal when we consider that in ordinary conditions the tendency of detachment is to become worse."

In the course of treatment the pulse went from 100 to 64, and later to 80. Sys. pres. from 125 mm. to 85 mm., later to 175 mm., finally to 100 mm. Improvement in general circulation and general physical condition.

Last seen Feb. 16, 1910, one year and five months after last treatment. General improvement more marked. Pulse 80. Systolic pressure 115 mm. Could read and write without difficulty and was unconscious of any impairment of vision. Read J, No. 1. Also seen by Dr. Webster the same date. O.D.V. = 20/100; gl., 20/40, reads every letter with — 3 D. No glass had helped him before treatment. Still some detachment in lower part not interfering with vision.

Case XI.—Miss H., age 49. Leucoma adherens —artificial pupils. Rendered blind when 13 years of age by some unknown corrosive. Was totally blind up to her nineteenth year, when an operation restored some sight, which she lost completely at her forty-second year.

In February, 1908, was operated upon by Dr. Pagenstecher, of Wiesbaden, where she remained under treatment for 15 weeks. Before she left Europe she was able to read her own letters. Later, however, her vision began to fail again and she had very little by the time she reached New York.

Examined by Dr. Webster, October 8, 1908: "Both eyes have leucoma adherens, very extensive, and that of the left largely degenerated. The right has had a cataract extracted and has an artificial pupil behind the semi-opaque cornea at the nasal side. The left has an artificial pupil behind the semi-opaque cornea on the temporal side. The fundus cannot be examined, but a dim reflex can be seen through the artificial pupils. R.V. = 1/200; L. = 4/200, not improved by glasses."

Treated daily for 17 successive days. Immediately after the first treatment the cornea appeared more transparent and the fundus showed more reflex. R.V. = 3/200; L. = 6/200. After the eighth treatment she came alone for treatment, and thereafter went about the city in which she was a stranger without any difficulty.

Oct. 15: R.V. = 14/200; L. = 10/100. Oct. 21 made out several words in J. No. 7 with her + lenses. She returned to her home in the West and we have heard from her from time to time. She reported still further improvement and is able to read and write, as her letters bear witness.

Case XII.—Mrs. S., age 37. Double atrophy. Vision had been failing for about two years, in spite of persistent treatment with routine measures. Seen by Dr. Webster, June 14, 1908. Diagnosis: Atrophy of both optic nerves, probably from old "blood-poisoning," as she has had two miscarriages and no living children. She has only perception of light in both eyes. Began treatment June 17. Pulse, 120. Systolic pressure, 170 mm. After first treatment: P., 90; systolic pressure, 130 mm., with immediate improvement in vision.

June 24, third treatment: Pulse, 88; systolic pressure, 120 mm.; V. = 1/200. Received treatments twice weekly for four months; after that very irregularly, with intervals of a month. Dr. Webster reported Oct. 22: "There can be no doubt of Mrs. S.'s improvement. She called G O at 5 ft., but traced the letter Z with her finger and called it Z correctly." Last examination Feb. 23, 1910 (Webster). "Mrs. S. picks out some of the playing cards correctly. She also names the letters in Snellen No. 100 correctly, and one letter in No. 70 at about one foot. When I first saw her on June 14, 1908, she had only perception of light. She has white atrophy of both optic nerves, and it is good to find her vision better instead of worse after an interval of more than a year."

This patient was exceedingly obese and neurotic; while under treatment she received several nervous shocks, after which there would be a rise in blood-pressure and acceleration of the pulse with diminution of vision. Treatments always lowered the pulse and pressure; she would become more calm and her vision would then be restored. There has been a decided general improvement, especially in her nervous condition.

Case XIII.—Dr. E., age 63. Corneal ulceration and opacity (carbolic acid burn). Referred by Dr. Webster, December 15, 1908. Ten weeks previously several drops of carbolic acid got in his right eye. Had spent one month in a dark room, under the influence of morphine for severe pain, using boric acid continuously. Pupil kept dilated for iritis. Later had used dionin (5 per cent. solution). For one month could not distinguish light from dark. Not much improvement during past few weeks. Was not able to use the good eye. Examination: Pupil responds slowly to light. Cornea more or less opaque and vascular and the conjunctiva drawn over the lower border. V. = 4/200; pulse, 84; systolic pressure, 165 mm. Immediately after first treatment, pulse 78, systolic pressure, 145 mm. Improvement in general color. Intense lachrymation, cornea clearer. Large vessels contracted. Redness of brighter color and more diffuse. He could open his eye wider, and said things looked clearer. V. = 8/200. On the second day before treatment, V. = 10/200; after treatment — 15/200. Cornea clearer, redness less. On the third day, V. before treatment was 10/100; after, no change. Was able to open eye and had read a newspaper with no discomfort. Business compelled him to leave the city, and hence to abandon treatment after only three applications. Received word January 7: "I found on my return I could use the eye to do many things I could not do before, and since my return there seems to have been a steady improvemnt, so that I am attending regularly to my practice with very little inconvenience." Patient had come to New York expecting to have the eye enucleated to enable him to use the left eye with comfort.

Case XIV.—Mrs. H., age 62. Immature cataract; iridochoroiditis; double iridectomy. Without perception of light in left eye, and with very little vision in the right for nine years. Dr. Webster's examination June 14, 1908: "Mrs. H. had iridectomy on both eyes eight years ago for iritis, or more probably for iridochoroiditis. There is immature cataract of both eyes besides the old iridochoroiditis. The tension is — in both. The field of perception is blunted on the nasal side of the right. In the left it is very small, beginning in the center and extending upward. Impossible to see fundus. O.D.V. = 2/200; O.S.V. = 0." General condition, muscles soft, skin flabby and colorless, excessive adipose tissue, reflexes sluggish. Very much below par, physically and mentally. Pulse, 88; systolic pressure, 190 mm. After first treatment, pulse 80, systolic pressure, 145 mm. Skin had more color, eyes appeared clearer, and she felt more comfortable. June 16: O.D.V. = 4/200; O.S.V. = first perception of light for nine years. Pulse, 76; systolic pressure, 140 mm. Received eight treatments. Examined by Dr. Webster June 21. O.D.V. = 8/200; O.S.V. — sees hand but cannot count fingers. July 3: O.D.V. = 10/200. No further treatment. Last seen October 24, 1908; no change in vision; improvement in general health; pulse, 80; systolic pressure, 165.

Conclusions.—1. In the ophthalmic application of intermittent *x*-rays a failure to obtain a maximum therapeutic effect is frequently attributable to two factors: Either to an incomplete reaction from a faulty technique or inefficient apparatus or to local hyperstimulation by continuing treatment when a satisfactory reaction has been obtained.

2. Inasmuch as both functional and physical improvement in ocular derangements always follow a readjustment of the general circulation and changes in general metabolism, the peculiar qualities of radiant energy on metabolism would appear to emphasize a causal relation between the two.

3. In an effort to find manifestations of unbalanced metabolism in patients with chronic ocular conditions, we have been impressed with what appears to be significant features. Bishop, in his observations in circulatory derangements, found two distinct types of blood pressure, the persistent high and the persistent low. In our cases we have found the same, and in addition a variable type in which there is a tendency of one type to pass to the other. Some patients have a pulse habitually fast, others correspondingly slow. Some are over weight, others under weight. Respiratory movements are accelerated in some and retarded in others. Mentally some show hypercerebration, others subcerebration. The nerve reflexes are retarded or exaggerated. The glandular organs show hyperactivity or subactivity. In muscular tissues we find soft muscles with a tendency to obesity, and flabby muscles with excessive leanness.

In the extreme types we continually find a contraction of the thoracic cavity and a corresponding relaxation of the abdominal cavity, associated with which there is a tendency to intestinal functional disturbance and toxemia. In brief, a condition of lowered general vitality from submetabolism or hypermetabolism. If such evidences of perverted metabolism have any influence in chronic degenerative conditions of the eye, the same causal relations must exist between those same metabolic changes and degenerative conditions of other tissues.

4. If radiant energy has a favorable influence on extreme ocular conditions when other means have failed, may we not expect that it would have a more potent preventive action if resorted to in incipient stages?

120 East Thirty-fourth Street.

Exophthalmic Goiter in a Child.—Pritchard reports the case of a boy of eight years who was mentally backward. His thyroid was enlarged, there was slight exophthalmos. Graefe's and Mobius' signs were present.—*Proceedings of the Royal Society of Medicine.*

THE SIGNIFICANCE OF LEUCORRHEA.*

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THERE is little herein detailed that is not already known, though it may be often disregarded, many times perhaps because the average practitioner is not properly equipped for dealing with such cases. Yet there is no more serious error than to dismiss a patient having a vaginal discharge, without carefully investigating its true character, and prescribing only a wash or injection to be used unintelligently and indifferently, because the patient is not made to appreciate its true significance. If failure to afford relief was the only penalty, such error might be pardoned, but often failure to recognize and promptly combat the condition that gives rise to a vaginal discharge leads to serious consequences, involving the life or future health and happiness of the patient.

It is an indisputable fact that the lives of many women have been jeopardized or their health and happiness completely wrecked because of neglect, in the early stage, of some infection which would have been evident to an acute observer and the progress of which could have been arrested in this stage. In justice to the physician it must be said that the patient or her mother is often to blame for not calling attention to a discharge that unfortunately is too often regarded only in the light of an inconvenience. On the other hand, she has not been taught to appreciate the full significance of a vaginal discharge, and has not had pointed out to her the possibilities that may arise from neglecting it. Hence it is clearly the duty of the physician to educate his patients to a proper appreciation of this one symptom (leucorrhea) in particular. True some leucorrheas are innocuous, but it is the physician's privilege to decide this, and he should equip himself to make his decision reliable.

Let us see what may be the significance of a vaginal discharge at different stages of woman's life, viz., *in childhood before puberty; in young women before marriage; in married women,* and in *women past the menopause.*

In Childhood before Puberty.—At this period a discharge may denote an infective vulvovaginitis that may originate in many ways unsuspected by the mother. I recall a case that came under my observation where the infection had been contracted from another child whose nurse carelessly dried the genitals, after bathing, with a towel that had been used by one of her older brothers who had used it and thrown it down carelessly among the other soiled clothes. Examination of the discharge in this case revealed the presence of gonococci in abundance. Unfortunately its character had not been ascertained sufficiently early to prevent extention of the disease to the uterus.

I have observed septic endometritis with involvement of the adnexa in young women, virgins, where there was a history of purulent discharge from the genitals during childhood that had not been given proper attention at that time and where no other cause could be assigned for the condition.

A less virulent form of infection may arise from contact of unclean hands with the genitals; either those of the child herself or those of her playmates; for children will indulge in play of this kind, sometimes innocently and sometimes by example of their nurse. I am inclined to believe from observation that some precocious children derive pleasurable sensation from such practice which may have had its origin in the use of strong, irritating soap. Mothers should be instructed that soap is not always essential to secure cleanliness of the genitals of children, and that irritating soaps should be avoided.

In this connection I recall a very interesting case; a beautiful child of five was brought to me by the mother who observed a discharge from the vulva that proved to be a simple vulvovaginitis. It was subdued, but there was prompt recurrence upon suspending treatment. The mother was directed to watch the child, particularly after she was put to bed at night and it was soon discovered that when pretending to be asleep she would rub the genitals. Close observation gave evidence of intentional titillation. The practice was corrected and prompt cure of the condition resulted. The origin of the practice in this case could not be traced, but the discharge was kept up by excitement of the genitals.

Vaginal discharge in children may also arise from the presence of foreign bodies, as bits of coal. In one case the vagina was found filled with bits of coal which the child declared had been introduced by a playmate. In another case several shoe buttons were found, and in another a hairpin.

A vulvovaginitis may arise, as every physician knows, from the irritation produced by the presence of worms in the rectum or from their entrance into the vagina. A vulvitis may also result from uncleanliness due to decomposed smegma, sweat or urine, particularly in warm weather, and from hyperacidity. It must be remembered also that children of strumous diathesis and those who are poorly nourished and who live in unhealthy surroundings are prone to have discharges from mucous surfaces that are sometimes communicable.

But by far the most frequent cause of vulvovaginitis in children is gonorrheal infection, not necessarily the result of violation but most often from unclean habits. This furnishes a strong plea for careful microscopic examination of the discharge from the genitals of all female children, whether it appears to be suspicious or not.

In Young Women before Marriage.—These are the cases most often neglected, owing to false modesty on the part of both the mother and the daughter, shared only too often by the family physician. It has frequently occurred that the unsuspecting mother and physician have permitted the neglect of a vulvovaginitis of gonorrheal origin because a proper examination was not insisted on, depending upon external irrigation or imperfect vaginal irrigation by the patient to cure the discharge, the character of which was unknown, even to the physician. The physician, like the detective, some of whose methods he might well imitate, should never think any female patient with a vaginal discharge above suspicion; though he need not express this opinion or show it in any way by his conduct. When his suspicion has been confirmed he need not even then feel obliged to reveal it, if he can without doing so, convey a proper appreciation of the necessity for the vigorous measures required to combat the disease successfully. When consent to examination is not given, the stains on the linen may,

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with the connivance of the mother, be obtained for examination, and if that reveals the necessity for local examination and treatment it can be put so strongly to the patient that she will fear further refusal.

The writer was once so unfortunate as to get an infection of the finger by making a digital examination of a supposed virgin who came to him for relief of dysmenorrhea. Subsequent inspection revealed an active specific vulvitis and vaginitis, the discharge under the microscope showing gonococci and streptococci in abundance. This patient did not complain of any discharge, in fact denied its existence. I am satisfied she was ignorant of the nature of the disease, but this lesson teaches that we cannot be too particular in our investigation and in the examination of young women who come or are brought to us for treatment; for our own sake, as well as theirs.

The discharge in young women is sometimes found to be a continuation of a vulvovaginitis from childhood that has been neglected. A young society lady was brought to me by her married sister who stated she had a discharge from early childhood and that she had received treatment from the family physician from time to time. He had made an examination and had prescribed washes at different times, but as no permanent benefit resulted it was concluded that the discharge was chronic and for a long time it had been neglected. Since puberty nothing had been done for it, but finally it had become unbearable. Unfortunately the uterus and adnexa were involved when she was brought to me.

A specific vaginal discharge may arise from other sources than direct infection from the male, as for instance from unclean towels that have been used by other members of the family or female companions, unclean bed linen and infected clothing, under garments, and bathing suits. The nozzle of the syringe is a frequent source of infection, for no pains is ever taken to keep it clean and the necessity for having it perfectly clean before using it is rarely thought of. Contact with unclean toilet seats in public places is by no means so infrequent a source of infection as is supposed, and the physician should caution his patients not to sit down in such places. The custom of the French, who stand or stoop over an opening in the floor, might well be imitated in this country.

Though infection is frequently the cause of vaginal discharge in young women, even those in the higher walks of life, it must not be inferred that leucorrhea may not originate from other sources, and may be of minor significance, yet have an important bearing on the future well being of the patient. For instance masturbation is a frequent cause of leucorrhea as well as sexual excitement from intimate association of the sexes, even when it does not overstep the customary limitations of polite society. It may result also from a catarrhal endometritis, or uterine displacements, or from conditions that cause dysmenorrhea; constipation or any other condition that produces pelvic congestion, pelvic tumors, etc. Leucorrhea is also observed in anemic subjects and may occur also as the result of hyperacidity. Whatever its source the physician should always inform himself of its character and endeavor to correct it. But from what has been said it can plainly be seen that leucorrhea is frequently viewed with indifference, and the source of possible infection is often diregarded.

In Married Women.—Unfortunately women are too often led to believe that leucorrhea is usual after marriage, that it has no special significance, and therefore is to be disregarded or regarded only in the light of a necessary inconvenience. Though it may sometimes have no special significance as a rule it should always be considered abnormal when it is constant or when it recurs repeatedly and should then receive the prompt attention of the physician. It may constitute only an increase of the normal secretion, yet may be evidence of an abnormal condition that should be corrected; and on the other hand, it may be the result of some suppurative process due to infection of a serious character. It is therefore clearly the duty of the physician to make a careful investigation in every case when a vaginal discharge is discovered or is complained of by the patient and to ascertain its character and source. It is not sufficient to know that the discharge contains pus and bacteria, but the kind of bacteria is important, and it is also important to determine whether it proceeds from the urethra, or the cervix alone, or from the cavity of the uterus. The physician who practises gynecology without employing the microscope and other known means of facilitating diagnosis in these cases is doing blind work which is oftentimes worse than useless, and he is equally as culpable as he who is satisfied to prescribe a vaginal wash for leucorrhea.

Vaginal discharge in recently married women always demands prompt attention, for unfortunately it is not unusual for young men to marry while they still have a gleet or when they have not been pronounced cured of a gonorrhea. It must be borne in mind that absence of discharge is not evidence of cure, for this disease often lurks in the prostate long after all visible evidence of discharge has disappeared. I once did an abdominal section on the wife of a physician whose pelvic organs presented unmistakable evidence of gonorrheal invasion. After seeing the condition the doctor asked to have his prostate examined, stating that he had contracted the disease sixteen years before marriage and believed himself cured. Examination of his prostatic secretion revealed gonococci.

It is the duty of the physician to educate his patients to a proper appreciation of the danger to the young wife who marries a man that has previously had gonorrhea. I feel so strongly upon this point that I think an enforced examination and a clean bill of health from a competent specialist should be demanded before a man is permitted to marry. If fathers and mothers of young women could be made to appreciate its importance it would not be long before such a demand would become a custom; then the work of the gynecologist would be greatly curtailed.

It is equally important that the man who contracts gonorrhea after marriage should not cohabit until he is pronounced cured. Unfortunately, every man is not properly informed upon this subject, and he has but a vague conception of its importance. It is quite true that this disease may be contracted by the wife from other sources than her husband. I once discovered it in a young wife, whose chastity could not be questioned, and the husband denied ever having had it. I was interested to ascertain its origin and was persistent in my investigation to that end. Eventually it was learned that their maid had the disease and had used the fountain syringe of her mistress that had been left carelessly hanging in the bathroom.

It is most unfortunate that the belief is so uni-

versal, not only with the public but also with many physicians, that gonorrheal infection in women must always manifest itself by a burning upon urination and a profuse purulent discharge; in fact, that there must always be a primary urethritis and vaginitis. Some authorities contend that the urethra is the most frequent location of the primary infection in women. My experience convinces me that the cervix is the most frequent seat of infection and that it often occurs without primary urethral infection. The vulva may be the seat of primary infection also, but primary gonorrheal vaginitis is rare.

Gonorrheal infection of the cervix is very much more frequent than is generally realized, even by the physician, and frequently is unsuspected because there is not always a profuse or suspicious discharge. And these are the most dangerous cases because they are not suspected. The infection is lurking in the glands of the cervix and is not manifest even in the discharge in some cases except under some unusual excitement or irritation that causes the glands to throw off the secretion in unusual quantity. But it is always possible to make a correct diagnosis in such cases by examination of the secretion after intentionally provoked irritation.

There are other forms of infection encountered in women that are only a little less harmful; viz., the streptococcus and staphylococcus, either alone or together. Both may be transmitted to the male and produce an inflammation quite as intractable sometimes as that caused by the gonococcus. It is this form of infection lurking in the generative tract of women that gives rise to inflammatory conditions following the introduction of instruments into the uterus, and that sometimes follows abortion and labor. Hence the importance of detecting the presence of bacteria in the leucorrheal discharge. These microorganisms make their way along the course of the lymphatics of the broad ligaments by absorption from the uterus, producing, under conditions favorable for their development, cellulitis and peritonitis and sometimes abscess in the pelvis.

The woman who harbors these bacteria in her genital tract is living over a veritable volcano that is ready to burst forth at any time under favorable conditions, supplied by some slight traumatism or act of imprudence, like exposure to cold. Fortunately, these microorganisms manifest their presence by the so-called leucorrhea, because they provoke irritation that causes increase of secretion, which is a warning; but if this warning is disregarded the result must be anticipated.

The manner of their introduction into the vagina is not easily determined, but probably the most frequent means of transmission is by the nozzle of the syringe, which is never clean. It is kicked around the floor, and it would seem that every effort is made to insure its infection. Even the inside of the fountain syringe is a fruitful source of infection, for the rectal nozzle, after it has been used, is invariably inserted into the mouth of the bag, as is also the vaginal nozzle.

Women who are guilty of these unclean habits are really not to blame, for they have not been warned of their danger. A woman who was well enough informed to be suspicious of any unusual leucorrheal discharge, once consulted me for a very profuse purulent discharge which she thought might have been contracted from the man with whom she was living. It proved to be a mixed infection of the streptococcus and staphylococcus, that had invaded the uterus. Her suspicions were allayed, and I endeavored to trace the source of infection. She admitted being careless with the nozzle of her syringe, but had no servant. She had, however, two pet dogs that often played with the nozzle of the syringe as it hung in the bathroom.

The colon bacillus and the tubercle bacillus, as well as the various saprophytes, are also found in the vaginal discharge sometimes, and their source and significance should be ascertained when possible. There may be a rectovaginal or rectouterine fistula, or the discharge from an anal fistula may find its way, first to the vulva, then into the vagina. A patient once came to me complaining of what she designated a profuse, offensive leucorrhea, the source of which proved to be an anal fistula, and the vagina was fortunately not involved. The source of a vaginal discharge may be cancer of the endometrium or of the cervix, or of the body of the uterus, and the discharge would also be designated leucorrhea by the patient.

A married lady, who consulted me for hemorrhage from the uterus that proved to proceed from cancer of the cervix, admitted that she had been having a rather offensive leucorrhea for several months or a year before bleeding occurred, but she paid no attention to it because she was afraid if she consulted a physician he would find something that required treatment.

Anything that causes congestion of the pelvic organs may produce a leucorrhea; for instance, constipation, an inactive and congested liver, intestinal indigestion, tight lacing, prolapse of the kidneys, by interfering with the return circulation through the ovarian veins, unusual sexual excitement, particularly when it is not relieved, sexual excesses, efforts to prevent conception, etc. Such a state of congestion, if not corrected, leads to catarrhal inflammation and makes the genital tract receptive of infection that would be resisted if a normal state prevailed. In other words, a congested mucous membrane is a fertile field for the development of pathogenic bacteria.

It is well known that a woman is more readily infected after an abortion or labor, because the tissues are less resistive than before. For instance, a woman married to a man with chronic prostatitis may resist infection before the first pregnancy, but will become promptly infected after.

A frequent cause of leucorrhea also is the use of irritating substances in the vaginal douche. This is particularly noticeable when the vaginal mucous membrane is sensitive, as it is in some women. I have known the use of bichloride solution and soap also to produce an annoying leucorrhea that promptly subsided upon discontinuing the douches. Hence, prolonged and too vigorous efforts to cure it may cause continuance of a leucorrheal discharge.

It is very unfortunate that the term leucorrhea is used so indiscriminately to designate any and all forms of discharge from the female genitalia. It is so frequently given as a symptom by the patient who consults the physician that it has come to be regarded as natural, and its actual character is seldom noted. All women, especially married women, have a perceptible secretion at times, or rather a moisture, about the vulvar orifice. This is not significant and requires no attention. But if an apparently normal secretion is persistent or sufficiently profuse to produce inconvenience it would be safer for the woman to consult a physician and to let him decide if it requires attention.

In Women Past the Menopause.—At no period of

a woman's life is investigation of the vaginal discharge more important than after the menopause. The popular belief that women past the menopause are or should be exempt from disease of the generative apparatus is very unfortunate, because it often leads to neglect of conditions that are serious. It is strange, but women at this stage of life frequently deny the existence of a discharge that is actually causing annoyance, especially women who have never been married or have never had children. Conditions that may cause a vaginal discharge are by no means limited to women who have had children, but are also encountered in unmarried women past the menopause. This is particularly true of senile endometritis, which is found not infrequently in unmarried women after the change of life.

Leucorrhea at this period may be evidence of cancer of the uterus or a senile endometritis and vaginitis, or it may be caused also by fistula, fibroid tumors, and other tumors of the pelvis, and the same inflammation that occurs at an earlier age. Infection of the genital tract at this period is rare, but it does occur undoubtedly. Diabetes gives rise to a most annoying discharge and a vulvitis at this period, and sometimes constipation and hyperacidity will also produce leucorrhea. Uterine displacements at this period are generally found associated with senile endometritis, but do not act as an independent cause of the discharge.

But by far the most frequent causes of discharge in women at this period are senile endometritis and cancer of the uterus; both of which are of great importance. The one, senile endometritis, because it leads to constant ill health, or chronic invalidism and premature aging; and the other, cancer, because it endangers the life of the patient, and if it progresses too far before it is discovered, means death within a very short time.

The constitutional symptoms of these two conditions, as well as their local manifestations, are sufficiently similar to cause the one to be mistaken for the other by the casual observer, who has had a limited experience with such conditions. They both give rise to a discharge that is sometimes offensive and sometimes tinged with blood, and there may be occasional bleeding that might be regarded as one of the vagaries of change of life.

Enough has been said to show the necessity of careful investigation of this symptom (leucorrhea) and it is to be hoped that the family physician, who is usually the first to discover it or learn of its existence, will be aroused to an appreciation of its very great importance and insist upon an investigation to determine its character and source whenever it is encountered.

The significance of the altered vaginal secretion during pregnancy has not been gone into, not because it is any less important, but because of insufficient time and space in this paper. On the contrary the abnormal secretion of the pregnant state is of such importance that it should be taken up separately, and I sincerely hope to see the subject dealt with by some competent obstetrician.

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Typhoid Bacilli in Butter.—The vitality of the typhoid bacilli has been investigated both in butter and in milk. On the 151st day after the manufacture of butter from milk infected with typhoid germs living colonies of these bacilli developed on plates that were made from the butter, proving that these bacilli retain their vitality and are ready to multiply whenever opportunity presents for 151 days.—*Report of the U. S. Bureau of Annual Industry.*

DIAGNOSIS OF LESIONS OF THE ABDOMINAL VISCERA, WITH ESPECIAL REFERENCE TO THEIR FUNCTIONAL INTEGRITY.

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During the past few years a large amount has been added to our knowledge of the diseases of the abdominal organs, and regions long thought to be inaccessible and conditions thought impossible of any but a tentative diagnosis, have, by the aid of chemical and bacteriological methods, been brought easily within the reach of the clinician, so that now with care and patience one may safely make diagnoses, which would but a short time ago have seemed, to say the least, venturesome. To accomplish this one must have, of course, a certain amount of laboratory knowledge or assistance, but for the most part it need be but of the less complicated sort and quite capable of being put through in a short time, leaving the more complicated measures for the expert chemist or at least for one quite familiar with the more recent methods of chemical analysis. Let it be definitely understood at the start that these methods are few of them very new and none of them original, but as they have largely proven their value it seems worth while collecting them for reference, as many of them are little used or their value generally appreciated.

Stomach.—It is not worth while going into the ordinary methods of examination for gastric chemical or functional integrity, as nowadays practically all internists are familiar with the routine examinations for hyper- or hypoacidity, with or without gastritis, achylia, hypermotility, retention, stagnation, dilatation, atony, etc., the use of inflation and *x*-ray examinations, and one is referred to any of the standard works for the detail of methods. There are, however, questions which arise in diagnosis of gastric conditions which are far from being capable of immediate and ready diagnosis; take for example, gastric ulcer, about which such an enormous amount has been written, and yet one constantly finds practitioners who are loath to make a posithe diagnosis without hemorrhage. The one primary symptom which must be kept in mind is pain, and it is a pretty safe rule, made the more emphatic by few exceptions, that according to Cohnheim[1], real pain referred to the stomach is practically always due to an organic lesion somewhere, and almost never to a neurosis. The most frequent causes, of course, of such pain are ulcer or erosions of the stomach or intestine, although one must exclude biliary disease, angina pectoris, intercostal neuralgia, epigastric hernia, or an organic lesion of the central nervous system with gastric crises.

Two methods are in vogue for deciding whether this pain is of gastric origin or not: First, by the giving of gastric sedatives during the pain, *e.g.* cocaine, orthoform, or chloroform water, any one of which, if given in sufficient amount, particularly on an empty stomach, will control the pain and so point to its true source; and second, the method which has for its object the calling forth of this pain by direct irritation, as in Bönninger's[2] test, by which, after washing out the empty stomach and examining the washings for blood, cells, etc., we introduce through the tube 200 c.c. of a

decinormal solution of hydrochloric acid (concentrated HCl 3.6 c.c. water 1,000 c.c.). If a gastric ulcer is present this acid solution will probably cause immediate pain; if the pain is due to other causes, the test will be negative. This method can also be used to show the progress and result of treatment. It is not so good, however, when there is a gastrosuccchorrhea, although in this condition, when there is pain, ulcer is usually the underlying cause of both conditions. Einhorn has recently proposed another method for diagnosing and locating ulcers of the stomach and duodenum (MEDICAL RECORD, April 3, '09). The duodenal bucket is swallowed in a gelatin capsule at 9 P. M., attached to a (English No. 5) silk thread and allowed to pass for 75 cm. from the lips. In the morning this is removed and the thread examined for a brownish stain caused by contact with the ulcerating surface. The distance of this spot from the lips points to the site of the ulcer. Ulcers of the fundus or greater curvature cannot be located by this test; but those of the esophagus cardia, lesser curvature, pylorus, and duodenum often can be.

One method of arriving at a diagnosis of either an achylia or a marked hypochlorhydria, without the aid of the stomach tube, is by the examination of the stool after a meat meal, for in this condition, as stated by Schmidt,[4] we find unchanged connective tissue present, the gastric secretion being the only one capable of digesting this substance. This method is particularly useful in old people, when we fear to pass the tube on account of brittle arteries and a possible cerebral hemorrhage from straining; again, in cases where we have reason to suspect an aneurysm of the aorta, under which conditions the tube should never be passed. The determination of the absence of acid is particularly important in those cases which are the subjects of a chronic diarrhea, so often found associated with achylia unaccompanied by any gastric symptoms. Sahli's so-called Desmoid test has the same object in view, and is made by giving the patient methelene blue in a small, thin, rubber bag, tied with catgut. If the gastric secretion is intact, the catcut is digested (being made of connective tissue) and the methylene blue excreted in the urine. This, however, has been found not to be absolutely reliable, and is more complicated than the method of Schmidt. The tests for occult blood in gastric contents and stool are too well known to need repetition here.

Gastric Cancer.—It is a lamentable fact, as stated by Kuttner,[5] that about 20 per cent. of all cases of carcinoma of the internal organs go unrecognized during life, despite the best means of diagnosis at our disposal, so when one suspects cancer of the stomach it is quite worth while trying to make a diagnosis, even though we may recommend an early exploratory laparotomy, as should always be done; since, too, we have come to know that the presence or absence of free hydrochloric acid throws little light on a possible diagnosis, it is necessary to turn in another direction for assistance. Salomon[6] has found that if the fasting stomach is washed out with 200 c.c. of water and the washing examined for albumin by the Esbach method, and if albumin in amounts of 1/3 to 1/2 per mille be found, this alone points strongly to cancer, also that if, by Esbach, we find from day to day that the albumin digestion of a test meal is growing progressively less, we have another valuable indication as to what the underlying condition may be. Of course, pyloric cancer invading the lumen of the outlet in common with similar effects from benign causes results in food retention, or when gastric motility is reduced from invasion of the musculature by the growth we have a consequent stagnation of food far beyond the period of normal digestion.

Intestine.—Although Hemmeter of Baltimore reports that in a number of instances he has been able to recover chyle by the passage of a long stomach tube through the pylorus, and Einhorn, by means of the duodenal bucket, it is doubtful if these will be of more than passing interest, as the digestion in the small intestine and the integrity of the pancreatic secretions are much better studied by other methods to be described later. Much, however, can be learned from the examination of the stool as to the intestinal functions, and for a detailed study of this one is referred to the translation of Schmidt's "Die Funktionsprüfung des Darmes mittelst der Probekost." The main points to be noted in the stool are, of course, the color, reaction, consistence, odor, the presence of starch and blood, pus and mucus, evidence of intestinal parasites, meat residue, besides a general microscopic examination for abnormal constituents. The two most important chemical tests are the test for fermentation of carbohydrates and for albumin in the form of mucus, not detectable by the microscope. The former test is carried out in an Einhorn saccharometer, or double fermentation tube, by mixing a small bit of feces with water, filling the tube and standing over night at body temperature, the presence of any gas, save a few small bubbles, denotes carbohydrate fermentation, which should be absent. (The details for the albumin test will be found in the footnote.*)

In this connection it must be remembered that the presence of an increased amount of indican in the urine, and other products of which it is an indicator, is due to albuminous putrefaction, not only of food protein, but probably also of intestinal mucus accompanying an enteritis or colitis, and from some investigations being carried on at present by the writer it seems likely that in some cases at least the excessive indican may be due to deficient tryptic digestion.

Pancreas.—The functions of the pancreas are of the utmost importance to normal digestion, and indeed, with proper food preparation, as is well known, complete digestion is possible in the intestine alone, in cases with entire loss of gastric secretion; so that in individuals with chronic diarrheas or with achylia we need to know the functional activity of this organ, for upon that will depend in large measure the accuracy of our prognosis and indeed treatment. The threefold functions of the pancreas of digesting carbohydrates by means of its amylopsin, protein by its trypsin, and fats by the ferment steapsin are all most important, and in attempting a diagnosis of suspected carcinoma of the pancreas, chronic pancreatitis, and to a lesser extent in acute pancreatitis, as well as in diabetes, it is quite imperative for us to know the working capacity of, at least,

*Test of Albumin in Feces (Schmidt). Twenty to thirty grams of feces are mixed with water in a mortar and after standing a few hours are filtered through a double filter paper. This cloudy filtrate can be cleared by filtering through infusorial earth. To this clear filtrate one adds carefully, drop by drop, 30 per cent. acetic acid, continuing it so long as any precipitate falls. (This precipitate is the normal nucleoprotein of the feces.) Filter this out through infusorial earth and to the new filtrate add a drop of potassium ferrocyanide; a fresh precipitate will prove the presence of albumin, which is pathological.

the carbohydrate and protein splitting enzymes. In addition to these functions we have to reckon with the internal pancreatic secretion in connection with the metabolism of sugars, especially in diabetes.

To accomplish this we have several forms of clinical tests. First, for the determination of the amyloptic integrity as well as that of the internal secretion. This depends on the power of the pancreas[7] to metabolize 100 gms. of dextrose properly, and is done as follows: On an empty stomach 100 gms. of dextrose are given in solution (best perhaps in weak coffee for a flavor) and the urine examined six hours later for sugar by Fehling's method. Normally the pancreas should be able to metabolize this amount completely, none appearing in the urine, which should be examined during the succeeding twelve hours.

Second, for tryptic digestion we have two reliable tests. In the first, bits of stool are planted on Loeffler serum in Petri dishes or on an ordinary throat culture tube, and placed in the incubator for twelve to twenty-four hours at 60° C. If tryptic digestion is normal, the surface of the serum will be pitted wherever the bits of stool rest, owing to the digestion of the surface of the serum at these points. If proper digestion has not taken place, the surface of the serum will be either smooth or show only slight depressions. This is an exceedingly simple and accurate test. This is also a measure of the other intestinal proteolytic ferments.

The second test, as described by Schmidt,[4] is the ability of the pancreatic secretion to digest the nuclei of meat cells, which is the only digestive secretion which can accomplish this, and is determined as follows: Small bits of meat are first partially hardened in alcohol stained with carmine; one such bit is enclosed in a very small gauze bag, securely tied. This is given to the patient to swallow and at the end of twenty-four hours, if the bag has not been passed in the stool, a cathartic should be given, as the meat must not remain in the intestine over one day. When removed, the meat is further hardened, embedded, and sections cut, or it may be examined fresh with acetic acid and methylene blue. If pancreatic, *i.e.* tryptic digestion is normal, the nuclei of the meat cells should have disappeared, but before diagnosing definitely a pancreatic lesion, all or nearly all the nuclei of the meat cells should have disappeared. An acute diarrhea interferes with this pancreatic test and the meat must not stay in the intestines over twenty-four hours, as simple putrefaction can cause an almost complete disappearance of the nuclei.

For the fat splitting ferment, steapsin, we have no simple chemical or clinical test, and the quantitative estimations are too complicated for the practitioner. The stools, when large, soft, foul, pale, and greasy, are, according to Robson and Cammidge, indicative of a failure in the action of the ferment in large part. If there is doubt as to whether a stool is fatty or not, it is simple enough to rub up a little of it with ether and pass it through a filter paper, which on subsequent drying of the water shows the paper to be greasy, if fat is present. The differential diagnosis between a fatty stool and a completely acholic stool will be referred to under the liver. Aside from the clinical picture, acute pancreatitis can often be diagnosed by a glycosuria or by Cammidge's [8] C. reaction, the latter depending on the presence in the urine of pentotozone. This, however, is too complicated for any but an expert chemist, so need not be further considered here.

The interpretation of all these results must be made with care, and it is always safer to do them in duplicate, thus following the chemist's rule to avoid mistakes. A positive dextrose reaction may indicate no gross lesion of the pancreas, but only a toxic affection. However, 65 per cent. of positive reactions are said to be due to disease, although the toxic influences must be ruled out. In pancreatic cancer we are more apt to have an azotorrhea[9] than in chronic pancreatitis, although if much meat is eaten and an enteritis is present, it may be hurried through the intestinal canal and appear in the stool in spite of a normal pancreas.

Liver.—It is unfortunate that in the consideration of the functional activities of this organ we have so few simple methods for testing them, particularly so, as the liver is the greatest biochemical laboratory of the entire system. On this account more diagnoses are hurled at the liver than at any other organ and results in placing at its door the larger portion of the ills, of a metabolic order, that the individual is heir to, and no doubt correctly so, but unfortunately not with intelligence. There are two methods in vogue for testing the liver. The first depends on the power of the normal liver of metabolizing 100 gms. of levulose, when given all at once, by the method already described in connection with the pancreas. Normally no trace of this levulose should appear in the urine by Fehling's method. With a pathological liver, in which the parenchyma is damaged, levulose will appear more or less promptly in the urine in greater or less amount, depending on the amount of functionating liver tissue remaining. This test is mainly valuable from a positive finding; a negative result is not conclusive, although Strauss[10] got 90 per cent. of positive reactions in patients with diseased livers; other investigators have not had such uniform results.

In the consideration of the excretion of bile in obstructive jaundice, with or without pancreatic disease, it is often a nice point to decide whether the acholic looking stools are really bile-free, and the occlusion, therefore, complete, or whether they are colorless from the large amount of fat, particularly as the pale stool may contain leucohydrobilirubin, a colorless bilirubin. Therefore, the test for bile pigment and this leucohydrobilirubin assumes more importance than might at first appear. To determine this a bit of feces is rubbed up with a concentrated solution of mercuric chloride. Normal feces are thereby colored red; leucohydrobilirubin also is stained similarly, feces containing unchanged bilirubin become green, therefore, an absence of the red or green reaction in fatty stools indicates a complete acholia.[11]

Still another method for testing the integrity of the parenchyma is more difficult and can only be carried out by a skilled chemist, as it depends upon the power of the liver to oxidize a certain amount of amino acid to uric acid, as recommended by Glessner.[12]

Suprarenal Organs.—As yet there is no established method for determining the functional activity of these glands, and the diagnosis must rest on clinical observation, although the presence of a lowered blood pressure, as determined by the sphygmomanometer is helpful in doubtful cases. The hypodermic tuberculin test may also be of assistance, unless there is evident tuberculosis in other organs, but should never be made if the patient is weak and evidently ill; one of the skin tests for tuberculosis can be used, of course, as well, and much safer.

although these latter are almost too delicate, even a healed tuberculous focus giving a positive reaction. A promising field for work may be developed in this by the determination in the lower animals of the effects of the injections of serum from these cases of suprarenal deficiency, as compared with the effects on blood pressure of normal serum injections.

Kidneys.—So much has been written about the disturbance of the functions of these organs, due to pathological lesions, including surgical conditions, or to purely functional derangement, that one is referred to almost any of the special books on renal conditions for further detailed information. The phloridizin and methylene blue tests for the functional activity of the kidneys may, however, be properly mentioned here. The former is a test for secretory ability rather than permeability,[13] and is based on the generally accepted view that phloridzin diabetes is due to the activity of the renal cells, and that a diminished or absent glycosuria means renal disease. These results are of more importance to the surgeon than to the physician. The results may be tabulated as follows:[14] "If after injecting 0.01 gm. of phloridzin, sugar appears in the urine in ten to fifteen minutes, it may be assumed that one kidney at least is functionating soundly. In continuing to examine the urine every fifteen minutes, a delay of thirty minutes in the appearing of sugar speaks for an essential functional disturbance in both kidneys. If no sugar appears in forty-five minutes, the functional disturbance is marked and would completely contraindicate any contemplated nephrectomy. Parenchymatous nephritis is an exception, for when albumin and casts are found the test is more prompt than normal and, therefore, is not synonymous with normal functioning."

The methylene blue test is advocated by many, and is supposed to test the renal permeability or the filtration power of the epithelium,[15] but in either of these tests it is necessary to keep in mind the clinical picture, as they have rather narrow limits of usefulness. This test is made as follows:[16] "If 0.05 gm. of methylene blue in a watery solution (1:20) be injected subcutaneously, it will be found, if the kidneys are healthy, that (1), the blue will appear in the urine within thirty minutes; (2), it will continue to be present for about forty to sixty hours; (3), about one-half the quantity injected will appear within twenty-four hours." This test is most useful in contracted kidney, while in the parenchymatous forms of nephritis, in amyloid and congested kidney results are too uncertain to be of much value. Its most ardent admirers now concede that really the most valuable part of the test is in determining the amount excreted in the twenty-four hours, as the time of its appearance after injection is too uncertain.

In conclusion I wish to call especial attention to one method of abdominal diagnosis, which, although purely clinical, is known and largely used abroad, but in spite of its great usefulness is seldom heard of here. This is the practice of making abdominal or bimanual vaginal examination of patients while in a hot bath. Unless one has tried this procedure it is difficult to conceive of its immense usefulness, for in many, if not most instances, the abdominal relaxation obtained is quite equal to that obtained under an anesthetic, with the added advantage that the patient can help the examiner by voluntary movements, such as deep inspiration, holding the breath, etc. This can be done in an ordinary bathtub, in water as hot as the patient can bear; or if it is desirable to have the patient higher in the tub, a long sheet may be let down over the tub into the water and fastened about the ends of the tub by knotting the corners under the rolling edge.

Most of the foregoing measures and tests in the diagnosis of abdominal conditions are simple, take little time, and with the exception of one or two of them can be done by the practitioner with very little apparatus, and certainly are of great assistance in the diagnosis of obscure intraabdominal lesions, although they must never be taken alone, separated from all clinical observation, for such implicit reliance on test tube and reagent will often lead one far afield.

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STREPTOCOCCIC INFECTIONS OF THE THROAT—FURTHER OBSERVATIONS.

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An article in which I reported a number of cases of streptococcic infection of the throat, which were observed by me during the winter then just past, was published in the *Journal of the American Medical Association* of May 29, 1909. Therein I commented upon the fact that I had also heard of a great many cases of streptococcic infection of the throat occurring in the surrounding country, and quoted to a considerable extent from the recent literature of this subject.

Since then I have had a number of other cases, and recently have seen three illustrative of the severity attained at times by this kind of infection. History of these cases is submitted herewith in full:

Case I.—Mrs. W. E. N., of Memphis, aged about thirty years, was seen by me June 14, 1909, in consultation with Dr. B. W. Fontaine. Two weeks previously while in Chicago, she paid a brief visit to a brother who was convalescent in a hospital from a condition that had been diagnosed as diphtheria. She was with him but a few minutes, and left shortly after for her home in Memphis. Three days ago she began to have sore throat, with fever off and on. The left tonsil was first affected, and then the right. Dr. Fontaine found a whitish exudate on the left tonsil, with considerable glandular

enlargement. A swab taken from this tonsil grew on blood serum what was shown on microscopical examination to be almost pure streptococci. The right tonsil also becoming painful, and the condition persisting, Dr. Fontaine asked me to see the case with him. Examination showed nothing on the left tonsil, this being true also of the right, but a small yellowish-white patch, apparently pseudomembrane, was seen on the right faucial pillar. There was marked glandular enlargement, especially on the right side, at this time. The patient had no fever. I removed a portion of the patch from the right faucial pillar, and inoculated a culture tube. The growth was found to be streptococci, as on the previous examination. The patient went on to uninterrupted convalescence with the simplest thereapeutic measures. Several young children of Mrs. N. were in the house with her and exposed to contagion without restraint, but enjoyed immunity.

Ordinarily this case would have been regarded as diphtheria, for the symptoms were such as would have been found in a mild case of this disease, and there was extratonsillar extension of the pseudomembrane, and furthermore, there was the history of exposure to diphtheria. Of course a question of diagnosis as regards the condition of Mrs. N.'s brother may be raised, and we were enabled to glean but very little of the clinical history in his case, but I believe that diphtheria was excluded in Mrs. N.'s case by the two negative bacteriological reports. The case impressed me at the time as being one of mild diphtheria, but Dr. Fontaine's very careful examination of the culture made from the exudate taken on the occasion of his first visit, and that grown from the pseudomembrane removed by me, had bacteriologically excluded this disease. Without the aid of the microscope, I believe the diagnosis would have been diphtheria. In this connection it may be argued that the streptococci had so overgrown the diphtheria bacilli that these occurred only occasionally, and were overlooked in the cultures, but this possibility was borne in mind and the cultures from the exudate and pseudomembrane were submitted to repeated microscopical examinations, the spreads being taken from different portions of the cultures. Furthermore, the growth on the media was not macroscopically characteristic of diphtheria cultures.

The next case that I shall describe perhaps gives an even more interesting clinical history:

Case II.—On September 16, 1909, I was asked by Dr. J. H. E. Rosamond of Memphis, to see with him Miss M, aged sixteen years, who began to suffer with sore throat two weeks prior to this visit. Five or six days after the beginning of this sore throat she developed a peritonsillar swelling on the right side, which was opened by Dr. Rosamond three days later, very little pus being found. The inflammation gradually subsided, but two days after the incision of the peritonsillar region the patient had a chill and rise of temperature and complained of headache. Examination of the throat by Dr. Rosamond revealed swelling of the peritonsillar tissues on both sides, with a whitish exudate over the tonsils. The pulse ranged from 112 to 136. The girl grew very weak and appeared to be in a grave condition. When seen by me with Dr. Rosamond about five o'clock in the afternoon, the temperature was 103°, pulse 130. There was a whitish exudate on both tonsils, which was easily wiped off, with no bleeding surface remaining. This exudate, I was informed by Dr. Rosamond, would recur in as short a space of time as thirty minutes. A swab had been taken from the throat the day before, showing streptococci in abundance, mixed with staphylococci. There was no albumin nor casts. There was considerable glandular enlargement on both sides of the neck. The patient's countenance was of that peculiar cast significant of grave infection. Dr. Rosamond had on the morning of this day given the patient 20 c.c. of antistreptococcic serum. I could see no indication for treatment other than supportive, with repetition of the serum every day until some effect was noticed. Dr. Rosamond reported to me that on September 17 the temperature was 100° in the morning, and the pulse 104, the appearance of the throat being about the same. That night he was called to see the girl hurriedly, and found that her temperature again was 104°. For several days the temperature continutd to fluctuate in about this proportion, and daily for four days an injection of 20 c.c. of antistreptococcic serum was given. The girl had fluctuating temperature, with septic chills and sweats for two weeks after I saw her, and it became a question of physical resistance in her fight against this severe infection. Even after her temperature curve became normal, and she apparently was beyond danger, the girl had these manifestations of sepsis. In this fight she finally won out, but there were many days when it seemed that she would succumb to the toxins which she had absorbed. The third case presents a more complicated picture.

Case III.—M. P., aged thirty, of London, England, an acrobatic performer in vaudeville, was seen by me December 20. Eight weeks ago he had a severe "head cold," which was complicated by what was pronounced by his attending physician to be frontal sinusitis, and for which his right frontal sinus was repeatedly irrigated, he also having been given two injections of mixed vaccines. Although not entirely well, he apparently was doing very satisfactorily until several days ago, when, while playing in Evansville, Indiana, he contracted a severe "sore throat," which was called tonsillitis. This condition began in the right side of the throat and then went to the left. Yesterday morning he was feeling very well, but early this morning he was awakened with a severe pain in the right side of the neck, which began to swell and grow stiff. Pain on moving the head was intense. He also suffered with dizziness when standing. Examination revealed some congestion of the fauces, but no indication of acute lacunar tonsillitis. The right sternocleidomastoid muscle was swollen from the mastoid tip to the clavicle, and brawny and painful to the touch. He had no fever at this time. It was very necessary for Mr. P. to give a performance that evening, since it was the opening of the week, and so nothing could be done for him at the time other than order an ice-pack to the neck. Under great physical strain and pain he went through his acrobatic turn, consisting of head balancing, etc., and the next day I was called to see him at his hotel, and found his condition much worse, in so far as the swelling and pain were concerned. There was still no fever. The uvula was edematous. The morning of December 22 there was still intense pain in the head and neck, the uvula was greatly swollen, and the temperature was 102° F. There was a free discharge of pus from the right side of the nose. The uvula was incised in several places, and

the patient was ordered to eat crushed ice. A capsule consisting of one-third grain codein and two and one-half grains each of phenacetin and quinine every three hours was to be taken, and a hot-water bag applied to the neck.

On December 23, at 9 A. M., the temperature was but 99.5° F., but the edema of the uvula, which had subsided after the previous incisions, again had returned. The uvula was incised repeatedly as before. Considerable albumin was found in the urine. The evening of this day I was called hurriedly, and found the patient with great swelling of the dermal covering of the nose and cheeks, with congested area looking quite erysipelatous. The nose was occluded by the swollen tissues about the orifices, and by the thick pus contained within. The temperature was 103.5° F., and the pulse 90. Ice was ordered for the face and head. Streptococci were abundantly found in the cultures from the nose and throat.

The next morning the swelling over the nose was greatly lessened, but had gone to the tissues below and above the eyes, almost closing these. The inflamed area was painted with phenol, neutralized with alcohol. Basham's mixture and calomel purging were ordered. The swelling of the uvula had entirely subsided, and the swelling and stiffness of the neck were almost entirely gone.

On December 26 the condition of the face was much improved, the temperature at 9 A. M. being 100.2° and the pulse 72. The following morning the temperature was normal, with a slight rise again in the afternoon. The third day after this the right side of the throat again became inflamed, with peritonsillar swelling and edema of the uvula. Incisions of the uvula, and into the fossa supratonsillaris, were made, but no pus was found. The temperature rose in the afternoon, and continued for several days. A third effort to find pus in the supratonsillar region was successful, a pocket being emptied. Convalescence then was uninterrupted.

This unquestionably was a case of streptococcic infection of the right frontal sinus, with secondary involvement of the cellular tissues of the throat and face.

In these latter cases we have examples of typical streptococcic infection, with which the entrance of no other factor could complicate the diagnosis, and the clinical history is similar to others that I have seen, and of cases which I have seen reported. One rapidly fatal case reported by Marschik, quoted by me in my previous article already referred to, showed nothing but the streptococcus as the etiological factor. We have in most of these cases, as is true of practically every bacteriological condition, a mixed infection, and these streptococcic infections as a rule have the staphylococcus associated with them, but we can regard the latter microorganism as merely incidental, and as having very little if anything to do in causing the serious symptoms found in these cases.

The streptococcus is found in normal throats, apparently inert, but it seems speedily to be whipped into activity by inflammatory alterations of the mucous membrane. There seems, however, to be some lessened resistance which admits of this, for every inflammation of the throat where streptococci are found does not assume this virulent type, any more than do all cases where people carry the diphtheria bacillus in their throats develop diphtheria. What this peculiar condition is we are yet at a loss to explain, but there remains the fact that we must recognize a character of inflammation of the throat associated with the streptococcus as the causative factor which may assume a very malignant type. In the second case just reported the resistance had been lessened by a condition of hyperthyroidism, which had materially improved under treatment.

The question may very well be raised as to the influence of antistreptococcic serum in this condition. With reference to the value of serotherapy in streptococcic infections, Dewatripont,* in reporting some cases of streptococcic infection of the lacrymal canal of nasal origin, says that *in vitro*, the serum of Marmorek is antitoxic; that one c.c. of streptococcus toxin, killing a rabbit in three or four days, becomes inactive in the presence of three to five c.c. of serum. *In vitro* Marmorek's serum has no bactericidal property when brought in contact with the streptococcus, but does not exhibit, according to Bardet, in a feeble degree agglutinative property, it being necessary to bring in contact with the culture at least one-third of its volume of serum. If two c.c. of Marmorek's serum be injected under the skin of a rabbit twenty-four hours after inoculation of the latter with a millionth of a c.c. of a streptococcus culture of which one ten-millionth c.c. is surely fatal, the animal is preserved. Furthermore, if two c.c. of the serum be similarly injected in an animal inoculated three hours before with a dose ten times fatal, or if five c.c. of the serum be injected in a rabbit five hours after injection of the same dose of virus, the rabbit is preserved. But these results obtained in animals do not necessarily follow with human beings. I have used the serum in a number of cases, and yet the question of its value still remains open to me, for I have never seen it exercise any immediate beneficial influence in any of these cases, but yet I could not say that without its use there would not have been a fatal termination in the cases where it was used. In the fulminating or rapid type of such infections, I believe the serum would have practically no effect, for the toxemia is general and too pronounced for the serum to produce decided results. Where we have a lingering type of infection, such as that in the second case reported by me, we have a better opportunity to use the serum, and to get its beneficial effects, if it has any.

Streptococcic infections assume a different type in different individuals, and for this reason a perfect stock serum has not yet developed. For instance, we have erysipelas and scarlet fever, supposed to be caused by the same organism, yet the great difference in these diseases precludes the use of a universal serum. Perhaps autogenous sera, could they be prepared, would act well in streptococcic infections, as also might one of sufficient polyvalence. These infections and the angina of scarlet fever look like one and the same thing, clinically and bacteriologically, yet it cannot positively be said that they are identical, even though the etiological factor be the same.

In the light of our present therapeutic knowledge, the treatment of these cases after all resolves itself into supportive measures, bracing the patient's vitality in the effort to resist the severe general infection which results from asorption of the toxins from the point of entrance.

Memphis Trust Building.

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THE ABSTRACTION OF THE CALCIUM SALTS OF THE LIPOIDS CIRCULATING IN THE BLOOD FOR THE PURPOSE OF THE NEUTRALIZATION OF THE ORGANIC ACIDS, THE CAUSE OF LIPEMIA IN DIABETES MELLITUS.

By JENNIE G. DRENNAN, M.D., C.M.,
CHICAGO.

Diabetes mellitus is supposed to be a disease in which, owing to a diminution or suppression of the secretion of Langhans cells in the pancreas—an internal secretion—the oxidation of the sugar in the muscles is interfered with and consequently there is an increased amount of sugar in the blood, which is prone to undergo decomposition into organic acids, causing an acidosis. Nature makes an attempt to neutralize these acids and to a marked degree at first is successful; but it is a case of robbing Peter to pay Paul, and in the place of acids in the blood there is fat. I do not think that it is too great a stretch of the imagination to think that at least one source of the neutralizing substance shall be the lipoids circulating in the blood, that from these the calcium is abstracted and combined with the organic acids. If this is the case, then neutral fat will appear in the blood. The theory, that this fat in the blood is due to fatty degeneration of the blood corpuscles, has been advanced and while I see no reason why these cells should not undergo a certain amount of fatty degeneration in common with all other cells, still I am not inclined to think that this is the cause of lipemia, though in this condition in which I think the calcium is used up in neutralizing the organic acids, no doubt this fat formed in these corpuscles remains uncalcified if I may use such a term in connection with the formation of lipoids; but instead of existing in a free state as an emulsion of fat in the blood it would exist as an infiltration of the blood cells just as it does in other tissue cells, when it is not combined with calcium salts to form lipoids—fatty infiltration of liver and kidney cells. According to my theory, this fat in the blood must have once been combined fat—lipoids—in order to have been conveyed to the blood; but I am inclined to thing that the amount of lipoids circulating in the blood is not so great in this disease as is normally the case, for the increased fatty infiltration of such organs as the kidneys and the liver would indicate that the fat found there is not as normally combined with calcium and either stored as lipoids in these organs or carried by the circulation to other regions of the body such as the subcutaneous tissues, which in this disease are poorly supplied with fat, which fact cannot wholly be explained by other theories. In all probability a considerable proportion of the calcium salts is combined with these acids before they have had time to reach such tissues as have undergone a fatty degeneration; then moreover, no doubt a considerable amount of the calcium, which has combined with the fat of the food during the process of digestion, when these lipoids are being carried by the blood stream to the various organs as nutriment, will be abstracted from the lipoids and neutral fat will be present in the blood.

Summary:

1. The lipemia of diabetis mellitus is due to the abstraction of calcium salts from the lipoids circulating in the blood.

2. This abstraction is an attempt on the part of nature to neutralize the organic acid, which result from the imperfect oxidation of the sugar in the body, fat in the blood being the lesser of two evils. Fat embolism may result in the lungs, but may exist quite extensively without causing serious symptoms.

3. The indications in diabetes would be an increased administration of calcium salts, in the one case sufficient to neutralize the acids and to unite with the neutral fat and in the other case sufficient to unite with the neutral fat.

6027 Woodlawn Avenue.

A PRACTICAL METHOD OF ANESTHESIA FOR THE REMOVAL OF ENLARGED TONSILS AND ADENOIDS, AND FOR OTHER OPERATIONS ON THE HEAD.

By M. ERNEST JUTTE, M.D.,
NEW YORK.

Many surgeons have felt the want of a satisfactory method of anesthesia in operations on the head, particularly for those cases where an interrupted narcosis is undesirable or even objectionable. With the ordinary methods of narcosis in operations in the mouth, the mask has to be removed to make room for the surgeon who often finds himself hampered by the untimely awakening of his patient. I should like to call attention to the following simple method of obtaining a continuous anesthesia without interfering materially with the surgeon's manipulations. The apparatus used consists of a wide-mouthed four- or six-ounce bottle with a doubly perforated rubber stopper, which transmits two glass tubes, a long afferent one, reaching close to the bottom of the bottle, and a short efferent one, which just passes through the rubber stopper. The long tube is connected with a double bulb while the short tube is joined by means of rubber connection to a hook-like metal mouthpiece such as is used by dentists, under the name of "Rose's saliva ejector." It is best to initiate narcosis by the drop method with ether or anesthol and to put the patient well under. The metal piece is then hooked around the mouth gag and the vapor, which is generated by forcing air through the anesthetic, is projected into the mouth of the patient. In this manner narcosis can be kept up for a long time and thorough work can be done with the least possible interference with the operator. Instead of the mouthpiece one may use two thin rubber tubes joined by a Y-shaped tube; these are inserted through the nostrils as in Crile's method.

1041 Madison Avenue.

Studies of Diarrhea in Infants.—Elie Metchnikoff has made a study of the causation of diarrheas in infants, by inoculation of rabbits and chimpanzees with the fecal material of an infant sick with cholera infantum. These animals contracted a diarrhea similar to that of the child. In the feces he found that the germ most frequently present was the proteus, which is well tolerated by adults, but causes diarrhea in infants. He believes that it is this organism that causes summer diarrheas. As to how the child becomes infected he shows that the organism is seldom found in milk, and hence sterilization is not of great importance. But it is found on all fruits and vegetables that are exposed to the open air, on cheese, and the upper layer of meats. Flies take a great part in conveying the germs to food. The preventive measures are the washing with boiling water of all fruits and vegetables, and the careful cleansing of the hands before handling food. The destruction of flies and municipal sanitation are important.—*Gazette Médicale de Paris.*

MEDICAL RECORD.

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THE NEXT PHARMACOPEIA.

THE pharmacopeial convention which meets in Washington on next Tuesday will be far more important than any of its predecessors, since its deliberations have now to do with the making of an official standard, and not merely with an advisory work, the prescriptions of which one could regard or not as he pleased. Hitherto the book has been one that had little interest for physicians, many of whom doubtless have never seen a copy of it, and outside of perhaps a dozen or twenty of the most commonly used drugs could not tell what drugs are official and what are not. Now it is different. The passage of the pure food and drug law and the discoveries which preceded and followed the passage of this law have opened the eyes of physicians to the fact that many of the drugs they had prescribed were never taken by their patients or were not taken in the desired dose. They have consequently begun to look up to the hitherto despised or neglected Pharmacopeia as their protector and the protector of their patients, and they are interested in the proceedings of the convention which is to determine upon the changes necessary to make the book worthy of the dignity it has now acquired.

The most important matter to be decided is that of the drugs to be included in the new edition. This matter is one in which the medical members of the revision committee will naturally have the strongest voice, yet there may be danger in yielding to their wishes entirely. It is well known that certain members of the profession are anxious to exclude from the Pharmacopeia some drugs which they regard as useless or superfluous and which are lagely used by the laity without the physicians' prescription. They seem to think that if these drugs are excluded they will no longer be prescribed. They forget apparently that scores of non-official drugs are in constant use and that a physician who thinks acetanilid, for example, is a useful drug will prescribe it after it is excluded from the Pharmacopeia just as he did before it was admitted. The only effect of excluding it will be to remove the safeguard of a standard of purity; then, no longer trusting the average retail pharmacist, or rather doubting his ability to procure a pure drug, the user of acetanilid will be led to prescribe some proprietary form of it made by a trustworthy manufacturer, and the patient will get hold of the proprietary name and prescribe for himself in the future. Thus will the would-be purifiers of the Pharmacopeia and regulators of therapeutics defeat their own object. If the Coudray Bill, now we believe in the House Committee on Inter-State and Foreign Commerce, passes the committee and the Congress, it will matter less what the committee on revision of the Pharmacopeia decides to do, but if the Pharmacopeia is to remain the only standard, the aim of the revision committee should be, not to reduce the number of official drugs, but to include all that are in common or more than semi-occasional use. There cannot be too many drugs in the Pharmacopeia if this is to be the only standard for the crude drugs and their alkaloids. Nor can the revisers of the Pharmacopeia hope that physicians will consult it or respect its authority if it deliberately excludes a large number of the drugs which they use. It has been foolishly put forth that the Pharmacopeia is a privately owned work and is under no obligation to provide standards of purity for the U. S. Government. If that is the stand which the owners of the Pharmacopeia are going to take, then the framers of the Pure Food Law will have made a great mistake, and the sooner the Coudray Bill, providing that the Department of Agriculture shall fix a standard for all drugs not contained in the Pharmacopeia, is passed, the better for the science of therapeutics and for the health and safety of the community.

ORAL HYGIENE.

IN every civilized country of the world, it is now recognized that the care of the mouth and teeth is a very important factor of public health. In uncivilized countries teeth are good and to pay attention to oral hygiene would be a superfluous act, for sad to relate it is only in civilized lands that the reverse is the case, and the more highly civilized a country is the more frequently will the need of prophylaxis of the mouth be emphasized. All the leading nations of Europe have instituted measures for the care of the mouth and teeth, and the subject of oral hygiene is receiving attention in the elementary schools of European countries.

According to Public Health Reports, April 8, a national campaign on oral hygiene is to be undertaken in this country. In fact, such a campaign was opened in Cleveland, Ohio, on March 10, at which meeting, at the instance of President Taft, Passed Assistant Surgeon C. W. Wille of the Public Health and Marine Hospital Service was present in a representative capacity. Dr. Wille explained what the objects and methods of the campaign were and pointed out that the State of Massachusetts was causing to be delivered popular lectures on dental hygiene and prophylaxis in some of the public schools. The City of New York maintains clinics for the care of the teeth of the children of the indigent poor, and the city of Rochester maintains one clinic, while some of the cities of New

Jersey, Indiana, Illinois, Mississippi, Iowa, Minnesota, Georgia, and Washington have instituted dental examinations. Cleveland has shown herself particularly enthusiastic in the subject of oral hygiene and has instituted a system of school inspection, methods for treating teeth of poor children, and of instructing parents, teachers, and scholars by means of practical and illustrated talks in matters pertaining to dental hygiene. The plans pursued in Cleveland have been attended with a considerable amount of success, and under the auspices of the national association it is intended to follow a similar course in carrying this campaign into the various cities and States of the Union. The purpose of the campaign is to bring the importance of this subject fully and frankly before parents, educators, social workers, and philanthropists to invite the public to an open discussion on oral hygiene and to determine how best to further the popular movement for the better care of the mouth and teeth. New York City is not behind in this good work, and much is to be hoped for in the way of popular education from the Dental Hygiene Conference and Exhibit which will begin on Thursday of next week. The exhibit will bring home to all who see it the necessity and advantage of caring for the mouth, and this will be emphasized in the evening conferences.

There is little doubt that good health is largely dependent upon the state of the mouth. In cases in which the mouth is in a foul condition, intestinal disturbance is sure to exist. The stomach acts on the mouth and the mouth reacts on the stomach, and it may be definitely stated that a person whose mouth and teeth are in a bad condition will suffer from disorders of the digestion. Therefore, it is a question of public concern of much moment that the teeth of the rising generation should be in good order, and for this reason among others the national campaign on oral hygiene is to be highly commended.

The Dangers of Paper Currency.

Paper money, as an avenue by which disease can be transmitted, has been an object of suspicion for some time. Indeed, this particular form of exchange has been shown, more or less conclusively, to be under favoring conditions an actual menace to the health of the community. Hilditch of the Sheffield Laboratory of Bacteriology and Hygiene, Yale University, and Park of the Research Laboratory of the Board of Health of New York have demonstrated that dirty paper money is "similar to other paper and rags and capable of carrying living tubercle and diphtheria bacilli for some days or longer." Hilditch, however, does not regard the danger as very great. He obtained twenty-four bills, the very dirtiest he was able to procure, and subjected them to a minute examination, the outcome being that he found the average number of bacteria in each of twenty-one bills to be 142,000, while by far the most common forms were the varieties of the pyogenic staphylococci. Further, it was established by subsequent experiments that these organisms were not in possession of their full virulences. The publication of these results was apt to create a feeling of confidence in the comparative harmlessness of the dirtiest paper money, or, at least, to seem to demonstrate that as sources for spreading infection such was not greatly to be feared. In a recent issue of the *Popular Science Monthly*, A. Cressy Morrison writes to point out that the menace of paper money must not be wholly judged from the virulence or the nature of the germs discovered. He pertinently draws attention to the fact that the infection of drinking water with the germs of typhoid fever should not be estimated from the number of the *Bacilli typhosi* found, for if that were the case water would be seldom condemned, and those bacilli are seldom discovered. In brief, Morrison contends, and it appears contends with justice, that it is not so much the question of the virulence or even of the nature of the organisms found on paper money, but that experiments have established that money is a medium of bacterial communication from one individual to another. In order, therefore, to elucidate the matter, paper money known to have been exposed to contamination by highly infectious organisms should be examined by scientific experts. It has been ascertained that money can be infected by handling, it has also been shown that the germs of diphtheria and tuberculosis may live on infected bills for several days. Morrison says: "It seems but a step, then, to the final demonstration of the actual transmission of these and similar diseases by money in circulation and to the prevention of such spread of disease by the proper measures to eradicate such possibilities." There is little doubt that disease is spread in ways that we know not, even in these times of advanced research. If paper money does spread disease, though but to an extremely small extent, this is reason sufficient to insist upon the more rapid withdrawal from circulation of soiled bills and the issuing of new and clean notes. The results of more minute and exhaustive investigations into the question of infected paper money as a means of spreading disease should be interesting and valuable.

New York State Department of Health.

The annual report of the New York State Department of Health naturally contains matter of much interest to medical men. The pollution of streams, rivers, and lakes in the State is, of course, pointedly referred to, and the need for the adequate protection of our public water supplies is dwelt upon earnestly. Progress is to be noted in sanitary education, both in the public schools and in the colleges and universities of New York State. The department has interested itself greatly in popular educational work for the prevention of tuberculosis and with success. After alluding to the fact that rabies in man is increasing in this country, the report goes on to state that "investigations and developments in the therapy of rabies have progressed so far in recent years that the department is now in a position to provide a suitable therapeutic substance for treatment of all cases occurring within the State that may require the department's aid." In New York City diphtheria has been somewhat prevalent. During the past year more than sixteen thousand cases of the disease were reported with a death rate of thirty-eight per 100,000 population. In the rural districts the cases were much fewer, and the death rate was less than ten per 100,000 population, all of which goes to show that

diphtheria is a disease of large cities. Reference is made in the report to the menace of diphtheria carriers. There have been in recent years several extensive outbreaks of acute anterior poliomyelitis in the State, in the autumn of last year a rather alarming outbreak of the disease occurred in the vicinity of Gouverneur. It is pointed out in the report that there is reason to place acute anterior poliomyelitis among communicable diseases, since there is certain evidence that it may be transmitted from one person to another, and that it prevails in the form of local epidemics. The division of publicity and education of the department has done very useful work. The Monthly Bulletin has had a large circulation and has undoubtedly exercised a favorable educational influence. Numerous circulars have also been issued and have been in constant demand. These are a very valuable means for disseminating throughout the community information concerning the more common of the communicable diseases.

Tuberculous Articular Rheumatism.

During the present generation the understanding of the word rheumatism has undergone a great change. From a general class comprising practically all painful conditions in muscles and joints, the various forms of arthritis have gradually been split off until we now recognize under the term rheumatism an acute infectious disease, possibly of bacterial origin, one symptom of which is an arthritis amenable with a definite specificity to sufficiently large doses of salicylic acid or its salts. Among those forms of acute arthritis which have been separated from rheumatism there is still considerable confusion. Gonorrheal arthritis has become well established, and the infectious arthritides, meningococcus arthritis, septic and toxic arthrides, and many others are constantly coming in for more and more attention. In the *Berliner klinische Wochenschrift for* March 14, 1910, E. Melchior calls attention to the rôle which he believes may be played by the tubercle bacillus in the production of an acute serous polyarthritis. His paper is of value especially from an historical standpoint, as he cites cases reported by various writers of instances in which joints have become acutely inflamed in association with either general miliary tuberculosis or a local tuberculous lesion in other parts of the body, these sometimes clearing up entirely and in other instances one joint remaining infected, suppurating, and showing the typical picture of a tuberculous joint. The case which the author reports is that of a young woman who, following an extensive tuberculous disease of the jaw bone, developed a polyarthritis. The final diagnosis of the nature of the disease was made by the finding in the patient's blood of the tubercle bacilli. Such a means of diagnosing the condition as a tuberculous articular rheumatism, in the light of the skepticism at present prevalent upon the question of tuberculous bacteremia and especially in the presence of other foci of tuberculosis, greatly vitiates the value of the author's paper, and especially the authenticity of his particular case. In his historical review, however, he has referred to a sufficient number of more scientifically proven cases, at least very strongly to suggest that the tubercle bacillus may cause an acute transient serous polyarthritis, just as it is well known it may produce serous pleuritis or peritonitis.

News of the Week.

Physicians in Command of the Army.—With the assumption by General Leonard Wood of the office of Chief of Staff of the U. S. Army and the advancement of Major-General F. C. Ainsworth to become ranking Major-General, the two highest positions in the army are held by physicians who entered the line from the medical service. General Wood was graduated from the Harvard Medical School in 1884 and immediately entered the medical corps of the army. At the outbreak of the Spanish-American War he became colonel of the Rough Riders, and in 1908 was promoted by Mr. Roosevelt to be Major-General. General Ainsworth was graduated from the medical department of the New York University in 1874, and also immediately entered the medical corps of the army as assistant surgeon. In 1892 he was made Colonel and Chief of the Record and Pension Office of the War Department. From that time on his advance has been rapid. He was made a Brigadier-General in 1899, and in 1904 was made a Major-General and Military Secretary of the Army.

The New York State Department of Health announces a public health laboratory course to be given at the State Hygienic Laboratory in Albany May 9-14, open to the Health Officers of the State, free of cost. The course will include lectures and practical laboratory work upon various subjects connected with public hygiene, including bacteriology and chemistry of water analysis. The department also announces that the quarantine station in New York Harbor will be open to any health officer of the State during the coming summer. The visiting health officers, who will be supplied with quarters and sustenance, will be allowed to take an active part in all of the work of the station.

Deaths from Street Accidents.—According to the report of the National Highways Protective Society, the mortality from street accidents to children in New York for April was the highest on record. During the month 5 persons were killed by electric cars, 9 by automobiles, 3 by wagons, and 1 by a runaway horse. Thirteen of these 18 persons killed were children under 16 years of age. Nine were killed in Manhattan, 5 in Brooklyn, 2 on Staten Island, and 2 in the Bronx. None was killed in Queens.

Examination for the Indian Service.—The United States Civil Service Commission announces an examination on June 1, 1910, to secure eligibles from which to make certification to fill a vacancy in the position of physician, $1,000 per annum and quarters, in the Indian Service, Pine Ridge Agency, South Dakota, and other vacancies requiring similar qualifications as they may occur in any branch of the service. The age limit is 20 to 40 years, on the date of the examination. Applicants should apply for a copy of the Manual of Examinations and the proper application forms to the United States Civil Service Commission, Washington, D. C.

Examination for Medical Internes in the Government Hospital for the Insane.—The United States Civil Service Commission announces an examination on June 15, 1910, to secure eligibles to fill at least two vacancies in the position of medical interne (male), Government Hospital for the Insane, Washington, D. C., at $600 per annum each, with maintenance. Applicants must not have been graduated more than two years prior to the date

of the examination unless they have been continuously engaged in hospital, laboratory, or research work along the lines of neurology or psychiatry since graduation, which fact must be specifically shown in the application. Both men and women will be admitted to this examination. The age limit is 20 years or over on the date of the examination. Applicants should at once apply to the United States Civil Service Commission, Washington, D. C., for application Form 1312.

A Hearing on the Department of Public Health.—Nearly one hundred representatives of insurance, public health, educational, and medical societies appeared before the Senate Committee on Public Health and National Quarantine April 29 in support of the bill by Senator Owen of Oklahoma creating a Federal health department. Among the speakers were Drs. William H. Welch of Baltimore and Dr. George Y. Porter, Health Officer of the State of Florida.

The Educational Alliance in East Broadway in New York had a mass meeting recently at which the inhabitants of the East Side were urged to leave that overcrowded district and move to the open boroughs. Especial attention was called to the prevalence of tuberculosis in this district and the difficulty of cure and liability to relapse of those living under such conditions.

Auscultation by Telephone.—A dispatch from London describes an experiment with an apparatus which when attached to a telephone enabled physicians in the Isle of Wight to hear the heart sounds of a woman in London one hundred miles away.

Bulletin on Drug Habits.—Farmers' Bulletin No. 393, which has recently been issued by the U. S. Department of Agriculture, deals with the dispensation of the habit-forming drugs, especially as sold in soothing syrups, asthma cures, and other proprietary medicines advertised as harmless. Photographs of the original packages of some of the more dangerous of these drugs are included in the report, which is said to be the first of a series to be published on this subject by the Department of Agriculture.

The Saturday and Sunday Fund for the year 1909 was apportioned among the various charity hospitals of New York City at a meeting held in Mayor Gaynor's office recently. The total amount of the fund for the year is $76,000. The largest sums, which are apportioned according to the amount of free work done at each hospital, were given to the Montefiore Home, and Mount Sinai Hospital, which received $7,600 and $7,551, respectively.

The Dental Hygiene Council of New York, with the cooperation of the Children's Aid Society, the Association for Improving the Condition of the Poor, and the Charity Organization Society, will hold a Dental Hygiene Conference and Exhibit in the Metropolitan Life Building, May 12 to 18, for the purpose of emphasizing the importance of better care of the mouth and teeth. The exhibit will be open day and evening, including Sunday, May 15. Conferences will be held each evening of the week except Sunday.

The Johns Hopkins Medical School Alumni held their first reunion during the two days commencing May 6, at Baltimore, Md. The reunion included clinics and demonstrations, an alumni banquet, and class meetings, at which permanent organizations were formed.

The Samuel D. Gross Prize of the Philadelphia Academy of Surgery for 1910, amounting to $1,500, has been awarded to Astley Paston Cooper Ashhurst, M.D., of Philadelphia, for an essay entitled, "An Anatomical and Surgical Study of Fractures of the Lower End of the Humerus."

The Mount Sinai Hospital.—The following changes and new appointments have been made in the staff of Mount Sinai Hospital: Dr. Herbert L. Celler, Assistant Adjunct Visiting Physician; Dr. Reuben Ottenberg, Assistant in Clinical Microscopy; Dr. Israel Strauss, Assistant Adjunct Visiting Neurologist; Dr. Harold Neuhof, Adjunct Admitting Physician; Dr. Julian J. Meyer, Assistant Adjunct Admitting Physician. The George Blumenthal, Jr., Fellowship for 1910 has been awarded to Dr. A. A. Epstein, Assistant in the Department of Physiological Chemistry.

The Boston University School of Medicine.—The annual "Clinical Week" exercises of the Boston University School of Medicine will be held at the school buildings during the week of May 30 to June 4. These consist of thirty-six clinics, clinical lectures, demonstrations, and lectures covering in a brief form the various departments of the medical sciences. The school has also established a formal series of post-graduate courses to extend throughout a part of the summer.

The Wayne County Medical Society is at present negotiating for the purchase of a house in Detroit, which may become the permanent home of the society.

Washington University, according to a dispatch from St. Louis, has recently received an endowment fund of $6,000,000.

The University of Oklahoma has completed its consolidation with the Epworth College of Medicine. Hereafter the first two years of the course will be held at Norman and the last two years in Oklahoma City. Dr. Charles Sharp Bobo of Norman, the professor of forensic medicine, will be the dean of the medical faculty, and Board of Control of the Oklahoma City branch will consist of Dr. Archa Kelly West, formerly dean of the Epworth College of Medicine; Dr. A. L. Blesh, and Dr. R. M. Howard.

Bill for Letchworth Village Signed.—Governer Hughes has signed the bill of Assemblyman Merritt appropriating $179,000 for the beginning of construction of Letchworth Village, the new State institution at Thiells for the care of epileptics and idiots. $65,000 of the appropriation to be available immediately and the remainder on October 1 next.

The Central Maine Association for the Relief and Control of Tuberculosis was organized at a meeting held at Waterville, Maine, April 21, 1910.

Monument to Dr. Long.—The monument erected by the Georgia Medical Society at Jefferson, Ga., in honor of Dr. Crawford W. Long and his pioneer work with ether anesthesia, was unveiled on April 21, 1910.

A Dinner to Dr. Marx.—A testimonial dinner was tendered to Dr. Simon Marx at the Hotel Savoy, in New York, on April 29, by professional friends. A gold plaque was presented to Dr. Marx in honor of the occasion.

General Nelson H. Henry, who has recently been appointed Surveyor of the Port of New York by President Taft, is a graduate of the College of Physicians and Surgeons of Columbia University

in 1879, and for many years practised medicine in New York City. General Henry has been a member of the National Guard since 1883, served as a member of the medical corps at Camp Black and Tampa during the Spanish War, and at present is Adjutant-General of the National Guard of New York.

Dr. Thomas E. Satterthwaite of New York was the guest of honor of the Washington Medical and Surgical Society at their annual dinner on May 4. The subject of his address was "Some Newer Conceptions of Myocardial Disease."

Dr. W. J. Brown of Boston has resigned his position in charge of the south department of the Boston City Hospital.

American Dermatological Association.—At the meeting of this Association, held at the Arlington Hotel, Washington, D. C., May 3, 4, and 5, 1910, the following officers were elected for the ensuing year: *President,* Dr. Douglass W. Montgomery of San Francisco; *Vice-President,* Dr. Martin F. Engman of St. Louis; *Secretary and Treasurer,* Dr. James M. Winfield of Brooklyn; *Councillor-at-Large,* Dr. Charles J. White of Boston. Boston, Mass., was decided on as the next place of meeting.

The New Hampshire Medical Society will hold its 119th annual meeting at Memorial Hall, 21 Center street, Concord, May 12 and 13, 1910. The president of the society is Dr. Frank Blaisdell, and the secretary is Dr. D. E. Sullivan of Concord.

The Hampden District (Mass.) Medical Society held its annual meeting at Springfield April 19, 1910. Officers were elected as follows: *President,* Dr. H. W. Van Allen; *Vice-President,* Dr. R. H. Seelye; *Secretary and Treasurer,* Dr. P. M. Cort.

The Hempstead County (Ark.) Medical Society met at Hope, April 13, 1910, and elected the following officers: *President,* Dr. T. J. Garner; *Vice-President,* Dr. J. L. Kelly.

The Rock Island County (Ia.) Medical Society, at its annual meeting held at Davenport April 12, elected the following officers: *President,* Dr. H. S. Bennett of Moline; *Vice-Presidents,* Dr. W. L. Eddy of Milan, and Dr. J. E. Asay of Rock Island; *Secretary,* Dr. Albert N. Mueller of Rock Island; *Treasurer,* Dr. A. T. Leipold of Moline.

The Tolland County (Mass.) Medical Society, at a meeting held at Rockville April 19, elected the following officers: *President,* Dr. Cyrus E. Pendleton of Hebron; *Vice-President,* Dr. Francis M. Dickinson of Rockville; *Secretary and Treasurer,* Dr. E. P. Flint of Rockville; *Councilor,* Dr. T. F. Rockwell of Rockville.

The Washington County (Ia.) Medical Society held its thirty-seventh semi-annual meeting at Washington, Ia., April 12, and elected the following officers: *President,* Dr. J. H. Hull; *Secretary and Treasurer,* Dr. W. H. McLaughlin; *Censors,* Drs. George W. Hay and George W. Dash.

The Brockton (Mass.) Medical Society held its annual meeting April 14 and elected the following officers: *President,* Dr. E. C. Frost; *Vice-President,* Dr. Harry A. Chase; *Secretary,* Dr. R. A. Elliot; *Treasurer,* Dr. E. E. Goodwin.

The Davidson County (Tenn.) Medical Society held its annual meeting at Nashville, April 5. The following officers were elected: *President,* Dr. J. M. King; *Vice-President,* Dr. Robert Caldwell; *Secretary and Treasurer,* Dr. W. C. Dickson.

The Rock Springs (Wyo.) Medical Association was organized recently with the following officers: *President,* Dr. E. S. Murray; *Secretary,* Dr. J. A. Edwards; *Treasurer,* Dr. E. S. Lauzer.

The Tennessee State Medical Association held its annual meeting in Memphis and elected the following officers: *President,* Dr. John A. Witherspoon of Nashville; *Vice-Presidents,* Dr. J. J. Faller of Olive Springs, Dr. Richard A. Barr of Nashville, and Dr. J. H. E. Rosamond of Memphis; *Secretary,* Dr. George W. Price of Nashville; *Treasurer,* Dr. W. C. Bilbro of Murfreesboro; *Board of Trustees,* Dr. W. C. Bilbro of Murfreesboro, Dr. B. D. Bosworth of Knoxville, and Dr. E. C. Ellett of Memphis.

The Springfield (Mass.) Academy of Medicine held its annual meeting on April 12 and elected the following officers: *President,* Dr. O. W. Roberts; *Vice-Presidents,* Dr. F. W. Chapin and Dr. Philip Kilroy; *Treasurer,* Dr. H. C. Martin; *Director,* Dr. Flood of Monson; *Censor,* Dr. Lawton Brooks.

The Brazoria County (Texas) Medical Society was organized in Angleton, April 15. Dr. S. B. Maxey was elected president.

The Belknap County (N. H.) Medical Society held its annual meeting at Laconia, April 11, 1910. The officers chosen for the ensuing year were as follows: *President,* Dr. Frank A. Easton; *Vice-President,* Dr. W. H. True; *Secretary and Treasurer,* Dr. A. H. Harriman; *Censors,* Dr. G. H. Saltmarsh, Dr. J. G. Quimby, and Dr. J. C. Huckins.

The Craighead County (Ark.) Medical Society was reorganized at a meeting held at Jonesboro, April 20. The following officers were elected: *President,* Dr. W. W. Jackson; *Vice-President,* Dr. D. A. Pelton; *Secretary,* Dr. C. M. Lutterloh; *Treasurer,* Dr. J. T. Altman; *Librarian,* Dr. H. A. Stroud.

The Chicot County (Ark.) Medical Society held its annual meeting at Eudora, April 19, and elected the following officers: *President,* Dr. E. Baker; *Vice-President,* Dr. S. A. Scott; *Secretary and Treasurer,* Dr. Paul E. Johnson.

The McNairy County (Tenn.) Medical Society was organized at a meeting held at Selmer, April 21. The following officers were elected: *President,* Dr. W. H. Hodges of McNairy; *Vice-President,* Dr. J. S. Smith of Selmer; *Secretary,* Dr. W. T. Bell of Selmer; *Treasurer,* Dr. J. R. Smith of Selmer.

The Northampton County (Va.) Medical Society held a meeting in Cape Charles, April 16, and elected the following officers: *President,* Dr. E. W. P. Downing of Franktown; *Vice-President,* Dr. B. H. Gilmer of Townsend; *Secretary,* Dr. Carlisle L. Nottingham of Cape Charles; *Treasurer,* Dr. W. L. Dalby of Bridgetown.

The Plymouth District (Mass.) Medical Society held its annual meeting at Brockton, April 21. The election of officers resulted as follows: *President,* Dr. Wallace C. Keith of Brockton; *Vice-President,* Dr. W. G. Brown of Plymouth; *Secretary and Treasurer,* Dr. Alfred C. Smith of Brockton; *Censors,* Drs. Gilman Osgood of Rockland, Edwin C. Frost, Charles W. Stodder, Arthur L. Beals, and Joseph Frame.

The Windham County (Conn.) Medical Society held its 117th annual meeting at Willimantic, April 21, 1910. The election of officers resulted

as follows: *President,* Dr. G. M. Burroughs of Danielson; *Vice-President,* Dr. J. L. Gardner of Central Village; *Secretary and Treasurer,* Dr. J. H. Egbert of Willimantic; *Councilor,* Dr. J. B. Kent of Putnam; *Censors,* Dr. R. C. Paine of Thompson, Dr. Owen O'Neill of Willimantic, and Dr. C. E. Simonds of Willimantic.

Obituary Notes.—Dr. Herbert Leslie Burrell of Boston, Mass., died at his home April 27, 1910, aged 54 years. He was a graduate of the Harvard Medical School in 1879, and at the time of his death was John Homans Professor of Surgery in Harvard University. During the Spanish-American War Dr. Burrell was chief surgeon of the hospital ship *Bay State,* and he has also been medical director of the First Brigade, M. V. M., and Surgeon General of Massachusetts. In 1907 Dr. Burrell was elected president of the American Medical Association.

Dr. Edson E. Boyd of Ashville, N. Y., died in Erie, Pa., April 19, 1910, aged 78 years. He was a graduate of New York University in 1854 and was a veteran of the Civil War.

Dr. William W. Cole of Allegheny, Pa., died recently at his home, aged 66 years. He was a graduate of the Jefferson Medical College in 1869, and was a member of the Allegheny County Medical Society, and the Medical Society of the State of Pennsylvania. Dr. Cole was a veteran of the Civil War, and at one time physician to the Clifton Springs Sanatorium.

Dr. Calvin M. Fitch of Chicago died April 6 at his country home at Twin Lakes, Wis., aged 81 years. He was a graduate of the New York University Medical College in 1852, and had practised medicine in Chicago since 1856.

Dr. Samuel W. Fletcher of Pepperell, Mass., died at his home on April 12, 1910, aged 77 years. He was a graduate of the Harvard Medical School in 1858. After serving through the Civil War as surgeon in the 32d Massachusetts Regiment Dr. Fletcher settled in Pepperell. He was a member of the Middlesex County Medical Society and the Massachusetts Medical Society.

Dr. John Roberts Haley of Kennebunk, Me., died suddenly at his home, April 21, 1910, aged 53 years. He was a graduate of the Medical School of Maine in 1884.

Dr. Thomas Holmes Kenan of Atlanta, Ga., died on Sunday, April 11, 1910, aged 74 years. He was a graduate of the College of Physicians and Surgeons of Columbia University in 1868, and a surgeon in the Confederate Army. At one time Dr. Kenan was in charge of the State insane asylum at Millidgeville.

Dr. John Nolan of Nichols, Ia., died at his home recently, aged 38 years. He was a graduate of the State University of Iowa and of the St. Louis College of Psysicians and Surgeons in 1895.

Dr. G. C. Purdue of Wichita, Kansas, died April 12, 1910, in New York. He was a graduate of the Northwestern Medical College in 1900, and was a member of the Sedgwick County Medical Society, the Kansas Medical Society, and the American Medical Association.

Dr. Andrew F. Reed of Arlington, Mass., died April 16, aged 61 years. He was a graduate of Dartmouth College in 1871 and of the Harvard Medical School in 1875. He was a member of the Arlington School Board.

Dr. Bigelow T. Sanborn of Augusta, Me., died on April 18, 1910, aged 71 years. He was a graduate of the Medical School of Maine in 1866, since which time he has been connected with the Maine Insane Hospital, of which he has been superintendent since 1883. He was a member of the Kennebec County Medical Society and the Maine Medical Association.

Dr. W. A. Tichenor of Chicago died suddenly in that city April 8, 1910, aged 43 years. He was a graduate of Washington University in St. Louis, and was at one time connected with the State Insane Asylum at Fulton, Mo.

Dr. William M. Miller of McAlevy's Fort, Pa., died on April 22 at the age of 47 years. He was graduated from Jefferson Medical College in the class of 1889. He was a member of the Huntingdon County Medical Society and the Medical Society of the State of Pennsylvania.

Dr. Newton S. Bell of Windsor, Conn., died at his home, April 11, 1910, aged 70 years. He was a graduate of the University of Vermont in 1864 and for over 20 years was health officer of Windsor. Dr. Bell was a member of the Hartford County Medical Society, the Connecticut State Medical Association, and the American Medical Association.

Dr. George F. J. King of Providence, R. I., died April 12, 1910, aged 43 years. He was a graduate of Brown University and of the Medical Department of the University of Pennsylvania in 1898. Dr. King was a member of the Providence District Medical Society, the Rhode Island Medical Society, and the American Medical Association.

Dr. Albert L. Brands of Prairie du Rocher, Ill., died suddenly on April 20, 1910, aged 54 years. He was a graduate of the Missouri Medical College and formerly a State Senator.

Dr. Thomas B. Camden of Parkersburg, W. Va., died at his home April 17, 1910, aged 80 years. Dr. Camden was a graduate of the Jefferson Medical College in 1854. After serving as Superintendent of the Western State Hospital for ten years from 1871, he settled in Wheeling, but soon moved to Parkersburg.

Dr. Havilla C. Hobbs of Salem, Ind., died at his home April 18. He was a graduate of the Eclectic Medical Institute of Cincinnati, and was a member of the Washington County Medical Society, the Indiana State Medical Association, and the American Medical Association.

Dr. Michael H. Lynch of Chicopee, Mass., died at his home, April 16, 1910, aged 52 years. He was a graduate of the University of Vermont in 1882. He was at one time well known as an athlete, having held a championship as a runner.

Dr. Haven Palmer of Plymouth, N. H., died at his home recently, aged 66 years. He was a graduate of the medical department of Bowdoin College in 1871. He was a member of the Grafton County Medical Society, the New Hampshire Medical Society, and the American Medical Association, and at the time of his death was president of the Winnepesaukee Medical Association.

Dr. George T. Twyman of Kansas City, Mo., died April 18, 1910. He was a graduate of the Louisville Medical College in 1879 and was a member of the Jackson County Medical Society, the Missouri State Medical Society, and the American Medical Association.

Dr. James S. O'Brien of Milwaukee, Wis., died April 24, 1910, aged 51 years. He was a graduate of the Rush Medical College in 1885.

Correspondence.

LIVER EXTRACT MEDICATION.

To the Editor of the Medical Record:

Sir:—In an article published in the Medical Record, April 3, 1909, I discussed, upon purely theoretical grounds, the use of liver extract in the treatment of chronic gastro-intestinal autointoxications. Since then I have persuaded the firm of Parke, Davis & Co. to prepare some of this substance and they have placed at my disposal a generous supply. In the cases in which I have used it, the results have been satisfactory, but they are too few in number to warrant definite conclusions. Doses far in excess of the needs of the case were never attended by even the slightest unpleasant symptoms. To any physician desirous of trying the liver extract in a case I will gladly send a share of my supply on the receipt of the history of his case.

O. L. Mulot, M.D.

424 Halsey St., Brooklyn, N. Y.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

R. C. S. PRIZES—REPORT ON ANESTHETICS—LUMLEIAN NOTES CONCLUDED—TREATMENT BY RADIUM—SURGICAL POINTS IN APPENDIX CASES—TUBERCULOSIS EXHIBITIONS—CEREBROSPINAL MENINGITIS—TETANUS SERUM—OBITUARY.

London, April 15, 1910.

You will be interested to hear that at the meeting of the Council of the Royal College of Surgeons yesterday the honorary gold medal of the college was awarded to Dr. Robert Fletcher in recognition of his labors in connection with the *Index Medicus* and the Index Catalogue of the Library of the Surgeon-General's Office, Washington, U. S. A. Dr. Fletcher is a member of the college of the date 1844. He practised here for a time and then left for your side, where he became associated with Dr. Billings, and they projected the Index Catalogue, which the Council pronounce "the most monumental bibliographical work of modern times." Jointly, too, they edited the *Index Medicus*. These facts I would not mention to you only it is in connection with them that the award has been made.

At the same meeting the Jacksonian prize for 1909 was awarded to Mr. William Girling Ball, F.R.C.S., for a dissertation on the treatment of surgical affections by vaccines and antitoxins. The Triennial prize was not awarded. The subject for the next triennial was announced as "The Anatomy and Physiology of the Pituitary Body and the Relationship with Disease of Its Abnormal and Morbid Conditions." The subject of the Jacksonian prize for 1911 will be "Diseases of the Pancreas, with Special Reference to Their Surgical Treatment."

Communications were received from the Privy Council respecting the international conference on cancer research to be held in Paris in October and the International Congress of Medical Electrology and Radiology at Barcelona in September next.

It was determined to publish an illustrated guide to the Hunterian Museum.

The report of the Departmental Committee on the administration of anesthetics was issued on Saturday, and if its recommendations become laws a great reform will be accomplished. At present anyone without any qualification for so serious an action may produce anesthesia by the most potent agents. The committee declare that this state of affairs constitutes a serious menace to the public. They say there is an increasing number of deaths under anesthetics and in the opinion of experts a certain number of them are due to preventable causes. They advise a small standing committee being appointed under the authority of the Home Office. They lay down that no general anesthetic should be administered except by a registered medical or dental practitioner; that dentists should be confined to the use of nitrous oxide and not employ general respirable anesthetics of longer duration; that instruction in the administration of anesthetics should be an essential part of the medical curriculum and such instruction in the use of nitrous oxide an essential part of the dental curriculum. Further, with regard to dentists, it is urged that in no case should the operator administer the gas, but if a medical man be not employed a dental practitioner should be called in for the purpose.

Other recommendations are that every death be reported to the coroner, who should determine whether an inquest should be held. In every case of death under an anesthetic, whether due to it or not, the medical certificate should specify the fact. In the case of death in a hospital or public institution there should be a scientific investigation into the actual cause conducted by the authorities of the institution. Intraspinal anesthesia should be practised only by registered medical practitioners.

"It takes courage to make a diagnosis," said Professor Osler in his Lumleian lectures, and having further remarked that fullness of knowledge and the faculty of looking all round a question may be tempered with doubt, he added another of his characteristic expressions: "A cocksure diagnosis and a positive prognosis may express the assurance of ignorance." In any case of angina pectoris, he said, the first step is to get a clear idea of its nature, and he asked three questions: Is it syphilitic mesoaortitis? Are the arteries involved in a general or local sclerosis? Is it a functional condition without arterial lesion? With regard to the first he showed from his experience the difficulty of deciding and the necessity of never forgetting the possibility of such an explanation. In one case when this condition became recognized after being long unsuspected, the transformation in a month was marvelous. He had not previously thought of a possibility of recovery. As to the real cause of sclerotic cases the lecturer said all agree with Walshe, that the "cardinal fact in the prognosis is uncertainty." The important elements are the individual history, the character of the attacks, and the vascular condition. Much depends on the patient, the life he has led and is willing to lead. He must not burn the candle at both ends. "We doctors are notorious sinners in this respect." It is hard to lessen work when in full swing, harder to give it up entirely. "A severe attack of angina may save a man's life." Long intervals of good health and freedom from attacks may follow the adoption of reasonable habits.

As to functional or faulse angina, Dr. Osler said he had more frequently mistaken the organic form for it than *vice versa*. It is pleasant to hear great authorities describe their errors and the lecturer is always ready to do so in order to extract from them useful lessons. Two of his worst mistakes, he told us, were in cases of medical men, but for their sakes he said he did not regret it, as they both derived great comfort from the opinion that they had not angina. Of another case he read his notes, concluding in favor of a neurotic state, and added: "I was wrong; three years subsequently he died in an attack." Yet another improved so much that he, with the other attendants, congratulated themselves on correct diagnosis and treatment—but the patient "dropped dead at the telephone." The neurotic cases formed two groups, distinguished by the prominence of the vasoconstrictor or vasodilator symptoms. Some cases were toxic (tea, coffee, tobacco), and with the increase of cigarette smoking more may be met with. The lecturer had known three robust men, very heavy smokers, to die as with typical angina. As to treatment, generally he felt some satisfaction for angina: terrible in some aspects, it has circumstances in its favor. It kills late; it kills quickly. We can lessen the sufferings of its victims and cure a certain number. "When a man gets specific aortitis it means he has not had efficient treatment." Mercury and iodide can control the lesion in the arterial wall. The spirochetes are seen in large numbers in the aortic wall, in which they have excited diffuse granulomatous mesoaortitis with destruction of muscle and elastic fibers. The difficulty is its insidiousness, giving no warning. Iodide will clear up the exudate faster than mercury: it will also almost invariably relieve pain. This is its use in aneurysm, too, as good as morphia in the early stage, relieving pain by clearing the exudate in the media and adventitia, and so relieving the pressure on the nerves. In neurotic cases modified Weir-Mitchell cure with hydrotherapy, the wet-pack for vascular ataxia, counterirritation over the heart, etc. In extreme vasomotor ataxia, ergotin. In the severest types of angina all use amyl nitrite to loosen spasm and so relieve pain due to tension. It does not arrest other pain, is not an analgesic, and we often must use morphine to relieve the atrocious pain, or, in despair, chloroform. The first time he gave the last, Dr. Osler said, was with fear and trembling, but he has often used it since without any ill effect. "Theoretically the practise is a bad one," but in his hands and those of the late George Balfour there were no ill effects. For the gen-

eral condition in arterial lesions iodide can be continued for months with intervals. Marchiafava has had great experience and reports well of theobromine, 20 to 30 grains a day. In a middle-aged man who has had an attack it is usually a question of high tension and commencing sclerosis. Drugs have little influence. The habits are the important point. "I usually give two prescriptions—'go slowly' and 'eat less'—on which I find a great many patients put about the same value as did Naaman on the prescription of Elisha."

Some cases treated with radium were shown in the clinical section of the Royal. One was of sarcoma of the ear in a boy of eight. An aural polyp removed last May recurred and was again removed in August. On examination it proved to be sarcoma and Coley's fluid was tried, under which it disappeared but later came back. Radium was then used, with marked improvement, which has continued.

Another case was a growth in the neck in a man of thirty, observed in April last year. It seemed inoperable and grew rapidly. Radium was begun in July, internally and externally, by Drs. Finzi and William Hill. Great local improvement took place, but secondary enlargement in the mediastinal glands occurred. It was described as endothelial. The exhibitors held that it proved the possibility of large and deep malignant growths yielding to radium, but the treatment must be thorough, more so than had been so far the case.

Drs. Finzi and Hill showed also a man of sixty-two with a growth constricting the esophagus in the upper thoracic region. This case they considered an endothelial sarcoma and said that under radium the stricture had become more freely passable.

Mr. Charters Symonds showed again the patient he had shown last December with rodent ulcer and the improvement under radium which had gone on. A bit from the margin showed slight epithelial changes, as in former sections, and considerable small-celled infiltration.

Mr. Lyster said in his trials of radium during eight years he had never seen it influence deep-seated malignant growths. In superficial growths and ulceration it was satisfactory. Rodent ulcer would apparently heal, but it always recurred in his experience. Cancer deeper than about three-fourths of an inch he thought was not affected.

Dr. Lazarus Barlow remarked that all the cases except the rodent ulcer belonged to the indeterminate class, and no one could distinguish those which were malignant from the benign. There was only slight difference between the effects of radium and *x*-rays, and some workers with the latter had developed cancer, a fact suggesting caution to those who thought they were treating cancer.

Mr. Eve recalled a case in which a tumor had entirely disappeared under *x*-ray treatment, and Dr. Herringham referred to one in which a tumor had disappeared and afterward reappeared under the rays.

Dr. Hill, in reply, said he had had seven cases of esophageal growths in which operation had been obviated by radium. He did not say they were cured, but the dysphagia was relieved in them all. The application in the esophagus was practically superficial.

Dr. Finzi also replied, mentioning cases in which definitely malignant growths had disappeared.

Many points in reference to the appendix continue to occupy the surgeons. At the Liverpool Institution on the 31st ult. Mr. R. W. Murray read a paper founded on 151 cases on which he had operated during the last three years, and said he thought the type of the disease differed at present from that met with twenty years ago. Besides the increased frequency of appendicitis, he thought it displayed more virulence. He therefore considered it wise to prepare for operation as soon as diagnosis was certain. The mischief was then confined to the appendix and could be removed with it, the risks being few while the dangers of delay were numerous.

Mr. Rushton Parker said that sometimes the removed appendix had shown no outward change, but on slitting it up there had been found a stricture or other lesion. Early operation had often been justified by finding the appendix in a state of gangrene. Against this was the other fact that patients who had declined operation had recovered and had no second attack. Recovery also in some cases rewarded waiting in apparent recurrency—probably due to adhesions. Again signs of spontaneous recovery have been revealed at operations and account for the disappearance of large, indurated swellings. Such cases were more often seen in preoperation days. In this same way atrophy of the appendix has been observed, amounting almost to its disappearance, and explaining the impossibility of finding it at some recorded operations. Other speakers confirmed the views above stated. Thus Mr. Damer Harrisson agreed that the virulence of appendicitis had greatly increased and Mr. Jeans had been unable to find the appendix in two cases, while Dr. J. C. M. Given mentioned two cases the diagnosis of which seemed clear and operation was advised but refused. Both patients recovered in about thirty-six hours. Such cases suggest greater care in diagnosis.

Yesterday another tuberculosis exhibition was opened in London; this time it is in the St. Pancreas district. The National Association for the Prevention of Consumption intends to carry on this campaign through the country, and the exhibition will be sent to any town desiring to have it. Many applications have already been made. Money is, of course, required and the association has felt straightened for want of it. But yesterday, it was stated at a meeting of the Council, a "well-known philanthropist" had offered to start a special fund to develop the work and a committee was appointed to formulate a scheme. I understand that the sum offered by the generous donor is £500 to begin with, and that he has intimated that in case of need it may be supplemented in the future.

Rumors of cases of cerebrospinal meningitis have prevailed lately and four cases have been reported, three of them this last week. An inquest was held on one in which death had been very sudden, and the friends attributed it to fright, as the man had been a witness in court the day before and there much terrified. The doctor admitted that such mental influence might precipitate an attack if the microbe were already at work. However that might be, the post mortem revealed the cause of death.

In an inquest on a death from tetanus at St. George's Hospital it was said that serum was used, but the supply in England had been exhausted. This is now denied, as the agents of the Lister Institute and other firms had an abundant stock.

Dr. C. E. M. Kelly of Witney, Oxford, died on March 28 from an overdose of morphine which he had taken for the relief of acute pain. He took the diplomas of the conjoint colleges in London in 1891 and at once entered into general practice. Later he determined to graduate at the London University and did so while still in practice. He took the M.B. and B.S. in 1896 and proceeded to M.D. 1897 and M.S. 1898. He also took the Fellowship of the College of Surgeons in 1897. Examinations had no terror for him. He contributed to the Pathological Transactions and to the *Lancet*, chiefly on cancer.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

THE CENTENNIAL OF THE HUFELAND SOCIETY.

BERLIN, March 28, 1910.

IN the early part of February the medical profession of Berlin celebrated the one hundredth anniversary of the founding of the Hufeland Society. Of this society, though the oldest medical association in Berlin, little has been heard during the last few years, as not long ago it was united to the Free Demonstration Society and reorganized. The main purpose of the new revived society is to demonstrate to the practitioners of Berlin rare cases and new methods of treatment. That this foundation has met a long-felt want is shown by the rapid increase in its membership. What Hufeland and his society have meant to Berlin is best shown by the addresses delivered at the celebration. H. Strauss spoke of Hufeland as a physician. Hufeland was the son and the grandson of physicians-in-ordinary to the Court of Weimar, and so from his earliest days he was familiar with questions of medicine and natural philosophy. He took his examinations in Jena in 1783, and was obliged at once to take up the practice of his sick father. He, however, found time for some literary work on the subjects of mesmerism, scrofula, smallpox, and apparent death. His associates included Goethe, Schiller, Herder and Weiland. He was soon made a professor in the University of Jena, where he was a much-sought-after teacher. His lectures were attended by 500 men, his clinical course by 80. In 1796 his best known book, "Die Makrobiotik," made its appearance. The book soon became known in all civilized lands, and was of the greatest influence in improving the standing of the medical profession and spreading the knowledge of hygiene. The author em-

phasized the point especially that the physician is not the master, but the minister of Nature. The physician must seek in every case of disease to make use of the healing power of nature. Dietetics and care of the skin received great stimuli from the works of Hufeland. He was called to Berlin as director of the medical school and as senior physician to the Charity Hospital, where he was a prime mover in the foundation of the university. He was the first dean of the medical faculty, and opened the first polyclinic for poor people. He further took over the leadership of medical affairs in Prussia as privy counsellor and as a member of the state poor directorship. Though he was the physician to the royal household and had an enormous private practice, he lived simply and was ever ready with charity. His college fees he devoted to the sick poor. He refused a patent of nobility, for he held it as a duty that if he was to accept any honors they must be such as the middle classes could enjoy with him.

Von Hansemann spoke upon the subject of Hufeland and the Hufeland Society. On February 1, 1810, Hufeland founded the Medico-Chirurgical Society, which first met at the houses of the officers. The society grew rapidly, and reached the apex of its prosperity in 1833, when Hufeland celebrated the fiftieth anniversary of his doctorate. Since that time the society has borne the name of the Hufeland Society. In 1848 its dissolution was imminent, but Busch succeeded in revivifying it. When, under the influence of Virchow, new societies were formed and increased in importance, the influence of the Hufeland Society decreased. Liebreich, the Berlin pharmacologist, who died not long ago, when president of the Balneological Society, brought about a union with the Hufeland Society and so gave the latter a new lease of life. Finally, the aforementioned amalgamation with the Demonstration Society was accomplished and the permanent success of the society was assured. The speaker told many characteristic tales of Hufeland, the man who was the nucleus around whom the society grew. His noble love of his fellow men and his broad-mindedness showed especially in his work, "Encheiridion," which he wrote for the benefit of the Hufeland Society. The main purpose of his work was to convince his opponents. He had three chief enemies—the English physician, Brown, whose mystic system he fought; Napoleon, who gave so many sad hours to Prussia and to the royal family, to whom he was so frequently called, and ultramontanism, the enemy of many scientific efforts. He sought to decrease his practice in order to be able to devote more time to scientific work. This, however, his patients in most cases refused to allow.

The last address was by L. Brieger. He spoke on Hufeland as a balneologist who visited most of the baths in Germany in order to be able to study each one on the spot. His book, "Praktische Uebersicht über die vorsüglichsten Heilquellen Deutschlands," was of very great value. Even to-day physicians learn much that is useful from these lectures.

At the banquet, which was attended by the greater part of the physicians of Berlin, were distributed some very pretty little souvenirs containing aphorisms and maxims of Hufeland's, collected by Von Riegler and printed by Ambrosius Barth of Leipsic.

OUR LETTER FROM PARIS.

(From Our Regular Correspondent.)

TRANSFORMATION AND DEGENERATION OF PAPILLOMA OF THE BLADDER—SURGICAL GRAFTS ON MAN—RADIOLOGICAL STUDY OF FISTULÆ BY INJECTIONS OF BISMUTH—TRANSVESICAL PROSTATECTOMY—SPOROTRICHOSIS.

PARIS, March 15, 1910.

THE Society of Surgery held, in January, its annual commemorative meeting. The report of the society for the year 1909 was read by Lejars, the annual secretary, and Rochard, secretary-general, read a eulogium of the celebrated surgeon, Professor Berger, who died prematurely during the year. The president for the year 1910 is Dr. Routier.

Tanton, associated professor at Val-de-Grace, presented an interesting observation of a papilloma of the bladder, which, in fifteen years, has recurred four times, and finally developed in the iliac bone an epitheliosarcoma with vesical cells, of which the patient died. Legueu reviewed the interesting points of this observation. Recurrences in papillomatous tumors of the bladder are frequent. In general they do not take place at the point of primary implantation of the first tumor. They occur at other points of the bladder surface. They are generally benign, and we may conclude that papilloma is rather a manifestation of a malady of the vesical epithelium than a tumor, and that that malady has multiple and successive manifestations. The idea of the transformation of benign tumors of the bladder into malignant ones is the belief of the day. They are generally fatal when these tumors are left to themselves. This is the reason why there is a great advantage in operating on these tumors early and not allowing them to go on in their evolution, even when they are not accompanied by alarming symptoms.

Tuffier presented the subject of surgical grafts in the human subject. He has twice transplanted a graft from an animal onto a man, but has obtained two failures. In the first case the graft was of the epidermis of the chicken and frog to cover a large loss of substance by a burn. The epidermis of the animal took perfectly, but after cicatrization was obtained the transplanted portion entirely disappeared in about three weeks. In the second case Tuffier wished to transplant the thyroid body of a dog as a remedy for myxedema. The portion of the thyroid body to be removed, with the usual technique and precautions, were introduced into the atrophied thyroid of the myxedematous subject without any therapeutic success. Tuffier, in a woman who had neither vagina, uterus, nor cervix, did a laparotomy. He found first the tubes with closed orifices, then the fundus uteri, the size and shape of which were normal. Into the incised uterus he introduced a large sound previously covered with a dermoepidermic flap of a sufficient length taken from the thigh. The sound protruded between the labia minora; he closed the uterus and the abdomen and five days later removed the sound. The epidermic fold remained in place and lined the tunnel which had been formed. Curiously enough, from this time onward the patient menstruated regularly and four years later she still had the canal with a lining having the appearance of the epidermic graft; the reflection of the canal of the vagina and cervix uteri had been maintained. Tuffier had also made grafts of osteocartilage to cover articular surfaces after resections. He grafted the articular surface of the head of the humerus onto the extremity of the diaphysis, after resection of the region of the tuberosities. Instead of interposing a fibrous surface to assure movements, he placed an osteocartilaginous surface which, although separated from the body for three-quarters of an hour, took grafting perfectly. The functional result was excellent, and twenty months afterward the mobility of the articulation was still increasing.

Tuffier also has grafted the pieces of a human thyroid body as a remedy for myxedema. He grafted an ovary with its vascular hilum into the broad ligament, then another ovary onto the deep surface of the cellular subcutaneous tissue of the abdomen. These grafts have taken in the majority of cases. The ovary preserves its shape, volume, and special sensibility from three to four years. Finally, Tuffier cited the observation of a venous graft destined to replace a portion of the canal of the urethra. He operated on a man of forty years of age, who presented a perineal fistula, and in whom, after resection of all the fibrous tissue of the perineum, the ends of the urethra were separated by a space of about four centimeters. Some time before Tuffier had resected a large varicose vein in a man of 47. He introduced around a No. 14 sound a segment of the vein; the venous cylinder was exactly applied, so much so that the extremities corresponded to the anterior and posterior portions of the urethra, and filled the loss of substance. All went well until at the end of thirty-six hours the patient, who was very difficult to control, removed the sound. The operation was not a failure, nevertheless, for without having been obliged to pass a sound into the canal the patient urinated through the canal on the twelfth day, 1,200 grams by the meatus, and on the fourteenth day 1,600 grams. Tuffier is so firmly convinced of the possibility of these venous grafts that in a case of ureteral fistula with destruction of about eight centimeters of ureter he proposed to make a ureterovesical autoplasty by the interposition of a venous segment.

Pierre Delbet believes that grafts of the thyroid body cannot be made. They act by their resorption, but do not become grafts; they do not function as organs, but are resorbed, acting as a form of opotherapy during the period of their resorption.

At the Society of Internes, Aubourg showed the use of radiological diagnosis of fistulous tracts by injection of bismuth, and their therapeutic value. By means of the *x*-rays it is impossible to locate exactly a fistulous tract. On the other hand, the injection of bis-

muth for diagnostic purposes has become a method of treatment of fistulæ, the flow from which lessens until cure is complete.

Fourmestraux has obtained excellent results by injections of bismuth and vaseline in tuberculous fistulæ. The results are excellent when the fistulæ are not extensive, but in fistulæ from deep cavities toxic accidents may result from this treatment.

Agasse-Eofont remarked that we must make a distinction between bismuth intoxications according as it is employed internally or externally. Internally the dangerous salt is the subnitrate; externally all the salts of bismuth may become toxic by their transformation into the albuminate of bismuth, in the presence of a wound. This albuminate of bismuth causes subacute accidents essentially characterized by stomatitis, blackened buccal patches, intestinal troubles, and albuminuria. They are serious, frequently fatal.

Dopter read an interesting paper on the serotherapy of cerebrospinal meningitis. The value of this treatment is undoubtedly established by statistics, which show a considerable lessening of mortality, an attenuation of symptoms, and a shortening greater than the total duration of the infection. It is necessary to employ large doses and to repeat them daily up to the disappearance of meningitic symptoms.

Three specimens of transvesical prostatectomy were presented by George Luys, who had operated upon them. These three cases have been followed by three operative and functional successes. The author insisted on the good results from transvesical prostatectomy, which, by preventing the necessity of the sound, have completely rejuvenated the patients, by making them able to become active workers; they empty completely and spontaneously their bladders, the urine is passed by natural and normal micturition, finally the genital functions are not abolished.

A case of sporotrichosis was presented by Paul Salmon. The patient had a large cutaneous gumma, which caused it to be believed that he had tuberculosis or syphilis, but the culture, very easily made, showed the diagnosis to be sporotrichosis, and caused treatment to be instituted with creosote.

Progress of Medical Science.

Boston Medical and Surgical Journal, April 21, 1910.

Treatment of Cervical Rigidity in Obstetrics.—In cases in which great haste is not required, N. R. Mason advises a long hot bath, followed by a copious vaginal injection of hot sterile water. Rupturing the membranes, packing the vagina, introduction of bougies, etc., are all uncertain and objectionable. The packing of the uterine lower segment with sterile gauze is a more reliable method, but the preferable one is to use the elastic dilating bag. The author prefers Voorhes' bag. If the patient is in labor with a rigid cervix we may use obstretric ether, hydrate of chloral, and in primiparæ, the scopolamine-morphine combination. The former drug hastens dilatation and the latter quiets the pain. In regard to the use of ether, it has been pointed out that spasm of the cervical muscle is developed by the pain involved in its dilatation and the early relief of this pain relaxes this spasm and distinctly hastens dilatation. It has also been found that this use of ether does not predispose to post-portem bleeding, prolong the pain or increase the infant mortality. When immediate delivery is called for, we have manual dilatation, the best and safest method, but the hand easily becomes exhausted. In primiparæ the steel instrument must precede the hand. If the cervix can be drawn down into the introitus, we may use the bimanual form of dilatation, then various instruments, the author preferring Newell's, which has four blades manipulated by the hand and not by a screw. The injection into a rigid cervix of one-eighth to one-fourth of a grain of cocaine in 1 per cent. solution may be of assistance. Vaginal cesarean section should be attempted only under ideal surgical conditions. Deep multiple incisions of the cervix are undoubtedly the best method for delivery by the vaginal route. The incisions must be sutured after delivery. Two assistants and a nurse accustomed to "team work" are required, and the operation should be done in a hospital if possible.

Treatment of Acute Dysentery by Intestinal Irrigation with a 5 Per Cent. Solution of Nitrate of Silver.—H. F. Hewes records his experience in a series of ten cases. Each case when first seen was given a dose of sulphate of magnesia. As soon as this drug had acted the irrigation with silver was begun. The rectal tube was inserted from eight to twelve inches and a pint or more, according to the capacity of the patient to hold the solution, was injected. The fluid was retained by the patient as long as possible up to half an hour. Defecation was then allowed. Rectal injections of salt solution were given regularly after each movement during the course of treatment. A second injection of silver nitrate was as a rule given after a period of two days. In some cases only one injection was used. A diet was selected with an idea of reducing the amount of fecal food residue. The daily content of this diet was as follows: Lean meat, 300 grammes; 3 slices of toast with maple syrup; albumin water, consisting of the whites of eight eggs in water. This was continued for five days. The diet was then increased by the addition of more toast, butter, tapioca, potato juice, rice, and macaroni.

New York Medical Journal, April 23, 1910.

The Present Status of Medicine and Its Outlook.—S. F. Butler speaks of present tendencies in the practice of medicine, showing the inclination of many men to run into fads and calling on the laity to support more strongly the present-day practitioner in the crusade for preventive medicine and sanitation. He says that we live in a period of changing order and we must adapt ourselves to the conditions. Reforms in medicine, like political reforms, come largely from outside, originating with the people. Progress in human affairs depends upon the diffusion of intelligence among the people, and progress in medicine offers no exception to the rule. The people must continue to be taught and instructed as to the true relations which should obtain between them and the physician; and this instruction must come from the regular profession. What is needed is more and better knowledge along certain lines. The more general diffusion of knowledge of how to live, which includes an appreciation of the importance of proper hygiene, proper sanitary surroundings, sufficient exercise, a wholesome diet, and so forth; and this would result in the physician being more frequently consulted, but for a different purpose. There would be more frequent detection and suppression of charlatanry and the physician would be consulted in serious cases before it is too late. A more perfect knowledge by the laity of the true relative valuation of regular medicine and the various fads and semi-religious cults, together with a generous appreciation of the limitations of the present state of development of the science, would eliminate most of the false attitudes now held by the public. Then it would be incumbent upon the profession to rid itself of the faults that now are placing it in a position of lessened public favor.

Dreams and Their Relation to the Neuroses,—A. A. Brill presents the following conclusions: (1) As Freud has shown, dreams are perfect psychological mechanisms. They have a definite meaning, and contain a wish fulfilment. (2) Every psychotic symptom is the expression of a former mental occurrence, and symbolically represents a wish fulfilment. (3) The repression of the unconscious is at the basis of both the dream and the psychotic symptom. (4) The dream is the product of the unconscious and hence affords the easiest access to the exploration of the neurosis.

Journal of the American Medical Association, April 23, 1910.

Syphilitic Nervous Diseases.—Joseph Collins holds that the more frequent occurrence of nervous diseases due to syphilis indicates that the present treatment of syphilis is inadequate and the teachings on which it is based harmful and far-reaching in their injuriousness. Iodide of potassium, he thinks, is not strictly antisyphilitic in its action. Its specific action on the spirochete has not been shown. He objects to the idea of parasyphilis and holds that it is universally conceded that tabes, general paresis, a variety of myelitis, meningitis, arteritis, and neuritis are directly due to syphilis. He gives the result of the investigation of a number of cases in which, wherever an intelligent account could be obtained, it was found that iodide of potassium had been given. While Roux and Metchnikoff have proved that mercury destroys the spirochetes there is no such evidence as regards potassium iodide, though this drug removes some of the local manifestations. Furthermore, Collins is of the opinion that the use of the iodide in the early stages of syphilis is not infrequently deleterious by impairing the patient's vitality and interfering with the reaction in the patient's tissues from the effects of mercury. He doesn't favor also the administration of mercury by the mouth and believes that the occurrence of ptyalism is no evidence that it is being taken in sufficient doses to combate the disease. He appreciates the therapeutic possibilities of the iodide but is convinced that it would be better for the thera-

peutics of organic nervous diseases, save in the case of gummatous formations, if the salts of iodine were no longer in use.

Transfusion in Pellagra.—H. P. Cole and G. J. Winthrop reach the following conclusions: 1. Pellagra is an intoxication. 2. The toxin principles of pellagra exist in the blood of pellagrins and will produce pellagrous symptoms when transferred to other animals. 3. Pellagrous serum exhibits definite, precipitative, hemolytic, and antitoxic properties. 4. An artificial immunity can be produced in animals and exists in cured pellagrins. Being interested in the subject of transfusion, they were led to try it in pellagra, not having at the time any knowledge of similar work by others. The difficulty of securing cured patients as donors forced them to employ normal, healthy individuals in a number of their transfusions. These, however, were chosen from among persons living under the same conditions as to infection, as the patients, and might possibly have acquired a certain amount of immunity. They also refer to two cases reported to them by other physicians, as well as to the Italian work in this line. In all the cases there was benefit from transfusion, and except in three fatal cases which were sufficiently accounted for by the advanced stage of the disease or the already hopeless condition, all the other patients, two months after transfusion, are either apparently cured or markedly improved. The authors suggest the following conclusions: 1. Transfusion offers a means of combating the anemia, stimulating the recuperative functions and perhaps of furnishing antitoxic substances to pellagrins. 2. The lessened mortality and marked improvement in transfused pellagrins leads us to anticipate the establishment of a serum therapy in the disease. 3. Transfusion may be offered provisionally as a surgical therapeutic procedure in pellagrous cases pending the perfection of successful serum therapy.

Artificial Vagina.—Referring to a former paper (*Annals of Surgery*, September, 1904) in which he described the operation as performed by him on the cadaver, J. F. Baldwin reports a case of congenital absence of the vagina in a girl of 18, in which he employed his method of restoration of the passage by the transplantation of a portion of the ileum, carefully preserving its mesentery. The recovery from the operation was uneventful and the results very satisfactory. He has operated in four such cases with like results, and similar successful cases have been reported by Mueller and Mori. He prefers using the ileum, though the operation is practicable also with a loop of the sigmoid, as the former is safer.

Torsion of the Omentum.—W. H. Luckett reports a case of torsion of the omentum in which the strangulated portion was found after removal to have twenty-seven complete twists or turns. There was a small adhesion band on the peritoneal side of the hernia cicatrix which probably came off from the lower right-hand corner of the omentum. With a few more twists this probably would have parted and the case have been reported as a pure intraabdominal torsion without adhesion or presence of a hernia. He theorizes over the cause of the torsion and offers the following hypothesis: The structure of the omentum has for its chief framework long thin arteries running downward to its lower border and then upward in the posterior layer to anastomose with the colonic arteries. The veins are about the same and they increase in size and length more rapidly than the arteries during inflammation and have a natural tendency to wrap around the latter and carry the loose mesothelium and, perhaps, may be the chief factor in causing torsion, and he thinks we can add to this the force of the pulsations of the omental arteries. He believes that we must look for a cause within the omentum itself, as where the omentum touches only the smooth wall of the sac, he thinks the possibility of an exterior force is to be excluded in pure hernial torsions.

Filarial Hematochyluria.—C. Wellman and E. von Adelung report a case of filarial hematochyluria treated by thorough cinchonization and subsequent exposure to the *x*-ray, as practised by Wherry and McDill. They reproduce a brief description of the case of those authors and report their own. In conclusion they sum up some of the interesting points noted in the case of their patient as follows: (1) The apparent confirmation of the value of this method of treating filarial hematochyluria; (2) the absence of embryos from the urine even when the case was first seen; (3) the rapid decrease but persistence of a certain number of the microfilariæ in the peripheral night blood during the treatment.

The Lancet, April 16, 1910.

Sterilization of the Skin by the Use of an Alcoholic Solution of Iodine.—H. F. Waterhouse and W. S. Fenwick have abandoned the ordinary scrubbing with soap and water of operative areas. They believe that water thus used causes a swelling of the epithelia and thus prevents an antiseptic from penetrating deeply between the cells and the ducts of the sebaceous and sweat glands. They have tried the iodine painting in 150 cases, all but one being followed by primary union. After various experiments he has settled upon two per cent. of iodine in rectified spirit as the proper solution. Staining of towels is obviated by soaking them in a two and one-half per cent. solution of carbolic acid. The iodine is painted on by an ordinary painter's brush two hours prior to operation, preliminary shaving and any necessary cleansing having been done in time to allow the skin to dry well before applying it. For greater security he paints again in one hour. The last painting is done on the operating table. Superficial hemorrhage is greater than usual as the iodine solution increases the vascularity of the skin. This appears hardened and the knife is dulled more quickly than without the iodine. In certain instances in which it appeared probable that the skin incision might be infected by a discharge from a hollow viscus, it was found advisable to paint the line of incision with the iodine solution each time the wound was dressed. The incision was then covered with dry cyanide gauze. The great advantage in addition to primary union is the time saved in preparation. W. S. Fenwick adds his testimony on the basis of 110 additional cases.

The Occurrence of a Peculiar Protein in the Urine.—The patient of J. Henderson was a miner of forty-seven years, whose principal symptoms were anemia, cachexia, wasting, and the condition of the urine. No malignant disease was discovered and no bone disease. The blood presented all the appearances of a fairly severe secondary anemia. The case was regarded as one of chronic diffuse nephritis. The urine responded to all the usual protein tests, and the protein was precipitated by all the ordinary tests which precipitate protein. It was precipitated with half saturation with ammonium sulphate. After filtration this precipitate was dialyzed against running water and the product left in the sausage paper behaved quite as in the original urine. The ammonium sulphate precipitate was further dialyzed till free from salt and again it showed the same properties. The material obtained from this salt-free product either taken down to dryness in vacuo at a low temperature, or precipitated with alcohol and dried, was found to be a whitish-gray powder, ash-free, and when in solution possessed all the peculiarities of the original body in the urine. The author has at present nothing to add concerning the exact source and nature of this protein.

British Medical Journal, April 16, 1910.

Phlyctenular Affections of the Eye.—S. Stephensen and J. A. Jamieson call attention to the change of view in reference to the relation between phlyctenular affections of the eye and tuberculosis. It was formerly regarded as a strumous affection. Then this idea was given up, but is again to the front. It is now believed that this form of eye affection occurs only in those who are tuberculous. This change of view is based on the following facts: (1) The frequency with which a family history of tubercle can be obtained from these eye cases. (2) The frequent coexistence along with phlyctenular disease of other manifestations of tuberculosis, *e.g.* enlarged glands, otorrhea with or without mastoid disease, pulmonary phthisis, dactylitis, and scrofuloderma. (3) The fact as shown by experimental work that the blood of patients with phlyctenular disease behaves in a manner which is typical of a definite tuberculous infection. (4) The positive result obtained in the phlyctenular cases by employing the usual eye or skin tests for tuberculosis. Out of twenty cases of phlyctenular disease between the fifth and fifteenth year, the von Pirquet case was positive in all. In two cases the inoculation was made more than once before a positive reaction was obtained. Half the cases presented more or less obvious signs of tubercle apart from the inoculations, and fully three-quarters gave a tuberculous family history.

A Series of Cases of Congenital Ophthalmoplegia Externa (Nuclear Paralysis) in the Same Family.—The cases are reported by H. Cooper, whose initial diagnosis was made on a boy of twenty-one years, who came under observation with a small foreign body in the right eye, which was easily removed. There was marked ptosis on both sides, and it was found that all the external eye muscles were paralyzed. The only movement of which

the eyeballs were capable was an almost imperceptible tremor when he made a feeble effort to follow a moving object across the field of vision. Both pupils reacted perfectly to light and accommodation, and sight was normal. The patient stated the condition was congenital. The father had been affected in the same way from birth. Both his father and grandfather had been likewise affected. Of two uncles, one was affected and the other not; of two aunts, neither; of two brothers, one affected and the other not. He had had six children. The first and third died in infancy and were not affected; the second was normal as were also both this man's children; the fourth was the case first mentioned in the paper; the fifth was not affected, and the sixth slightly so. No female member of the family was affected, no case developed after birth, but all were congenital and in all cases but one the child in whom the lesion was but slight have presented almost complete ptosis.

A Case of Poisoning by Camphorated Oil.—F. Barker was called to see a child of sixteen months, who at seven in the evening was discovered drinking camphorated oil from a bottle. She was promptly turned over and then vomited. One hour later she vomited again and in twenty minutes began to have convulsions. The breathing was irregular, face flushed and covered with profuse sweat, pulse was rapid, pupils moderate, equal in size but inactive to light, and there was no conjunctival reflex. The breath did not smell of camphor and the mouth was not sore. The stomach was washed out with warm water until the returned fluid was free from oil and odor. None of the familiar remedies seemed to stop the convulsions except chloroform in small doses. While giving it the fits were preceded by a flickering of the eyelids, the spasms spreading to the abdominal and back muscles, and then to the extremities. There was usually at first conjugate deviation of the eyes and drawing of the mouth to the left followed by turning of both eyes and mouth to the right. On ceasing the chloroform the convulsions became more continuous but less violent, the breathing was decidedly better, and the face of a more natural color. In ten hours after taking the camphor the child went into collapse and died. It was estimated that the amount of solid camphor taken dissolved in the oil was equal to one dram. The author says that apart from the spasmodic action of the respiratory muscles, which joined in the general convulsions, the poison seems to have affected, chiefly, the respiratory center. He utters a warning against the careless handling of what is really a powerful remedy.

The Treatment of Varicose Veins of the Lower Limb by Avulsion.—The method employed by H. D. O'Sullivan will be best understood by his description of a recent case occurring in a man of fifty years. On the evening prior to the operation the limb was shaven and then washed for half an hour with white soap and water. The veins to be removed were then painted with tincture of iodine (*B.P.*), the site of the proposed incisions being marked by broad square patches of iodine. The limb was enveloped for the night in a household towel fresh from the wash. On the morning of the operation, the washing and marking of the limb were exactly repeated. An elastic bandage was applied to the limb, and a tourniquet above the knee. A local anesthetic was employed (cocaine hydrochloride, one gram in one ounce) sterilized by exposure to a temperature of 65° C. for one hour on three successive days. The author thinks, however, that distilled water widely infiltrated is as good as any solution. The longest vein was first dealt with, and the others in exactly similar fashion. It was exposed, immediately below the knee, by a flail-shaped incision, the lesser limb crossing the vein from above downwards. The upper end was tied and allowed to retract after division of the vein. The common origin of the veins at the ankle was next dealt with in similar fashion, the lower end being tied. The longest vein was then exposed and divided by two incisions equidistant from each other and from the ankle and knee, respectively. The cross channels were also exposed at either end and divided. This is essential. A silver probe, with an eye threaded with stout silk, was then passed into the vein from below upwards. The probe was then passed along the lumen of the vein till it emerged at the incision next above. The silk was then firmly tied to the free end of the vein. A firm steady jerk then removed the whole functional vein between the two said incisions. The portions of veins between all the other incisions were then dealt with in similar fashion. The total length of the combined incisions was about seven inches. After suture the incisions were painted with tincture of iodine, and covered with pads of plain boiled lint. On relaxing the tourniquet profuse hemorrhage occurred from each wound, which was easily controlled by the simple pressure of the usual bandage. The blood became diffused throughout the pads and bandage, and the whole quickly set to form a firm and comfortable splint. The bandage and pads were removed on the fourth day. The limb was perfectly free from extravasation and soiling. The wounds were painted with tincture of iodine, and wool and a bandage applied. The sutures were removed on the tenth day. On the fourteenth day the patient got up and walked. The novelty of the operation lies in the complete extirpation of the affected veins through small incisions. In this case some twenty-five inches of vein were removed through incisions of the total length of seven inches.

Miner's Nystagmus.—T. R. Rodger says that nystagmus "against the rule," that is when the eyes are turned downwards instead of upwards, does not seem to have been noticed, but he has now a patient suffering from oscillations and giddiness, and unable to work for two months, but if the patient is made to bend downwards and move his eyes from side to side a very marked oscillation is produced, which persists for a time after the head is raised. There is a history of a similar attack seven years ago following an influenza. The visual acuity is normal no matter in what position the chart is placed relative to the eye level. Both fundi are normal. Hemeralopia is pronounced and giddiness is very troublesome at night. The usual nature of the nystagmus is probably due, according to the author, to the bodily position in which the miners usually work—on their knees instead of on their sides—in the mine in which he has been employed.

Berliner klinische Wochenschrift, April 4, 1910.

Transplantation of a Periosteal-Bone Preparation.—M. Katzenstein reports the case of a boy aged fifteen years who some months previously, following an injury, developed a sarcoma of the lower end of the femur. At operation a section of bone was resected five inches long, extending into the knee joint. Through another incision over the front of the tibia a strip of periosteum five and one-half inches long and four-fifths of an inch broad was incised and a thin lamella of bone, about one-sixteenth of an inch thick attached thereto, was chiseled away. This was so thin that in one place it broke. Under strong traction on the leg this thin strip of periosteum and bone was placed between the two cut ends of the femur; the soft parts were sewed up, and the limb was fixed in plaster of Paris. Three months later on removing the plaster the limb was found to be quite strong, and nine months after the operation an *x*-ray picture of the thigh showed the region of the implanted bone to be nearly as large and as dense as the rest of the bone. There was perfect motility of the knee, and the patient was working regularly on a farm.

Münchener medizinische Wochenschrift, March 29, 1910.

Nonperforated Duodenal Ulcers.—Wilms says that diagnosis of a duodenal ulcer before perforation is a difficult and infrequent procedure. The symptomatology is very indefinite and even on exploratory laparotomy the diagnosis is not easy, duodenal ulcer differing from gastric ulcer in that there is very little thickening around the ulcer, and very often the aid offered by adhesions to surrounding organs is lacking. He, therefore, suggests examining the duodenum from within instead of without. The method of doing this is as follows: Having placed a purse-string suture in the anterior wall of the stomach near the pylorus, an incision is made within the suture. Through this the finger, protected by a rubber finger cot, is passed and the suture is pulled taut. The finger is then passed through the pylorus and the wall of the duodenum is explored. Owing to the extreme shallowness of the ulcers they are not always easy to recognize, and it is often a help to place the gut against the posterior wall of the abdominal cavity or the spinal column. Against these firm backgrounds the thin edges of the ulcers may be more easily felt. When the location and the size of the ulcers have been determined the question arises of treatment. The author considers that a gastroenterostomy in the presence of an intact pylorus is an inadequate procedure, as a certain proportion of the food will go through the pylorus and irritate the ulcers, and, furthermore, with a patent pylorus the gastroenterostomy will close up in a short time. Excision of the ulcer he considers to be unnecessary, and he recommends simply folding the base of

the ulcer in and taking a tuck in the submucosa and serosa. He reports a series of cases so treated.

The Etiology of Hodgkin's Disease and Lymphatic Leukemia.—Fraenkel and Much have studied material from eleven cases of Hodgkin's disease and five of lymphatic leukemia. The glands were stained by the Ziehl and Gram methods, both with and without previous treatment with antiform. From their results they believe that Hodgkin's disease is an infectious disease produced by a Gram positive, antiform-resisting, granular bacillus, which is closely related to the tubercle bacillus. Lymphatic leukemia they also consider to be an infectious disease caused by an acidophilic antiform-resisting bacillus resembling the tubercle bacillus, but several times as large.

Malignant Tumors and Their Development.—Julius Ries offers the hypothesis that malignant tumors grow only from cells in which the nucleus is injured or diseased. Through the disease the nucleus loses the ability to retain the superfluous centrosomes which are present in many cells, and they consequently divide atypically. The author says if one is to make use of this hypothesis for therapeutic purposes one must in the first place, besides removing the malignant cells, make an effort to strengthen the cell nuclei, as, for example, by feeding nuclein-rich food, and finally must seek to paralyze the centrosomes which cause the rapid growth by the same means as are used to stop the activity of the spermatozoa.

Deutsche medizinische Wochenschrift, March 24 and 31, and April 7, 1910.

Etiology of Acute Anterior Poliomyelitis.—H. Bonhoff has studied the central nervous system of two infants which had died from acute anterior poliomyelitis, and in the spinal cord has found certain bodies which he believes to be specific for the disease. The specimens were stained with Mann's stain, having been fixed with sublimate alcohol. The bodies were found within the neuroglia cells of the cord, especially in the regions of the various enlargements, and most particularly of the lumbar enlargement. These cell inclusions lie in the blue stained nucleus and are themselves either a light rose or a darker red color. Their size varies from tiny points to a diameter of 3 to 4 micra. They are sometimes round, sometimes oval, and sometimes one spot is drawn out into a point. The bodies are always surrounded by a light area, well marked off, and in the larger examples they contain one or two tiny bodies in their substance, these latter staining a darker color. The author says that the fact that it has been shown that the virus may be passed through a filter does not disprove the theory that there may also exist larger forms of the infecting organism.

The Production of Chronic Nephritis with Increased Blood Pressure and Arteriosclerosis.—E. Rautenberg has carried on a series of experiments on animals upon the artificial production of nephritis. He summarizes his results as follows: Retention of urine in one kidney of a rabbit for three weeks leads to chronic disease and degeneration of the organ. If the well kidney is then removed the animal may live for several years, exhibiting a chronic nephritis, and finally dying in cachexia. After from one to one and a half years of the disease, autopsy shows regularly a marked sclerosis of the aorta and aneurysm formation. Apparently the increased blood pressure, which is regularly developed, is the primary cause of the arteriosclerosis. Substances with a mydriatic action occur in the blood even earlier than the increased blood pressure appears.

Hemolytic Substances in Gastric Contents.—Erich Fabian has investigated the statement of Grafe and Röhmer that hemolytic substances are demonstrable in the gastric contents of patients suffering from carcinoma of the stomach, while they cannot be found in cases of ulcus ventriculi. In 12 cases of advanced gastric carcinoma the author got positive hemolytic action in seven, and negative in five. In seven cases of ulcer the results were positive in two and negative in five. In one case of gastric lymphosarcoma the reaction was positive. The author gives no explanation of the differences between these results and those obtained by Grafe and Röhmer.

Chvostek's Symptom and Tetany in Older Children.—Oskar Herbst reports the results of a systematic study of a large series of children as to the occurrence of Chvostek's symptom and other signs of spasmophilia or the tetanoid diathesis. He divides his children into two groups for comparison, those between two and six years of age on the one hand, and those from eight to fourteen on the other. Analyzing 300 children, he found that the facial reflex was present in the older ones five times as frequently as in the younger during the last days of October, whereas the following year at midwinter the numbers were nearly equal. This the author believes to be due to the poorer hygienic condition in winter increasing the nutritional and especially the rachitic disturbances in the younger children. He examined 113 pairs of brothers and sisters in school and found that the facial phenomenon was in a considerable majority of the cases more marked in the elder than in the younger. The cases with a marked Chvostek's symptom were given an electrical examination and in practically every case the electrical irritability was found to be increased. The author says that the association between a high-grade Chvostek's symptom and tetany is well proven, but that a further study of the slighter degrees of the facial phenomena is needed. In several cases of outspoken spasmophilia a diet poor in sodium chloride and rich in calcium chloride did not effect the facial phenomenon, but did considerably reduce the electrical excitability.

Suture of the Femoral Artery.—Sonnenburg reports the case of a man in whom the anterior femoral artery was cut almost completely across by a splinter of steel. The diagnosis was difficult, but as the hematoma increased in size an incision was made. The torn ends of the artery were approximated and sutured by the circular method of Carrel. The results were perfect; pulsation returned to the foot; the leg, which was cold, became warm, and the limb was saved.

Drainage of Purulent Arthritis of the Knee by Incision Behind the Condyle.—Riedel says that a suppurating knee joint must be incised before it perforates spontaneously. The typical sites of perforation of the knee joint are the apex of the upper cavity and the popliteal bursa. Incision laterally near the patella, as well as those made posteriorly, avail but little, as the posterior part of the joint remains practically closed, especially in the extended position of the leg. This occurs also when the capsule is split posteriolaterally. If, however, one separates the lateral ligament from the epicondyle, lateral movements of the extended leg are possible, the posterior capsule of the joint falls back, one can hyperextend the crucial ligament, and by placing the leg in a position of slight flexion thorough irrigation of the posterior pockets of the joint is possible. By this method of drainage perforation of pus into the popliteal bursa and into the popliteal fasciæ is best prevented. In the course of time, by scar formation, the lateral ligament again unites with the epicondyle, lateral movements are impossible, and the joint becomes firm. The tibia sinks back slightly, but as it impinges flat upon the femur a useful joint results.

The Action of Mercury and Iodine in Experimental Syphilis.—Tomasczewski has carried out a series of experiments on the action of mercury and iodine in monkeys and rabbits, who have been inoculated with syphilis. He finds that mercury shows a prophylactic action against experimental syphilis in rabbits, but only when used in very large doses. The action of the mercury is in part in increasing the activity of the protective mechanism of the organism, partly in inhibiting development, but mainly in its direct bactericidal action to the specific organism. Iodine shows no protective action; monkeys and rabbits become ill at the regular time, even when they are given a continuous intense treatment from the moment of the injection. The syphilitic lesion of animals, which have been under iodine, heal in a short time under mercurial treatment.

The Diagnosis of the Secretory Function of the Stomach by the X-Ray.—Schlesinger has made use of a procedure for studying the secretion in the stomach quantitatively. He has found that, if a patient who has been fed a bismuth gruel is examined with the *x*-ray at varying intervals after the ingestion of the material, usually three distinct layers may be made out in the shadow picture. The upper layer is clear, due to gas; the lower one is black from the bismuth, and between the two is an intermediate layer giving a faint shadow. This intermediate layer the author believes to be due to the gastric juice, and the width of it to be a quantitative estimate of the secretion of the gastric glands. The method has the advantage that the secretion may be studied during the entire course of digestion.

Book Reviews.

Surgery. Its Principles and Practice. By various authors. Edited by William Williams Keen, M.D., LL.D., Emeritus Professor of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia, and John Chalmers Da Costa, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volume V. With 550 illustrations, 45 of them in colors. Philadelphia and London: W. B. Saunders Company, 1909.

The appearance of this, the fifth and last volume of this system of surgery, marks the termination of an enterprise of great magnitude, now brought to a most successful close. What the difficulties are that must be met in collecting and editing the manuscript from so large a number of collaborators (in this case nearly seventy) only those who have engaged in similar work can fully appreciate. As is usual in such cases, the finished work has far exceeded the limits originally planned, but properly few will object to the increase in size of the finished work, which comprises 5500 pages, instead of the 4000 promised. The first 350 pages comprise a monograph of exceptional value by Rudolph Matas, on the surgery of the vascular system, in which he discusses all of the topics to be included under this heading except the ligation of arteries in continuity. As an instance of the progress recent years have seen, it is interesting to note that the surgery of the heart, a topic that perforce has received but scant attention in previous works, now requires 40 pages of text for its presentation. The new technique of arteriorrathy, as developed by the recent work of Carrel, Guthrie, and many others, is also a comparatively new field that is fully described and illustrated. The succeeding 236 pages are devoted to a treatise on operative gynecology by E. E. Montgomery, John M. Fisher, and P. Brooke Bland. The following chapter on surgical technique by John H. Gibbon is thoroughly modern and practical. It includes a description of the various mechanical aids now in use in performing the direct transfusion of blood. W. S. Bickham contributes a chapter on the ligation of arteries, and another on amputations, both of which are beautifully illustrated. Operations on bones and joints are discussed by James P. Warbasse, and plastic surgery by John B. Roberts. In the chapter by William L. Estes on the surgery of accidents, in which the organization of surgical staffs of railroads, and particularly the question of the institution of hospital cars are interestingly discussed. Charles H. Mayo writes on the surgery of the parathyroid glands. The intracranial surgery of the fifth and eighth nerves is discussed by Charles H. Frazier, and Hobart A. Hare contributes a section in general anesthesia. The chapter on local anesthesia was completed by Professor Lennander of Upsala before his untimely death, but the remaining section which had been allotted to him on spinal anesthesia is the work of his assistant, Fredrik Zachrisson. To this the senior editor of the system has added a brief description of Bier's recently published method of venous anesthesia. George E. Armstrong writes on the surgery of the infectious diseases, E. A. Codman on the use of the *x*-ray and radium, and Hampton L. Carson on the legal relations of surgery. The volume closes with a section on laboratory aids in surgical work by William L. Coplin and a discussion of the surgical organization of a hospital by Albert J. Ochsner.

Die Gonorrhoe des Mannes und Ihre Komplikationen. Von San.-Rat Dr. Hans Wossidlo, Spezialartz der Urologie in Berlin. Zweite umgearbeitete Auflage, mit 54 Textabbildungen und 8 teils farbigen Tafeln. Leipzig: Georg Thieme, 1909.

In this second edition, Wossidlo has added new chapters on water-dilating urethroscopy, stricture, and rectal gonorrhea, and revised his treatment of acute gonorrhea. Some sections are rewritten and many paragraphs added, representing the progress of urology since 1903. Under treatment of acute gonorrhea are added the newer santal preparations, silver salts, and accessory instruments for urethral irrigation. The author discusses the points for attainment in the selection of medicaments for irrigation and gives comparisons of the penetrative powers of the different well-known silver salts. He wisely warns against the use of any particular one as routine procedure. The chapters on urethroscopy have been enlarged by the addition of detailed descriptions of the technique of posterior urethroscopy, the appearances of the normal and inflamed mucous membranes, and the changes occurring in the colliculus seminalis caused by gonorrhea as well as by hyperemia due to other factors. The chapter on stricture is a worthy example of condensed writing. The subject receives consideration from all its viewpoints, that of treatment being extremely practical. The recent advances in the pathology and treatment of gonorrheal prostatitis are incorporated, as is also the Bier treatment of gonorrheal arthritis and epididymitis. Five colored and eight uncolored new plates of the urethral picture through the endoscopic tube are added, also three colored plates of stained secretions. The type and workmanship are of superior quality. By extensive literary research enriched with large personal experience, Wossidlo has produced an excellent work, which merits translation into English and a place in the library of every one interested in the subjects of which it treats.

Die topische Diagnose der chronischen Gonorrhoe. Von Dr. Rudolf Picker, emerit. Universitätsassistent, Spezialarzt für Urologie in Budapest. Berlin: Oscar Coblentz, 1909.

This is a small book of 54 pages evolved from previously published articles on the subject in the Hungarian language. The author describes the technique of staining and examining urethral and prostatic secretions, urinary filaments, and flakes. He describes a technique of urethral irrigation with pure cold water in order to obtain filaments from different parts of the urethra for macroscopic and microscopic examination. The technique of urethral and prostatic expression to obtain these secretions is briefly sketched, but detailed description of his method of palpating Cowper's glands is given. Attention is directed to Littrés glands and the Morgagnian crypts and their occasional length. He describes and illustrates by a colored plate a case of intracellular streptococcus infection, which with less microscopic acumen would be readily confounded with gonococci. One-fourth of the book is devoted to case recitals.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles by Leading Members of the Medical Profession Throughout the World. Edited by W. T. Longcope, M.D., Philadelphia, U. S. A. Volume IV. Nineteenth Series. Philadelphia and London: J. B. Lippincott Company, 1909.

The latest volume of this well-known quarterly consists of numerous articles under the headings treatment, medicine, surgery, röntgenology, gynecology, and obstetrics, genitourinary diseases, pediatrics, parasitology, laryngology, and pathology. Among the more notable papers may be mentioned Flexner's Antimeningitis Serum and the Results of its Employment; Bierring's Diagnosis and Treatment of Pernicious Anemia; Longenecker's Color Photographs in Relation to Surgery; Cullen's on the Early Diagnosis of Uterine Cancer; Pisek's on the Diagnosis and Treatment of Congenital Syphilis. Numerous other articles by well-known clinicians and laboratory research workers are to be found in this book, which continues to keep up the high standard of the preceding volumes in this series.

Clinical Studies for Nurses. A Text-Book for Second and Third Year Pupil Nurses and a Hand-Book for All who are Engaged in Caring for the Sick. By Charlotte A. Aikens, Formerly Superintendent of Columbia Hospital, Pittsburg, and of the Iowa Methodist Hospital, Des Moines; Late Director of Sibley Memorial Hospital, Washington, D. C.; Author of "Hospital Housekeeping," "Hospital Training School Methods," and "Primary Studies for Nurses." Illustrated. Philadelphia and London: W. B. Saunders Company, 1909.

The purpose of this work seems to be to collect into one volume the information which nurses are supposed to need on practice, obstetrics, pediatrics, surgery, physical therapeutics, massage, and nervous and mental diseases. In so far as the book confines itself to nursing and the clinical aspect of disease, we can commend it; but it contains matter that cannot possibly concern any nurse in any condition. Sometimes, too, the descriptions are somewhat curious, or are curiously worded. Thus: "The ureter subdivides into several portions, and from these a number of smaller tubes lead into the tissues of the kidney"; "A hernia is an abnormal opening in the walls, etc."; "At birth the uterus when emptied weighs about two pounds"; "Nervous children, as a rule, are not born, but made." The descriptions of methods of diagnosis, with accounts of various kinds of râles and the conditions in which they are found, or Osler's advice to life insurance examiners, or pictures of tuberculous abscess of the humerus or of areas of pericardial effusion and cardiac dulness, do not tend to better nursing ability. The book contains 600 questions for self-examination and review.

Transactions of the American Surgical Association. Volume Twenty-seventh. Edited by Richard H. Harte, M.D., Recorder of the Association. Philadelphia: William J. Dornan, 1909.

This volume contains the papers read before the American Surgical Association at the meetings held June 3, 4, and 5, 1909. The book covers a wide range of surgical activities. Some six-hundred pages are devoted to forty-two papers by such eminent surgeons as Bryant, Ochsner, Halsted, Bloodgood, Finney, Crile, and the Mayo brothers.

Clinical Memoranda for General Practitioners. By Alex. Theodore Brand, M.D., C.M., and John Robert Keith, M.D., C.M. New York: William Wood & Company, 1909.

The authors here voice their experience of many years at the bedside. It is written in the form of paragraphs, most of which are short and to the point. It fairly bristles with helpful advice, including diagnostic, prophylactic, and therapeutic measures, such as the larger books often omit. Part I treats of the medical subjects, Part II of the surgical, Part III of obstetrical and gynecological, and the last part with therapeutics. The book concludes with six pages of aphorisms, little helpful nuggets gleaned from personal experience and much reading.

The points offered to the profession will be particularly helpful to one whose knowledge has been chiefly derived from books. Each one stands out clearly and will make an impression on the reader such as a lengthy description would never do. They are good points, and true. Every practitioner will not agree with everything taught by the authors, but in the main could find but few faults in the ideas expressed.

The Open-Air or Sanatorium Treatment of Pulmonary Tuberculosis. By F. Ruffenacht Walters, M.D., B.S., (London), M.R.C.P., F.R.C.S.; Physician to the Crookesbury Sanatorium; formerly Physician to the Mount Vernon Hospital for Consumptives and Diseases of the Chest; Author of "Sanatoria for Consumptives." New York: William Wood & Company, 1909.

The intention of the author is not only to describe methods applicable to sanatoria, but also to teach the general practitioner how to manage the details of treatment so that he may convert a home into as ideal a place for the patient as is possible. He lays great stress upon detail and the observance of minute points. The use of the vaccine against tuberculosis, and the more indirect method of absorption of toxins, duly regulated by graduated exercise (a process of self-vaccination), are praised by the author. Full descriptions of verandas, tents, and shelters, ventilation methods, heating, and lighting, the avoidance of dust, all serve to make the work of value. The distinctions in the methods employed in the febrile and non-febrile patient, the clothing, baths, and exercise are fully considered. Among many valuable chapters are to be noted special diet lists, useful recipes, and means of disinfection. The second half of the book is more technical and deals with bacteriology, transmission, and predisposing causes of the disease, symptomatology, and treatment. The whole work makes excellent reading for both patient and physician, and the former would not be harmed by its perusal, inasmuch as it deals with easily understood hygiene or with points so technical that he would be unwilling to trust himself with them without advice. The book can be recommended as being the exposition of ideas at present in vogue in the majority of sanatoria in Europe and America.

Diseases of the Heart. By James Mackenzie, M.D., M.R.C.P. Second Edition. New York: Oxford University Press; American Branch, 35 West 32d Street, 1910.

The new knowledge of the heart and the new methods of acquiring it, revealed in Mackenzie's work, have received instant recognition in the speedy exhaustion of the first edition and in the translation of the book into a number of languages. There is little surprising in this, for such a great light as the author has thrown on the subject, and the revolution of the study of cardiac diseases, which the labors of himself and his disciples have brought about could but rivet the attention of the medical world. The old notions of cardiac physiology and pathology have been upset, and the heart has suddenly acquired an importance as an independent organ little inferior to that of the brain itself. The radial pulse and even the ausculatory sounds are no longer the sole or the main criteria of the heart's health, and their diagnostic importance is overshadowed by the signs afforded by the polygraph in the study of the venous pulse, for the latter reveals the condition not only of the left ventricle, but that of the other cavities as well. The interpretation of these signs is not yet established, and herein lies the fascination of their study. In this new edition Mackenzie carries us a little further along, but the changes are not many as yet. There are a number of interesting polygraphic charts at the end of the volume, and there is an appendix by Dr. Lewis on clinical and experimental observations on the electrical changes caused by the contraction of the cardiac chambers, as recorded by the electrocardiograph.

Fundamentals and Requirements of Health and Disease. By Thomas Powell, M.D., Member of the American Public Health Association; the American Health League; and the American Association for the Advancement of Science. Illustrated with many original drawings. Los Angeles and London: The Powell Publishing Company, 1909.

In this volume the author attacks the theory of metabolism and that part of the cell theory which would assume that the white blood corpuscle is the basis of physical life, and substitutes what he calls the vitomotive power. He endeavors to show that foods owe their energy-dispensing attributes to the single element carbon, and that all diseased conditions of the body are primarily due to the action of a single composite substance which he terms "pathogen." The restoration of the afflicted to health depends upon the elimination of this substance. The writer proceeds to show that this may be accomplished by the administration of certain drugs and more particularly by electrodynamic medication, and the use of medicated baths by means of an apparatus invented by him. One cannot escape the impression that the volume is an ingenious plan to make known this apparatus. The claim of having found the origin and the cure of all diseases is such a sweeping assumption that it will need confirmation.

Ophthalmic Surgery. A Treatise on Surgical Operations Pertaining to the Eye and its Appendages, with Chapters on Para-operatic Technic and Management of Instruments. By Charles H. Beard, M.D., Surgeon to the Illinois Charitable Eye and Ear Infirmary; Oculist to the Passavant Memorial Hospital, Chicago; Ex-President of the Chicago Ophthalmological Society; Member of the American Ophthalmological Society. With Nine Plates, Showing 100 Instruments, and 300 Other Illustrations. Philadelphia: P. Blakiston's Sons & Co., 1910.

The author of this work has rendered a signal service to ophthalmology, for he has filled a wide gap in the literature of the subject and has really met a want which has long been felt. All general works on ophthalmology treat more or less fully of the necessary operative procedure, but usually less than more, being concerned chiefly, necessarily and properly, with consideration of pathology, diagnosis, and general treatment. In the present work all the operations which the ophthalmological surgeon may be called upon to perform, on the appendages of the eye, the globe, and the orbit, are minutely described, every step being followed from the preparation of the patient, the selection and care of instruments, and the technique of the operation to the after-treatment. Dr. Beard is gifted with an unusual power of description, and no one with even the most elementary ophthalmological training could fail to understand every detail of the many difficult and delicate operations which he describes. The style is most pleasing, its charm being in its personal character and in the entire absence of didacticism, the reader having the impression of receiving his directions from the lips of the author in an intimate tête-à-tête. To the young oculist the book must prove invaluable and indispensable, and the older and more experienced ophthalmic surgeon will learn something of the history of his specialty, even though he may not need the instruction in operative technique, which the book gives in full measure. There are a number of errors due to hasty proofreading, which will doubtless be corrected in a subsequent edition, which a work of such excellence is bound to have.

A Manual of Normal Histology and Organography. By Charles Hill, Ph.D., M.D., Formerly Assistant Professor of Histology and Embryology, Northwestern University Medical School, Chicago. Second Revised Edition. Philadelphia and London: W. B. Saunders Company, 1909.

This is an elementary manual, in which the fundamental facts of histology are presented in a clear and concise manner, and in which there is as little theory as possible. In this new edition the earlier chapters on the cell and the tissues have been rewritten and enlarged; the rest of the book remaining practically as before. There are ample illustrations, all well selected, and of use.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held April 7, 1910.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Laryngology and Rhinology, and consisted in a symposium on the recent progress in knowledge and treatment of diseases of the upper respiratory tract.

The Nose and Accessory Nasal Sinuses.—Dr. HENRY L. SWAIN of New Haven, Conn., read this paper. He said that the equilibrium between health and disease was sometimes difficult to analyze, but, expressed in its simplest form, involved, in the case of the nose, first and foremost the complete integrity of the outer layer of the mucous membrane. The whole protective mechanism in the nose was really one of construction and maintenance. If the ciliated epithelium was intact in the nose, germs and deleterious matter were wafted downward and backward into the throat and there disposed of. A free flow of bland serum oozed between the cells of the epithelium and bathed the surfaces, helping to keep the membrane clean. This serum in its healthy state tended to inhibit germ growth; this fluid was also essential to the health and activity of the surface cells and the motility of the ciliæ. Normally there was not much real mucus present on the surface; but when an invader was to be kept away or an irritant kept off, then great activity of the glands afforded an abundant mucus to act as a coating to protect the cells and to enmesh and render innocuous the invaders. Reduced then to its lowest terms, people were all dependent upon the integrity and altertness of the epithelial cells, particularly in the tonsils or lymphoid areas. If the doctors only knew better how to take care of common colds and acute infections, as recently mentioned by Kyle, they would find less opportunity for their surgery; during the last few years, on the whole, they had found it less often necessary to operate, an encouraging sign worth chronicling. Apropos of the perennial question of ozena which often had for its first pathological change the loss of the ciliated epithelium, considerable light had been given to the etiology by properly bringing forward the fact that many so-called ozenic cases were really nothing but obscure cases of sinus disease. Speaking about avenues of research, it had often seemed to Dr. Swain that the conception of the problem of hay fever as it was brought forward by Dunbar was one of the most remarkable and picturesque applications of laboratory research and study to the knowledge and treatment of disease. He regretted that it was not more fruitful in its results. Much progress had been made in obtaining a better knowledge and understanding of the anatomy of the sinuses. Their knowledge of the function of the nose and of the necessity of keeping a healthy mucous membrane made them more careful of turbinate tissues. The use of transillumination and the *x*-ray had been of great service in the diagnosis of sinus disease. In nasal work they had taken advantage of the cutaneous and other reactions such as Wassermann's, the von Pirquet, and the tuberculin. The electric cautery was not used as often nor as freely as it was several years ago. In the last two years more was heard about methods of opening the frontal and other sinuses first thoroughly through the nose before resorting to the external operations which tended to greater or less disfigurement. In this way the nose was kept in better shape to do the work for which it was originally intended. Much had been done during the last two years to make, for instance, an antrum operation intranasally. When certain intracranial complications were present, however, they should open externally in order that they might better see, drain, and care for the collected pus in its dangerous proximity to or in its actual embodiment in the brain substance. From his own experience he said he wished to chronicle that there had been a number of obstinate cases of discharge and scab formation within the nose, as well as some of genuine atrophic rhinitis, in which massolin had been of the utmost help.

The Oropharynx and Nasopharynx.—Dr. W. K. SIMPSON referred to some of the facts and conditions in the naso- and oropharynx, which more or less recently had been the subject of active medical thought. The subject of adenoid vegetations was now recognized as of the most vital importance. Among the most recent advances in the examination of the nasopharynx he mentioned Hay's pharyngoscope; by its use, even in very young patients, a complete picture of the vault of the pharynx might be obtained, thus doing away with the annoyance of digital examination and the difficulty of the ordinary rhinoscopic mirror. Among its benefits might be mentioned the mapping out of various hypertrophies and adhesions about the fossa of Rosenmüller and their removal, under vision, through the anterior nares with the pharyngoscope *in situ*. Through this instrument the Eustachian orifices might be seen, and their catheterization and bougieing accomplished under complete visual control. As in all processes of examination, so in the use of the pharyngoscope, a certain familiarity must be obtained and certain details observed. This instrument could be used almost with equal facility in the examination of the larynx. The recognition of ulceromembranous angina, due to bacillus of Vincent, cleared up many errors and perplexities of previous days, when it was mistaken for syphilis, diphtheria, chronic folliculitis, and other ulcerative conditions. The relation of *Spirochæta pallida* to primary and especially to secondary syphilis of the fauces, played a very important part in recent positiveness of diagnosis of those affections. The present status of serum therapy, exclusive of the diphtheria antitoxin, seemed to have but a limited application to the treatment of inflammatory infections of the pharynx. The use of calcium lactate in immediate and remote operative hemorrhages had received considerable attention and had been followed by beneficial results. The faucial tonsils had also received very much attention, especially as to their anatomy, structure, function, and relation to neighboring healthy and diseased lymphatics, as protective organs, portals of entry to contagious and remote infections, relation to tuberculosis, general and local, rheumatism, scarlet fever, grippe, and other infections, and finally as to the necessity and mode of removal. The profession was becoming convinced that diseased tonsils were a menace to health, and when there was a more widespread understanding of this relation to the health of the individual, the objections to their proper removal would be overcome. It was often a question in Dr. Simpson's mind whether a properly performed tonsillotomy was not as beneficial as an average so-called tonsillectomy. In the performance of the latter operation there was the great lack of unanimity as to the technique by different operators. An attempt should be made toward securing a uniformity of performance.

The Larynx, Trachea, and Bronchi.—Dr. SIDNEY YANKAUER read this paper. After calling attention to the advantages and disadvantages of the various instruments used for examination of the larynx, he said it was his opinion that when the necessary skill in the management of the head lamp had been acquired, the original head illuminating device of Killian was the most satisfactory for bronchoscopic procedures. For direct laryngoscopy, however, where the lumen of the tube was considerably larger, and where the field of observation lay directly at the end of the instrument, the apparatus of Jackson had many desirable conveniences. Three kinds of bacteria

were found in the throats of apparently normal individuals, the staphylococcus, the streptococcus, and the diplococcus. In those severer forms of acute infectious laryngitis, one or more of these germs were found to be the causative agent. These cases were sometimes so rapid in their course that patients succumbed to acute sepsis even before the swelling in the larynx had advanced to a stage in which suffocation threatened; it seemed to him that little could be done in such cases unless an efficient antistreptococcus serum could be found. In tuberculous laryngitis the intralaryngeal operations had been generally abandoned in favor of hygienic, dietetic, and palliative measures. Pregnancy exerted a pernicious influence in such patients; immediate abortion should be considered as urgently indicated as soon as pregnancy supervened. Great advances had been made in the treatment of carcinoma of the larynx by putting into practice the same principles which guided surgeons in the treatment of this disease elsewhere, namely, early operation. When the growth was limited to a small part of the laryngeal interior, laryngotomy might be done and the growth with the surrounding margin of the healthy tissue removed; when the growth extended to the thyroid cartilage, the removal of the entire half of the larynx was indicated; when the growth extended across the median line of the larynx, the entire larynx must be extirpated; if the glands of the neck were enlarged, or if the growth extended beyond the confines of the larynx, and involved portions of the tongue or pharynx, the life of the patient might be prolonged by the very extensive removal of the entire growth *en masse*. The mortality from laryngectomy resulted chiefly from inhalation pneumonia; such an accident could be avoided, according to Gluck, by performing tracheotomy; the trachea was severed completely from the larynx, and its end brought out through the wound and sutured to the skin, thus entirely shutting off the trachea from the wound above. The differential diagnosis of the three chief chronic diseases of the larynx—tuberculosis, carcinoma, and syphilis—had been added by the various blood tests and serum reactions. Radium had been employed in the laryngeal carcinoma and other chronic laryngeal diseases, but the results reported by different observers varied considerably. When applied through the intact larynx, the *x*-ray was entirely without value; when the larynx had been opened, in operable cases, and in recurrences, the use of the *x*-ray limited the growth of the tumor and helped to relieve pain. Since the introduction of the bronchoscope, the diagnosis and treatment of the disease of the trachea and bronchi had been the subject of direct observation and study. Rhinoscleroma occasionally involved the larynx and trachea secondarily; primary scleroma in the larynx and subglottic regions was very rare. He had observed two such cases at Mt. Sinai Hospital; one was cured by applications of the *x*-ray through a tracheotomy wound; in the other the lumen of the trachea had been maintained up to the present time by the repeated passage of a bronchoscopic tube. The most frequent cause of tracheal stenosis was the pressure of the enlarged thyroid gland on that portion of the trachea which passed through this organ. In the milder forms of these stenoses, dilatation by means of Schrötter tubes might cause a sufficient widening of the passage to keep the patient comfortable; in the more pronounced forms, permanent dilatation might be obtained by the introduction of large intubation tubes which must at times be left in place for many weeks. The removal of foreign bodies from the trachea and bronchi had been attended with brilliant results. About five years ago Dr. Yankauer had the privilege of performing the first successful bronchoscopy in this city for the removal of a foreign body. The offending substance was an orange-pit which was inhaled by a child ten months old. It was just large enough to enter the opening of the right bronchus and to project across the bifurcation, so as partly to close the other bronchus. Owing to the small size of the passages, tracheotomy was performed, and the bronchoscope introduced through the tracheotomy wound and the foreign body removed. Recovery was uninterrupted. About one year later he removed a peanut kernel from the right bronchus of a boy of four years, the bronchoscope being introduced through the natural passages. Since that time he had removed two other foreign bodies by the direct method, through the natural passages, and, in association with Dr. Emil Mayer, in a number of other cases both by the direct and indirect methods. The operation for the removal of a foreign body was not a severe one, and, in his own cases, had not lasted more than five minutes. Newer methods of thoracic surgery, by means of which it was now possible to open the chest with impunity, were of interest because of their relation to bronchoscopy; this branch of surgery was as yet in its infancy.

Dr. Harmon Smith opened the discussion on the nose and accessory sinuses, and stated that the protection against the invasion of disease lay not so much in an intact mucosa *per se* as it did in the mucus that was secreted, which performs the mechanical function of constantly washing away any foreign substances. Therefore, anyone advocating the use of salt water, or any of the ordinary antiseptic solutions employed for cleansing purposes, took away from the nasal passages their natural means of protection. Immunity established against infection by such procedures was only temporary, and subsequently rendered the sinuses more susceptible to infection by removing their protection. Dr. Smith had no favorable experience in the use of massolin in purulent conditions. In ozena and atrophic rhinitis it had proven beneficial, in some cases, but it had failed absolutely in others, thus rendering it an uncertain product. Atrophic rhinitis was considered by some authors not a disease of the mucosa primarily, but a disease of the underlying bone, which had extended to the mucosa. One of the great advances in the diagnosis of rhinological subjects had been made in rhinoscleroma, both in isolating the germ causing it and determining its extension to the larynx. The use of the *x*-ray had been very beneficial in the treatment of its external manifestation, and the administration of vaccine had apparently affected it beneficially internally. Dr. Smith said that there were times when the assumption of conservatism relative to any given disease or operation might be construed as progress, and he believed that a conservative consideration of sinusitis was now more advocated than aggressive operative methods. His patients with purulent sinusitis were given every benefit of internal treatment first, and of internal operation second, before proceeding to any external methods. This procedure was adopted in every case except when the ethmoidal or frontal sinus abscess had perforated into the orbit; then immediate operation was performed. The periostitis and general fibrosis following some of the more radical operations were more painful and disagreeable than the previous purulent condition, and, therefore, should lead operators to evacuate the pus with the least possible destruction of tissue. The dangers of neglected sinusitis had been exaggerated, for older observers could recall no instances of death resulting therefrom, and not until the present operative measures were in vogue did they see fatal cases. Of course it had only been recently that post-mortem examinations were directed to the sinuses as a cause of meningitis resulting in death. Abscesses at the base of the brain from sphenoidal or ethmoidal infection had been noted by many, and operations for the same performed. As regards the comfort given the patient, no operation upon the nose exceeded the perfected submucous resection. He believed that it was bad surgery to perform it in chil-

dren under fourteen years of age; in old people its employment depended upon their vitality and the nature of the obstruction. The close relation of the optic nerve to the sphenoidal and ethmoidal sinuses made it easily apparent that infectious or tumorous involvement of either of these localities was reasonably sure to affect the nerve so closely adjacent. Optic neuritis as a complication of empyema of the sphenoidal sinus was of comparatively recent consideration, and operative procedures upon this sinus for the relief of optic neuritis was among their most recent surgical methods. The means of diagnosing sphenoiditis was limited, and no one could say that no periostitis or hyperemic condition existed in the sinus until it was opened. The mere depletion incident to operation on this sinus had been known to affect optic neuritis favorably, so that oculists frequently stated that the last measure for its amelioration be performed, irrespective of the absence of visible sphenoid involvement.

Dr. Lewis A. Coffin reported a case of antrum involvement in which massolin had been used without benefit. A radical operation then was performed, with a resulting cure. With regard to what was said about conservatism in chronic intranasal cases, he did not agree with what had been said; in these cases he believed in a radical operation.

Dr. Lewis A. Frissell continued the discussion, confining his remarks to the consideration of the mouth and pharynx. After briefly reviewing the anatomy of the oropharynx, and the tonsils in particular, he said that the tonsils might act as portals of entry of infection; first, through the blood stream, and, secondly, through the lymph stream, probably the more uncommon method. The diseases that gained access to the body through the oropharynx might be divided into two main types: (1) Those local infections which caused constitutional disturbances by toxic absorption, of which diphtheria was the best example. (2) Those diseases caused by an invasion of the body by bacteria, the most common of which was tuberculosis and the various forms of septic invasion of the body by pyogenic organisms. As would be expected in the cases of organs constantly bathed with tuberculous sputum, a large proportion of the cases show tuberculous tonsils. In children, gland tuberculosis played a very important rôle, and Wohlemuth found that in children under ten years of age 60 per cent. suffered from tuberculous glands. Endocarditis, nephritis, pneumonia, pleurisy, meningitis, phlebitis, skin and eye lesions had all been reported many times as having etiological relationship to tonsillar infections. Rheumatic fever had for a long time been associated with tonsillar invasions. In exanthemata in which throat symptoms formed so important a part it seemed reasonable to postulate a throat infection. Of these scarlet fever and measles stood out prominently.

Dr. Chas. A. Elsberg said that one of the great advances made was in the use of the bronchoscope, and that surgeons must look to the laryngologists for help, for they could teach them a great deal about intrathoracic lesions because of their knowledge of the use of this instrument. Therefore, those working in thoracic surgery must expect aid from the laryngologists. Among the new methods in intrathoracic surgery for overcoming the dangers of pneumothorax he called attention to that of Meltzer and Auer. (See Dr. Elsberg's paper on "The Value of Continuous Intratracheal Insufflation of Air (Meltzer) in Thoracic Surgery," Medical Record, March 19, 1910, page 493.)

Dr. Emil Mayer referred to a case of tracheal scleroma treated by rapid dilatation with the bronchoscopic tube; this was a great advance in the treatment of this condition.

Dr. Walter F. Chappell said he did not believe in radical operations for the acute diseases of the accessory sinuses; in chronic diseases, however, much depended upon intranasal methods when the infection was mild; if the infection was severe and of long standing, then more radical and external measures should be instituted. Rest to the larynx was a very important part of the treatment; he recalled two cases of papillomata of the larynx that he had seen during the past year, in both of which the condition disappeared under complete rest.

Dr. Swain, in closing the discussion, agreed with Dr. Smith that it was not right to wash away the mucus from the nasal passages, and then on a cold winter day to send such a patient out of doors and expect him to improve. That was, in his opinion, about the worst thing that could be done. With regard to tuberculous laryngitis and the use of tuberculin, he said he had cured three cases by giving it in gradually increasing doses. One patient gained seventeen pounds, and, after having been absolutely voiceless and unable to swallow, could now speak and could swallow perfectly.

Stated Meeting Held Thursday, April 21, 1910.

The President, Dr. John A. Wyeth, in the Chair.

A SYMPOSIUM ON FRACTURES AT THE ELBOW.

The Carrying Angle of the Upper Extremity; Its Mechanism and Importance.—Dr. Oscar H. Allis of Philadelphia read this paper. He stated that thirty years ago he had read a paper before the Brooklyn Anatomical and Surgical Society entitled "Deformity from Fractures at the Lower End of the Humerus and How It May Be Avoided." He had also written upon this subject ten years before that time. He had suffered a fracture himself when a child which resulted in "gunstock" deformity and loss of the carrying angle, and his personal experience had early led him to seek the cause and means of prevention of this deformity. Dr. Allis confined his remarks to fractures of the internal condylar region; in his experience these fractures were numerically the most frequent injuries at the elbow joint and occurred oftener in the left than in the right arm. In many of these injuries there was no immediate deformity and hence the fracture might be treated merely as a sprain. The reason for this was in the mechanism of this joint, which gave two distinct borders known as the external and internal supracondylar ridges, each of which was described as having two lips to which were attached important muscles which gave strength to the wrist and hand, and to these ridges were attached the aponeurosis of the muscles on the anterior and posterior aspects of the limb. These attachments, together with those of the deep fascia, gave much strength and support to the lower end of the humerus, and when a fracture took place they gave considerable natural splintage and held the fragments in good position. It was a good rule to give an anesthetic at the first examination, as that examination might reveal any preternatural mobility. In addition the moral effect of the anesthetic was of no trifling value, as it carried with it the presumption of carefulness. In some instances manipulation did not reveal crepitus; this was because the small fragment under discussion had lost connection with the humerus while its ligamentous connection with the ulna had not been disturbed, hence in lateral movements the fragment followed the ulna. In his forty years' experience he had come to regard deformity and impairment of the normal functional activity as of far more importance than the very remote possibility of ankylosis, which was chiefly to be dreaded in injuries of the severest type. In his forty years' experience he had never resorted to an anesthetic to reclaim a joint disabled through bony ankylosis. As to the loss of the carrying angle, he had found that not only did his left arm tire sooner than his right, which was probably due to loss of sup-

port of the elbow upon the pelvic region, but that with the loss of the carrying angle the body leaned toward the deformed arm in order to prevent the object carried from striking against the limbs; this upset the center of gravity and was tiring in the highest degree. Thirty years ago he had attributed the gun-stock deformity to the general practice of using arbitrary manufactured splints, his argument being that the tendency of such a splint was to displace the broken fragment upward because the bandage lifted the ulna, and the ulna, being attached to the broken fragment, displaced it upward. All arbitrary splints were open to the same charge, that of compelling the fragments to approach the splint and thus obliterate the carrying angle. He advocated plastic material that would accommodate itself to the injured part and give support during repair. He preferred the extended position, as he thus had the advantage of a normal limb upon which to mold his dressing. Only in the extended position could he estimate the angle of the normal joint. He applied the plaster bandage so as to include the shoulder of the injured arm, but did not apply the bandage tightly with the purpose of holding the parts in apposition. While the bandage was setting he made a little gentle pressure with a view to flattening it at the elbow. In this position he felt confident of the assistance that the radius could render. He had not been in the practice of removing the splint and resorting to passive motion during repair, but suggested that when passive motion was used the arm be put back into the original splint after very gentle massage and movement. In the dressing of elbow injuries he did not insist upon any arbitrary rule, but held that that position was best which yielded the best results. He had deviated from the extended position in but one case in forty years. Dr. Allis thought that surgeons should not be satisfied with their treatment of these cases so long as the result was lifelong disability and deformity, provided only the patient recovered the single function of motion.

Reconstruction of the Elbow After Fractures of the Lower End of the Humerus.—Dr. John B. Roberts of Philadelphia discussed the varieties of fracture taking place in this region. He held that in the average case the treatment was satisfactory both as to future usefulness of the arm and in regard to its physical contour. The reconstruction, however, depended upon the surgeon having a clear knowledge of the character of the fracture and its method of reduction and upon the selection of dressings which maintained the fragments in the position in which he had replaced them. The possibility of cubitus varus or gun-stock deformity, due to displacement causing adduction of the forearm, had to be remembered. The opposite deformity, cubitus valgus, was said to be far less common than cubitus varus. The use of the *x*-ray might lead to mistaken ideas unless the results obtained by it were subjected to the checks furnished by clinical symptoms and correct understanding of the centers of ossification of the lower end of the humerus. Incision and direct inspection were available means of gaining an accurate knowledge of the line of fracture. This method could only be adopted when the surgeon was familiar with aseptic procedures. The complicated mechanism of the elbow and its association with man's manual dexterity made its reconstruction after osseous lesions an important surgical problem. The deformity called cubitus varus and other deformities might be primary or secondary; hence it was necessary that the reduction of the fragments must be maintained by suitable postures and apparatus. The complicated fractures of the lower end of the humerus, such as occurred from crushing injuries, or gunshot wounds of severity, were liable to give the surgeon trouble. Such fractures were much more apt to be followed by impairment of mobility. Volkmann's contracture of muscles, due to anemia, causing destruction of muscle fibers, probably resulted from tight bandaging or pressure from splints in those cases of fracture in which it occurred as a secondary lesion. It was possible that it might occur from other conditions causing a lack of blood supply to the muscles. The author discussed the extended position of the elbow for the treatment of these fractures and gave it his approval, though he stated that the fully flexed position recommended by Jones, Smith, Scudder, and others was perhaps just as satisfactory. Even the right angle position of the joint might be employed if the surgeon recognized the possibility of cubitus varus and maintained the carrying angle of the arm and forearm during the setting of the splint employed. The correction of deformities or ankylosis by operations such as chiseling, osteotomy, etc., were also discussed. The fixation of the fragments by nails, screws or plugs was referred to and shown to be applicable in some cases. The propriety of using in selected cases a cartilaginous peg taken from the patient's own costal cartilage was also mentioned.

Dr. L. S. Pilcher, in discussing these papers, said that he recollected Dr. Allis' paper read in Brooklyn and had often recalled the views then expressed. The carrying angle was a practical and important entity. After hearing Dr. Allis' paper he had made many measurements upon the arms of children and had found that the angle was really present, and that Dr. Allis had not exaggerated its importance. It was important from a mechanical standpoint and its loss was a real misfortune to those engaged in mechanical arts. While it might not be so important to dwell on one particular method, it was important to keep in mind the relation of these bones and the mechanism of the parts, so that one might be able to appreciate what he had to do; the "how" might be left to the experience of the surgeon, the materials at hand, and the surroundings in the individual case. One experienced with plastic materials would naturally use them, while one accustomed to using other materials might be excused if he followed other methods. He had been impressed with the importance of the aponeuritic structures. The support which they might be made to lend to such an injury was very great. If one used them, outside means might be done away with to a considerable extent. He looked with favor on treatment by such a position as brought into play aponeuritic bands and sheaths and relaxed and lessened the action of those which tended to produce displacement. In his opinion the flexed position relaxed to the greatest degree. From his practical experience he had found that any apparatus which held the part in the flexed position after reposition had been accomplished would do. The flexed position was best both for retention and for comfort, whether by one bandage or another did not make so much difference. Serious loss of function or ankylosis was more frequently due to the presence of exuberant callous. The callous was due to imperfect retention of the parts, constant friction, and increased congestion. It did not become absorbed and remained as a permanent source of interference. In some cases imperfect retention was the result of too frequent attempts to move the joint. After the bones were in position they should be retained there before attempting to subject the arm to function. The natural teaching would be that an injured joint should be kept quiet for at least four weeks. Stiffness quickly disappeared and function was soon restored without interference during this

time. There was too much fear of ankylosis. The care should be to prevent ankylosis by immobility.

Dr. Charles N. Dowd said that the discussion of the advisability of operation and the various methods of retention had led him to wonder whether they were getting better results at present than were obtained some years ago, and consequently he had been looking up old cases. He had seen thirty-four cases treated after Dr. Pilcher's method. The treatment consisted in an examination under ether, putting the fracture up for ten days, then renewing the splint and leaving the arm for three weeks flexed and in as good a position as possible. The results had been scarcely any loss of the carrying angle. There were a few who had lost the carrying angle, but there were no gun-stock deformities. He did not consider the gun-stock deformity a great danger. Perhaps in another series of cases it might occur more frequently. One case of gun-stock deformity was operated upon and then put up in plaster. Three years after the operation the deformity still existed. The dangers of treatment were of two kinds; first, riding back of the lower fragment, limiting flexion. This was one reason why some preferred to put the arm in the flexed position. The second danger was the formation of callous in joints or about fragments. He had had a case some years ago which was up four or five weeks and was very stiff. He wanted to give passive motion under an anesthetic, but Dr. Bull opposed it, as he had seen so many injuries resulting from efforts to force matters. He eventually got good motion in this case, and was grateful to Dr. Bull. Many cases with limited motion would eventually come straight, even though progress was very slow at times.

Dr. Wyeth said that until ten years ago he had treated these fractures in the usual way in the flexed position because he had been so taught, both by books and by surgeons. He had treated many cases and had carried out the rules as intelligently as possible, but his results were unsatisfactory. While investigating the subject he fell upon Dr. Allis' idea and regretted that he had not known of it sooner. He had since used extension. He put the patient under an anesthetic and availed himself of the aid of the fluoroscope when possible. He had also used Dr. Allis' plaster dressing. On the eighth day he removed the dressing as far as the seat of the fracture. He used nitrous oxide gas and flexed the arm to an angle of 45 degrees. Eight days later he repeated the flexion, going as far as 90 degrees. After another eight days he flexed the joint still further, and after this time left no dressing on. He had treated many cases in this way and had had no unsatisfactory results. The majority of cases after long fixation gave limited motion and did not get that degree of extension desirable.

Dr. Reginald R. Sayre said that he had tied the hand as closely to the neck as it was practical to get it. This was a good plan, especially in children. He knotted the bandage closely around the wrist and then around the neck. In a week's time the movements of the neck would draw the hand up considerably. He left the arm in this position until all heat had gone from the elbow. In a few weeks the arm would go back to full extension. He thought that passive motion, especially under an anesthetic, was apt to increase ankylosis. Paralysis might be caused by forced flexion. It was, of course, necessary to preserve the carrying angle, but it should be remembered that many rickety children had knock elbows as well as knock-knees. He agreed with Dr. Allis' statement that the splint should fit the patient, and not the patient the splint.

Dr. Allis, in closing the discussion, thanked the audience for the way in which they had received his paper. The subject was not one that could be minimized. He had just looked over two new books on surgery and found only short paragraphs on this subject, whereas a volume of several hundred pages would be required to do these fractures justice. He regretted that time compelled him to confine his remarks to this one form of fracture, as deformities were apt to occur in all fractures about a joint. Sometimes persons had both arms broken; he had seen two cases in which both arms were in the gun-stock deformity. He wished to emphasize the point that in fractures of the internal condyle nature furnished a good splint, and that anterior posterior pressure should be used in moulding the fragment into position while the plaster was soft. In some severe cases the sharp fragment from above pushed down, injuring the nerve.

Dr. John B. Roberts closed the discussion. He said the carrying angle was greater in some individuals than in others. The way to solve this problem was to look at both arms; the uninjured arm would give the proper carrying angle. He agreed with Dr. Pilcher that partial or full flexion was a very good position to avoid pressure on soft tissues. He also agreed that some cases were more comfortable in this position. It was a bad thing to teach special splints for special fractures. The question was one of mechanism, pathology, and intelligence. Dr. Roberts said that he used to believe that passive motion should be delayed, but he now thought that surgeons sometimes left fractures too long in absolute rest. Most of them did better when properly reduced if looked after daily for a week. They should be manipulated very carefully by someone who understood just what he was doing. He believed in passive motion and in light massage done early and with proper care.

Philadelphia Pediatric Society.

At a stated meeting held April 12 Drs. Z. M. K. Fulton, G. W. Norris, and C. F. Judson demonstrated "Several Cases of Bradycardia Occurring in One Family." The patients consisted of a father and three children presenting varying grades of bradycardia, in some with cyanosis and convulsions, together with graphic evidences of heart-block. The group of cases is unique in showing the possible effect of hereditary influences in the development of disturbances in the structure and function of the connecting bundle of His and the symptoms resulting therefrom. Dr. J. T. Rugh demonstrated a boy on whom he had operated for a large psoas abscess. The condition had manifested itself first by a swelling in the lumbar region and later by a prominence in the groin. Aspiration was practised and bismuth paste injected into the abscess-cavity and, although the affection had been of several years standing, recovery was taking place satisfactorily. Dr. Eleanor C. Jones reported "A Case of General Streptococcic Infection with Symptoms of Empyema." In spite of the fact that elevation of temperature persisted for several months, together with physical signs of a purulent accumulation in the left pleural cavity, multiple puncture failed to effect the evacuation of any fluid, and recovery ensued, with the disappearance of the physical signs. Dr. A. E. Simonis demonstrated a specimen from "A Case of Mitral Disease and Adherent Pericardium." Dr. D. J. Milton presented communication entitled "Personal Observations on the Treatment of Ileocolitis." He employed castor oil as a laxative, and he advised the withdrawal of milk from the dietary, permitting albumin water and beef juice. Dr. E. J. G. Beardsley reported "Two Cases of Nephritis Following Varicella."

Open-Air Schools.—London has three open-air schools for tuberculous children. Similar institutions have been established in the United States in Providence, Boston, New York, Pittsburg, Chicago, Hartford, Conn., Brookline, Mass., and Rochester, N. Y.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

NEW HAMPSHIRE STATE BOARD OF MEDICAL EXAMINERS.

January 4 and 5, 1910.

ANATOMY.

1. What are the organs of assimilation, and how does the nourishment get into the circulation?
2. Give a diagram of the eyeball, naming all the parts thereof.
3. What is the relation of the ulna to the elbow and wrist joints?
4. Locate the gall-bladder.
5. Name all the bones that constitute the spinal column.
6. Place and describe the inferior maxillary bone.
7. Enumerate and describe the muscles of the posterior brachial region.
8. What vessels go into and out of the heart?
9. Describe the inferior vena cava.
10. Give the origin, course, and distribution of the facial nerve.

PHYSIOLOGY AND HYGIENE.

1. What is the science of animal physiology?
2. How is the potential energy of food measured, and how expressed?
3. Explain the absorptive process that takes place in the stomach?
4. What is blood pressure, and what are its normal variations?
5. What is the general classification of special reflex movements? Give two examples.
6. What is the physiological process in presbyopia?
7. What comprises the immediate sources of water supply?
8. Give your method of room disinfection after the removal of the patient.
9. What is the best method of garbage disposal in large cities?
10. Discuss quarantine.

CHEMISTRY.

1. What is common table salt? How would you distinguish it from iodode of potassium?
2. Mention some drugs that would be chemically incompatible if combined in a prescription.
3. What are proteids?
4. What is heat?
5. How would you conduct a chemical analysis of urine? Give names and formulæ of all reagents used.
6. Define oxidation and combustion, and give an example of each.
7. Name the chlorine salts of mercury. Give the formulæ, common name, general properties, and toxicity of each.
8. Give in detail a reliable test for the detection of hydrochloric acid in a specimen of gastric contents.
9. What is the difference between an elementary and a compound substance?
10. What is the difference between alcohol and ether?

PATHOLOGY AND DIAGNOSIS.

1. Give symptoms and diagnosis of renal colic.
2. Diagnose between hypertrophy of prostate and tumor of bladder.
3. Give symptoms which would lead you to suspect dilation of heart.
4. Give pathological conditions which produce gangrene.
5. In what pathological condition do you get an excess of earthy phosphates in urine?
6. Give the symptoms and differential diagnosis of pneumothorax.
7. Enumerate the different forms of anemia.
8. Describe a case of rodent ulcer.
9. Give the differential diagnosis between hydatid disease of the liver and other liver diseases.
10. How would you prepare sputum for bacillus examination?

MATERIA MEDICA, THERAPEUTICS, AND THE PRACTICE OF MEDICINE.

1. Give rational treatment for sunstroke.
2. Differentiate laryngeal diphtheria from spasmodic croup and give your treatment for the latter.
3. What cardiac lesions are likely to accompany or to follow acute articular rheumatism and how are they recognized?
4. Give therapeutic indications for the use of chloral hydrate and the appropriate dose in each case.
5. By what rule would you determine the dose of any drug for a child?
6. Without abbreviating, write a prescription containing at least three drugs for acute bronchitis occurring in an adult.

Case: Man, fifty years old, a hard drinker, except during the past year. No family history obtained. For two or three years he has had pain after taking food, occasional vomiting, and progressive loss of flesh and strength. For the past eight or ten weeks he has complained of frequent and severe pain of a "stretching" character in the right hypochondrium, without much tenderness. For the last two weeks he has been deeply jaundiced. For a week he has been confined to bed and is emaciated and prostrated. His nights are disturbed by pain. The liver is greatly enlarged, hard, irregular, and nodulated; the lower edge reaching to the anterior spine of the ilium; it also extends to the left of the median line about two inches. It is slightly tender. There is little or no ascites. Pulse, 92; temperature, 98.5. Urine rather scanty and very dark. No itching of the skin.

7. What diseases can produce emaciation with jaundice?
8. Common cause of hepatic enlargement?
9. What importance would there have been in a good family history?
10. Diagnosis? Prognosis? Treatment?

SURGERY.

1. Enumerate dislocations at shoulder joint and give mode of reduction of each.
2. How would you treat compound fracture of tibia?
3. Enumerate and describe various kinds of aneurysm.
4. Give causes of hematuria and modes of treatment.
5. Describe technique of tracheotomy.
6. Give the etiology, pathology, and symptoms of empyema and describe best operation for its cure.
7. Describe fracture of the patella and describe methods of treatment.
8. Give the symptoms and treatment for fracture at the base of the skull.
9. Describe operation for the radical cure of oblique inguinal hernia.
10. Diagnose fistula in ano and describe operation for its cure.

OBSTETRICS.

1. Under what circumstances would you irrigate after confinement, and with what solutions?
2. Name two of the most frequent non-malignant growths of the uterus.
3. What is the cause of, and how would you treat the frequent inclination to urinate in a pregnant woman?
4. Mention the indications for version.
5. When may an anesthetic be used in a normal labor?
6. What are the causes of sterility in the female, and what is the treatment?
7. What is the treatment for persistent eclampsia a few days previous to labor?
8. Give symptoms and treatment of tubal pregnancy.
9. Give treatment for suppurative mastitis occurring soon after labor for both the mother and the child.
10. Name some of the diseases of pregnancy.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

NEW HAMPSHIRE STATE BOARD OF MEDICAL EXAMINERS.

January 4 and 5, 1910.

ANATOMY.

1. The term *assimilation* is "used to cover the subsidiary processes of digestion, respiration, absorption, and excretion, through which food material and oxygen are prepared for the activity of the living molecules, and the waste products of activity are removed from the organism, as well as the actual conversion of dead material into living protoplasm." Hence, *the organs of assimilation* are all the organs of digestion, respiration, absorption, and excretion. The nourishment gets into the circulation by two routes: (1) By the blood-vessels of the gastrointestinal tract, which unite to form the portal vein, and (2) by the lymph vessels of the small intestine, which converge to empty into the thoracic duct. The water, inorganic salts, proteids, and sugar go by way of the portal vein to the ascending vena cava; the fats go by way of the thoracic duct to the junction of the left subclavian and internal jugular vein.

2. See Cunningham's "Anatomy" (1909), page 724; or Gray's "Anatomy" (1908), page 122.

3. The *ulna* is an essential factor of the elbow joint; it does not enter the wrist joint at all, being separated from the first layer of carpal bones by cartilage.

4. The *gall-bladder* is situated in a fossa on the under surface of the right lobe of the liver. It is in relation, in front, with the anterior abdominal wall, immediately below the ninth costal cartilage.

5. Seven cervical vertebræ, twelve dorsal vertebræ, five lumbar vertebræ, sacrum (in youth consisting of five segments), and the coccyx (in youth consisting of four segments).

6. See Cunningham's "Anatomy" (1909), page 142; or Gray's "Anatomy" (9108), page 122.

7. The muscles of the posterior brachial region are the triceps and anconeus. For description see Cunningham's "Anatomy" (1909), page 335; or Gray's "Anatomy" (1908), page 479.

8. *Vessels going into the heart:* Superior vena cava, inferior vena cava, pulmonary veins, cardiac veins, coronary sinus, veins of Thebesius. *Vessels going out of the heart:* Aorta, pulmonary artery.

9. See Cunningham's "Anatomy" (1909), page 892; or Gray's "Anatomy" (1908), page 764.

10. See Cunningham's "Anatomy" (1909), page 686; or Gray's "Anatomy" (1908), page 1059.

PHYSIOLOGY AND HYGIENE.

1. *Animal physiology* is that branch of science which treats of the functions of the organs and tissues of the animal body in a state of health.

2. The potential energy of food is *measured* by the amount of heat or energy that it will produce; it is expressed in *calories.* (A *calorie* is the amount of heat required to raise one gram of water 1° C.)

3. Substances that may be absorbed in the *stomach* are: Water, alcohol, salts, sugars, and dextrins that may have been converted from starch by the ptyalin of the saliva, and proteoses and peptones resulting from peptic digestion of proteids.

4. *Blood pressure* is the force or pressure of the blood exerted against the vessel walls. "In a case of healthy adults, the pressure in the brachial artery ranges between 110 and 130 millimeters of mercury."

5. *Reflexes are classified*: (1) *Superficial reflexes* are such as can be elicited by stimulating the skin. *Example:* The cremasteric reflex. And (2) *deep reflexes* are such as are elicited by stimulating tendons or muscles. *Example:* The patellar reflex.

In the *cremasteric reflex*, irritation of the skin of the upper and inner part of the thigh causes a retraction or drawing up of the testicle. In the *patellar reflex*, if the tendon of the quadriceps extensor is struck with the edge of the hand while the leg hangs loosely over the other leg, there will be a single upward jerk of the leg or foot.

6. *Presbyopia* is due to a gradual failure of the power of accommodation, dependent on the progressive loss of elasticity in the lens and on the loss of its power to increase its refraction. The near point recedes and the range of accommodation is diminished.

7. The sources of water supply are: (1) Rain and snow; (2) surface waters (rivers, lakes, and ponds); (3) subsoil or ground water; (4) deep waters (spring and artesian well).

8. *Method of room disinfection:* All articles that can be disinfected by moist or dry heat or by soaking in some chemical disinfectant should be removed and treated accordingly. All windows, chimneys, and orifices having been closed as tightly as possible, and all cupboards and drawers opened and exposed, the space or chamber should be fumigated in presence of moisture with either formaldehyde, chlorine, or nitrous acid for at least three hours. On re-entering, open all doors and windows, and strip the walls of paper, burn the pieces, have the ceiling well limewashed, and scrub all floors, all woodwork, and furniture with either plain hot water and soft soap, or with bichloride of mercury (1 in 1,000), or with formalin (2 per cent). In many cases adequate disinfection will be secured by free perflation of air, and, in place of fumigation, the free use of a spray of either formalin or mercuric chloride, in the proportions already stated, to the surfaces of walls and furniture. This latter method is probably of greater value than attempts to disinfect by gaseous means, as it is the place itself and not the air of the place we need to disinfect; the air can readily be changed by free ventilation. (From Notter and Firth's *Hygiene*).

9. The best method of garbage disposal in large cities is by cremation.

10. Quarantine has been defined as "the adoption of restrictive measures to prevent the introduction of diseases from one country or locality into another." There are several varieties, such as port quarantine, land, interstate, railroad, municipal, house, and room quarantine. Further, there is quarantine for cattle, also for crops. Most of the leading countries have for a long time been opposed to oppressive, arbitrary, and irrational quarantine measures, and have now adopted rules and regulations, which, while effective as far as can be hoped for or expected, impose the least possible restrictions upon personal liberty and trade. The periods of detention are fixed with reference to the probable incubative period of the disease in question, and questions of the necessity of disinfection and of methods to be followed in carrying out the same are determined by the circumstances of each individual case. Quarantines administered with reason do invaluable work in sifting out infection and protecting the public health from exotic diseases, which, in the absence of precautionary measures, might easily gain access. At the same time they act in restraint of trade to the slightest possible extent, since there is no unnecessary detention. Unfortunately, not all quarantines are administered with reason, and it often happens that great injustice and unnecessary expense are caused by absurdly tenacious adherence to exploded theories and routine practice. (From Harrington's *Hygiene*).

CHEMISTRY.

1. *Common table salt* is sodium chloride. Sodium chloride is insoluble in absolute alcohol, while potassium iodide is soluble in alcohol; further, by the flame test sodium chloride gives a bright yellow color, while potassium iodide gives a violet color.

2. Potassium iodide and mercuric chloride are *chemically incompatible;* so are tincture of cinchona and aromatic spirits of ammonia; also tincture of opium and liquor plumbi subacetatis; likewise glycerin and potassium permanganate.

3. *Proteids* are organic substances of very complex composition and of unknown constitution, which are indispensable to all animal and vegetable life. They are composed of carbon, hydrogen, oxygen, and nitrogen; some also contain sulphur or phosphorus or some other element.

4. *Heat* "is a form of energy into which other forms tend to be converted, which excites peculiar sensations when made to act upon the body; gives rise to luminous phenomena; causes expansion in all bodies and dissociation of their molecules, so as to liquefy solids, evaporate liquids, and rarefy gases, and produces various chemical changes, particularly oxidation and combustion." (Duane's *Medical Dictionary.*)

5. *An analysis of urine* includes: Estimation of total quantity passed in twenty-four hours, color, odor, reaction, specific gravity, total solids (by aid of Haeser's coefficient). Then examine for albumin by Heller's test, or by heat and nitric acid (HNO_3); then for glucose by Moore's test, with potassium hydroxide (KHO), or with Fehling's solution, which contains copper sulphate ($CuSO_4$), sodium hydroxide (NaHO), and Rochelle salt ($C_4O_6H_4NaK$); then for blood with potassium hydroxide solution (KHO); then for bile pigments by Gmelin's test, requiring nitric acid (HNO_3); then for indican, using lead acetate [$Pb(C_2H_3O_2)$], hydrochloric acid (HCl), ferric chloride (Fe_2Cl_6), and chloroform ($CHCl_3$). Then quantitatively for urea, using solution of sodium hypobromite (NaBrO); for chlorides, with silver nitrate solution ($AgNO_3$); for sulphates, with barium chloride solution ($BaCl_2$). Acetic acid ($C_2H_4O_2$) will be necessary to acidify alkaline urines.

6. By *oxidation* we mean the act of union of oxygen with another element or compound. This process is attended by the liberation of heat, and, when it takes place rapidly, of light. The rusting of a given weight of iron is a slow oxidation, while the burning of the same in oxygen is a rapid oxidation. Only the latter produces light, while in both cases the same amount of heat is liberated.

By *combustion*, in a general sense, is meant the rapid union of the oxygen of the air with some other substance, as coal or phosphorus. In a wider sense, however, combustion may be defined as any chemical union of two substances attended by liberation of heat and light.

7. *Mercuric chloride* ($HgCl_2$), corrosive sublimate, is heavy, white, and crystalline; it has a strong, acrid, styptic taste, and is soluble in water, in alcohol, and in ether; it is decomposed by exposure to light. It is very poisonous.

Mercurous chloride (Hg_2Cl_2), calomel, is a heavy, white powder, amorphous, tasteless, and odorless; it is insoluble in cold water and in alcohol, and very slightly soluble in boiling water; when exposed to the light it becomes discolored (first yellow, then gray) and partially decomposed;

it sublimes without fusing; it is incompatible with the mineral acids, with the alkaline chlorides, bromides, and iodides. It is very much less poisonous than mercuric chloride, and is quite frequently administered internally.

8. The Dimethylamido-azobenzol test for free HCl in gastric contents: The reagent is used in 0.5 per cent. alcoholic solution, of which one or two drops are added to a like amount of the filtered gastric juice. If free HCl is present the yellow solution turns red.

9. An *element* is a substance out of which we cannot, by any known means, get any other kind of substance. A *compound* is a substance made up of two or more elements, chemically united, in definite proportions. Thus in an *elementary substance* the atoms are all similar; in a *compound substance* they are not.

10. An *alcohol* is the hydroxide of a hydrocarbon radical. An *ether* is the oxide of a hydrocarbon radical. Thus, ethyl alcohol, C_2H_5OH; ethyl oxide, or ether $(C_2H_5)_2O$.

PATHOLOGY AND DIAGNOSIS.

1. See French's "Practice of Medicine" (1907), page 911; or, Osler's "Practice of Medicine" (1909), page 711.

2. See Rose and Carless' "Surgery" (1908), pages 1226, 1197, and 1200; or, Da Costa's "Surgery" (1908), pages 1187 and 1138.

3. See French's "Practice of Medicine" (1907), page 601; or, Osler's "Practice of Medicine" (1909), pages 821 and 827.

4. *The causes of gangrene* are local or constitutional. Of the former, injuries, mechanical violence, caustics, extremes of heat and cold, as in burns and in frostbites, the application of a ligature, embolic plugging, strangulated hernia, intussusception, ligated hemorrhoids, very tight bandaging, paraphimosis, even extravasation of urine and feces, and continued pressure, as in bedsores, may be given. Of constitutional causes, a deficient blood supply or senile changes may be cited. In certain diseases, as diabetes, typhus, typhoid, measles, and scarlatina, embolism is the usual cause of gangrene. Gangrene from ergotism is due to the effect of this drug on the vessels. Septic gangrene is due to septic infection. (From Gould and Pyle's *Cyclopedia.*)

5. *Excess of phosphates* is found in: Phthisis and other wasting diseases, leukemia, severe anemia, neurasthenia, acute yellow atrophy of the liver, rickets, diabetes, osteomalacia; in some fevers, particularly in the late stages.

6. See French's "Practice of Medicine" (1907), page 703; or, Osler's "Practice of Medicine" (1909), page 658.

7. *Anemias* are: (1) Local; (2) General — Primary — Chlorosis, Pernicious Anemia; Secondary — Pernicious Anemia

8. See Rose and Carless' "Surgery" (1908), page 410; or Da Costa's "Surgery" (1908), page 334.

9. See French's "Practice of Medicine" (1907), page 483; or, Osler's "Practice of Medicine" (1909), page 35.

10. To demonstrate the existence of *tubercle bacilli* in the sputum: The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

MATERIA MEDICA, THERAPEUTICS, AND THE PRACTICE OF MEDICINE.

1. See French's "Practice of Medicine" (1907), page 971; or, Osler's "Practice of Medicine" (1909), page 387.

2. In *laryngeal diphtheria* there is a prior stage of malaise, accompanied by chills, fever, and sore throat. The fever may become very high. A membrane forms, in which are found the Klebs-Loeffler bacillus or streptococci. *Spasmodic croup* generally comes on suddenly, at night. There is no appreciable fever, no previous malaise or sickness, and often the patient is asleep again by the time the physician arrives. There is frequently a thick, tenacious mucus, but neither Klebs-Loeffler bacilli nor streptococci are present. It is entirely a local disturbance. For *treatment of spasmodic croup,* see French's "Practice of Medicine" (1907), page 647; or, Osler's "Practice of Medicine" (1909), page 599.

3. See French's "Practice of Medicine" (1907), pages 226, 559, 570, 577, 581, and 603; or, Osler's "Practice of Medicine" (1909), pages 223, 779, 789, 805, and 809.

4. *Therapeutic indications for use of chloral:* As a hypnotic (in absence of pain), dose gr. xx; as an antiseptic, in a 1 per cent. solution; in cases of acute mania or delirium tremens, dose gr. xx to xxx; in nervous dyspepsia, dose gr. xv; in fevers with high temperature, excitement, restlessness, etc., dose gr. xv; in seasickness, dose gr. v; in tedious labor, to relax a rigid os, and for uterine inertia, dose gr. xx; for nocturnal epilepsy, dose gr. xv; for infantile convulsions, chorea, whooping cough, and laryngysmus stridulus, dose according to age of child, taking adult dose as gr. xv to xx; in tetanus and strychnine poisoning it is said to be antagonistic, dose gr. xx; as an antipruritic, in a solution ten grains of chloral to one ounce of water.

5. *To determine the proper dosage for a child:* Let x = the age of a patient; then $\frac{x}{x+12}$ = the fraction of the adult dose which the patient should receive. Thus, a patient of four years old should receive $\frac{4}{4+12} = \frac{4}{16} = \frac{1}{4}$ of an adult dose.

6. *For acute bronchitis in an adult:*

Recipe:

Ammonii chloridi, grana triginta.
Tincturæ opii camphoratæ.
Syrupi ipecacuanhæ, ana drachmas tres.
Syrupi pruni virginianæ, unciam.
Syrupi Tolutani, quantum sufficiat ad uncias quattuor.

Misce et Signa: Take one teaspoonful every three hours.

The "Case" with questions 7 to 10 is taken from Cabot's *Case-teaching in Medicine;* the answers are taken from the same source.

7. Gallstones and their results, cancer obstructing the biliary passages, syphilis of the liver, cirrhosis, septicemia (toxic jaundice).

8. Passive congestion, biliary obstruction from any cause, fat, cirrhosis, cancer, rickets; rarer causes are abscess, leukemia, pseudo-leukemia, cholangitis, amyloid, and hydatid disease.

9. None in this case.

10. *Diagnosis:* Gastric symptoms, nodular hepatic enlargement with severe pain, with emaciation and jaundice, and without evidence of portal stasis (ascites, etc.), point strongly to *cancer of the liver,* probably secondary to gastric cancer. The history of alcoholism and the hepatic enlargement suggest *cirrhosis,* but there is rarely, if ever, so much pain in cirrhosis (or, indeed, in any liver disease except cancer), and the "hobnails" of cirrhosis are not large enough to make the liver feel "irregular and nodular" through the abdominal wall. The absence of ascites is also against cirrhosis. *Syphilis* of the liver might produce all the signs described, and can only be finally eliminated by the therapeutic test, but the amount of pain here present is almost unknown in syphilis, and the amount of hepatic enlargement is very unusual.

Prognosis: Hepatic cancer usually kills within a year of the discovery of its presence.

Treatment: The relief of symptoms as they arise is all that can be hoped for if the diagnosis is correct, but in all cases of hepatic cancer KI should be given in doses of ten to thirty grains daily until it is proved to be valueless. A patient has been known to die of hepatic syphilis untreated, because her physician was sure it was cancer and had given up hope. The same is true of cirrhosis. All cases should be given KI and the benefit of the doubt whether our diagnosis is correct. The itching which may torture the patient in such cases should be treated by alkaline baths or washes, dilute carbolic washes, or vaseline.

SURGERY.

1. See Rose and Carless' "Surgery" (1908), pages 620 to 623; or, Da Costa's "Surgery" (1908), pages 587 to 592.

2. See Rose and Carless' "Surgery" (1908), page 481; or, Da Costa's "Surgery" (1908), page 464.

3. See Rose and Carless' "Surgery" (1908), page 308; or, Da Costa's "Surgery" (1908), page 356.

4. *Causes of hematuria:* "(1) *Renal hematuria* is due to acute nephritis, calculus, tumors, or injury of the kidneys. Blood casts may be found. (2) *Vesical hematuria* is due to calculus, tumors, injury, cystitis, or the presence of the *Bilharzia hæmatobia.* In the last the ova cause papillomatous tumors in the bladder. (3) *Prostatic hemoturia* is due to congestion, calculus, ulceration, or malignant disease. (4) *Urethral hematuria* is due to catheterism, laceration, or gonorrhea. The blood flows independently of micturition. (5) *Constitutional causes* are purpura, scurvy, hemophilia. Hemoglobin is present, but not

corpuscles, in paroxysmal hemoglobinuria. The spectrum and hemin tests are the most certain, but the guaiacum-ozonic ether test is reliable for urine." (From *Aids to Surgery.*) For *treatment*, see Rose and Carless' "Surgery" (1908); or, Da Costa's "Surgery" (1908), in the Index, under the various conditions mentioned above, under *Causes.*

5. See Rose and Carless' "Surgery" (1908), page 914; or, Da Costa's "Surgery" (1908), page 769.

6. See Rose and Carless' "Surgery" (1908), page 926; or, Da Costa's "Surgery" (1908), page 773.

7. See Rose and Carless' "Surgery" (1908), pages 549 to 553; or, Da Costa's "Surgery" (1908), pages 532 to 538.

8. See Rose and Carless' "Surgery" (1908), page 745; or, Da Costa's "Surgery" (1908), page 709.

9. See Rose and Carless' "Surgery" (1908), page 1081; or, Da Costa's "Surgery" (1908), page 978.

10. See Rose and Carless' "Surgery" (1908), page 1134; or, Da Costa's "Surgery" (1908), page 1009.

OBSTETRICS.

1. *Irrigation after confinement* is done: (1) By some practitioners, as routine treatment after every labor; (2) by others only when there have been repeated vaginal examinations, or (3) in case of foul lochia; (4) or after some operative procedure; (5) in case of sepsis. *Intrauterine douche* is indicated when the hand or instruments have been introduced into the uterus, or when sepsis is suspected. The solutions for *vaginal douche* may be: Hot 1 per cent. creolin mixture in boiled water; or bichloride of mercury, 1:10000 to 1:5000; or decinormal salt solution.

For *intrauterine douche:* Plain sterile water, decinormal salt solution, creolin 1-2 per cent., a bichloride of mercury 1.10000, followed by plain sterile water.

2. Fibroids and polypi.

3. See Hirst's "Obstetrics" (1909), page 251.

4. The *indications for version* are: (1) In transverse presentations; (2) in placenta prævia; (3) in malpresentations of the head; (4) in simple flattened pelvis, and in minor degrees of pelvic contraction; (5) in prolapsed funis; (6) in sudden death of the mother, and (7) in any case where speedy delivery is imperative.

5. See Williams' "Obstetrics" (1909), page 321; or, Hirst's "Obstetrics" (1909), page 329.

6. The *most common causes of sterility in woman* are: Gonorrhea, absence or errors in development of any part of the genital tract, malformations of genitals, fistulæ, lacerations, obesity, alcoholism, pelvic inflammations, dyspareunia, inflammations of uterus, tubes, or ovaries, elongated cervix. *Treatment* consists in removing the cause, if possible; curettage has been recommended; in the presence of developmental errors little or nothing can be done; atresia of cervix can be treated by dilatation; if the uterus is misplaced it must be replaced.

7. *Treatment of eclampsia* consists in: (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

8. "When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua in part or whole. Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*" (*American Text-Book of Obstetrics.*)

Treatment consists in the removal of the product of conception by a laparotomy, as soon as the diagnosis is made.

9. See Williams' "Obstetrics" (1909), pages 914 and 357; or, Hirst's "Obstetrics" (1909), pages 709 and 929.

10. See Williams' "Obstetrics" (1909), pages 480 to 623; or, Hirst's "Obstetrics" (1909), pages 215 to 284.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION
Alabama*	W. H. Sanders, Montgomery	Montgomery June —
Arizona*	Ancil Martin, Phoenix	Phoenix July 4
Arkansas	F. T. Murphy, Brinkley	Little Rock May 10
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco Aug. 2
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver July 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven July 12
Delaware	J. H. Wilson, Dover	Dover June 21
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington July 12
Florida*	J. D. Fernandez, Jacksonville	Jacksonville
Georgia	E. R. Anthony, Griffin	Atlanta
Idaho*	W. F. Howard, Pocatello	Oct. 4
Illinois	J. A. Egan, Springfield	Chicago June 9
Indiana	W. T. Gott, Crawfordsville	Indianapolis July 12
Iowa	Louis A. Thomas, Des Moines	Des Moines
Kansas	F. P. Hatfield, Olathe	Topeka June 14
Kentucky	J. N. McCormack, Bowling Green	Louisville July —
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans May 17
Maine	F. W. Searle, Portland	Portland July 19
Maryland	J. McP. Scott, Hagerstown	Baltimore June 21
Massachusetts*	E. B. Harvey, State House, Boston	Boston May 10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor June 14
Minnesota	W. S. Fullerton, St. Paul	St. Paul May 10
Mississippi	S. H. McLean, Jackson	Jackson May 10
Missouri	Frank B. Hiller, Jefferson City	Jefferson City June 13
Montana*	Wm. C. Riddell, Helena	Helena Oct. 4
Nebraska	C. A. Carr, Lincoln	Lincoln Aug. 3
Nevada	S. L. Lee, Carson City	Carson City
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord July 6
New Jersey	H. G. Norton, Trenton	Trenton June 21
New Mexico	J. A. Massie, Santa Fe	Santa Fe July 11
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo — May 24
N. Carolina	B. K. Hays, Oxford	Wrightsville June 15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks July 5
Ohio	Geo. H. Matson, Columbus	Columbus June 14
Oklahoma*	F. P. Davis, Enid	Guthrie July 12
Oregon	B. E. Miller, Portland	Portland July 5
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg — June —
Rhode Island*	G. T. Swarts, Providence	Providence July 7
S. Carolina	H. H. Wyman, Aiken	Columbia June —
S. Dakota	H. E. McNutt, Aberdeen	Watertown July 13
Tennessee	C. A. Abernathy, Pulaski	Memphis / Nashville / Knoxville — May —
Texas	M. E. Daniel, Honey Grove	Austin June 28
Utah	R. W. Fisher, Salt Lake City	Salt Lake City April 4
Vermont	W. Scott Nay, Underhill	Burlington July 12
Virginia	R. S. Martin, Stuart	Richmond June 22
Washington*	T. C. McFadden, Seattle	Spokane July 5
W. Virginia	H. A. Barbee, Point Pleasant	Wheeling
Wisconsin	J. M. Beffel, Milwaukee	Madison July 12
Wyoming	S. B. Miller, Laramie	Laramie June 22

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Louisiana.—Hereafter this State will grant a license, without examination, to applicants who comply with the following conditions: They must (1) furnish the application form properly filled out, together with a recent unmounted photograph, and, if found eligible, (2) appear in person before the board; (3) present a diploma from a college rated Class A by this board (*i.e.* medical colleges rated between 70 and 100 per cent. by the Council on Medical Education of the American Medical Association; (4) present their permanent certificate of examination by and from a State board recognized by the Louisiana State Board, and have practised medicine for at least one year since they obtained said license; (5) present a sworn statement, either from the dean of the college from which they graduated, or from the secretary of the parish or county society in which they reside, or from the clerk of court of the parish or county in which they reside, certifying to their moral and professional character and their personal description as to weight, height, complexion, color of hair, and any marks of identification, etc.; (6) pay a fee of $25.

The National Confederation of State Medical Examining and Licensing Boards will hold its twentieth annual meeting at St. Louis, Mo., on Monday, June 6, 1910, in the Southern Hotel. The subject to be taken up at this meeting will be a consideration of practical clinical instruction in medical colleges, a report on medical education in the United States by a representative of the Carnegie Foundation, and a report on a proposed materia medica list by a special committee. The chief object of this symposium is to determine, as far as possible, whether clinical instruction in medical schools can be made sufficiently practical and thorough as to warrant the medical boards in demanding practical examinations in the principal branches of the medical course. The officers of the confederation are: *President*, Dr. A. Ravogli of Cincinnati; *Secretary*, Dr. Murray Galt Motter, 1841 Summit Place, N. W., Washington, D. C.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE CONQUEST OF DISEASE THROUGH ANIMAL EXPERIMENTATION. By JAMES PETER WARBASSE, M.D. 12mo; cloth; 176 pages. D. Appleton & Co., New York.

IONIC SURGERY IN THE TREATMENT OF CANCER. By G. BETTON MASSEY, M.D. 8vo; cloth; 243 pages; illustrated. The A. L. Chatterton Co., New York.

TRANSACTIONS OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION. 8vo; cloth; 287 pages; illustrated. Association.

ESQUISSES CLINIQUES DE PHYSICOTHÉRAPIE. Par le Docteur J.-A. RIVIÈRE. 8vo; paper; 314 pages; illustrated. Boughy et Cie., Paris, France.

LES NÉVRALGIES. Par le Dr. F. WETTERWALD. 8vo; paper; 152 pages; 3 fr. Vigot Frères, Paris, France.

LA PHOTOTHÉRAPIE SES AVANTAGES DANS LE TRAITMENT DU LUPUS VULGAIRE. Par le Dr. LÉON FRIEDMAN. 8vo; paper; 152 pages; illustrated; 3 fr. Vigot Frères, Paris, France.

TRAITÉ PRATIQUE D'ELECTRICITÉ MÉDICALE. Le Docteur J. LARAT. 12mo; cloth; 641 pages; illustrated; 10 fr. Vigot Frères, Paris, France.

LA MÉDECIN À BORD. Par Dr. FRANCK CLAIR. 12mo; cloth; 362 pages; 5 fr. Vigot Frères, Paris, France.

CONSULTATIONS ET THÉRAPEUTIQUE DENTAIRES. Par ESTÈOULE ET DAUZIER. 12mo; cloth; 255 pages; 4 fr. Vigot Frères, Paris, France.

THYROID AND PARATHYROID GLANDS. By OCHSNER and THOMPSON. 8vo; cloth; 391 pages; illustrated. C. V. Mosby Co., St. Louis, Mo.

THE ANATOMY AND PHYSIOLOGY OF THE FEMALE GENERATIVE ORGANS AND OF PREGNANCY. By ARTHUR E. GILES, M.D., B.Sc. Lond., F.R.C.S. Edin. 4to; paper; 24 pages. Paul B. Hoeber, New York.

INTERNATIONAL CLINICS. Edited by HENRY W. CATTELL, A.M., M.D. 8vo; cloth; 301 pages; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

THE LONDON HOSPITAL. By E. W. MORRIS. 8vo; cloth; 296 pages; illustrated. Longmans, Green & Co., New York.

LA TENSION ARTÉRIELLE EN CLINIQUE. Par Dr. LOUIS GALLAVARDIN. 8vo; paper; 204 pages; illustrated. G. Steinheil, Paris, France.

SOME COMMON REMEDIES AND THEIR USE IN PRACTICE. By Eustace Smith, M.D. 12mo; cloth; 112 pages; $1.25 net. Paul B. Hoeber, New York.

THE PRACTICAL CARE AND FEEDING OF CHILDREN. By MARY A. DUNS. 12mo; 150 pages; $1.50 net. Chicago Medical Book Co., Chicago, Ill.

MEDICAL ELECTRICITY AND RADIOGRAPHY. By Edward REGINALD MORTON, M.D., C.M. (Trin. Tor.), F.R.C.S. (Edin.). 12mo; cloth; 349 pages; illustrated; $1.75 net. Chicago Medical Book Co., Chicago, Ill.

THE OPTIC NERVE AND THE ACCESSORY SINUSES OF THE NOSE. By Professor A. ONODI. 8vo; cloth; 101 pages; illustrated; $3.50 net. Wm. Wood & Co., New York.

THE INTERNATIONAL MEDICAL ANNUAL. 8vo; cloth; 762 pages; illustrated. E. B. Treat & Co., New York.

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE. 8vo; paper; 164 pages; illustrated. 7-6. Longmans, Green & Co.

POCKET THERAPEUTICS AND DOSE BOOK. By MORSE STEWART, Jr., B.A., M.D. 32mo; cloth; 263 pages; $1.00 net. W. B. Saunders Co., Philadelphia, Pa.

ZUR BEHANDLUNG CHRONISCHER HAUTERKRANKUNGEN. Von Dr. med. DREUW. 8vo; paper; 11 pages; illustrated. Urban & Schwarzenberg, Berlin, Germany.

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ÜBER CHRYSAROBIN- UND PYROGALLOLSALBEN MIT ALKALIZUSATZ. Von Dr. med. BREUW, Berlin. 8vo; paper; 12 pages; illustrated. Leopold Voss, Hamburg, Germany.

AËROTUBA (LUFTDRUCKSALBENTUBE). Von Dr. med. DREUW, Berlin. 8vo; paper; 5 pages; illustrated. Leopold Voss, Hamburg, Germany.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of April 30, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	605	188
Diptheria	443	55
Measles	1,555	27
Scarlet Fever	680	39
Smallpox	—	—
Varicella	132	—
Typhoid Fever	26	1
Whooping Cough	36	5
Cerebrospinal Meningitis	2	5
Malarial Fever	—	—
Totals	3,479	320

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 29, 1910:

		CASES	DEATHS
CHOLERA			
Colombo, Ceylon	Mar. 6–12	1	..
India, Calcutta	Mar. 6–12	..	80
Madras	Mar. 12–18	..	1
Negapatam	Feb. 19–25	..	2
Rangoon	Mar. 6–12	..	1
Java, Batavia	Mar. 6–12	1	..
Philippine Islands, Manila	Feb. 28–Mar. 12.	23	1
Provinces—			
Cavite	Feb. 28–Mar. 5.	..	1
Pampanga	Feb. 28–Mar. 12.	28	18
YELLOW FEVER			
Venezuela, La Guaira	Mar. 27–Apr. 2.	2	1
PLAGUE			
Brazil, Bahia	Feb. 19–Mar. 11.	3	3
Egypt, Alexandria	Mar. 13–25	2	..
Provinces—			
Assiout	Mar. 19–25	1	..
Galioobeh	Mar. 19–25	1	1
Fayoum	Mar. 16–25	2	1
Minieh	Mar. 19–25	..	1
India, Bombay	Mar. 16–22	..	203
Calcutta	Mar. 6–12	..	27
Kurrachee	Mar. 13–19	64	59
Rangoon	Mar. 6–12	..	15
Japan, Formosa	Mar. 13–19	1	1
Peru, Lambayeque department, Pacasmayo	Mar. 19	Present	..
Russia, Bodai	Feb. 14–Mar. 1.	23	21
Including 9 cases previously reported.			
Novaia-Kazanka	Feb. 20–Mar. 3.	13	11
Turkey in Asia, Jiddah	Mar. 29–Apr. 3.	18	18
SMALLPOX			
Argentina, Buenos Aires	Jan. 1–31	..	73
Austria, Bohemia	Mar. 27–Apr. 2.	2	..
Galicia	Mar. 20–26	2	..
Brazil, Bahia	Feb. 19–Mar. 11.	94	64
Canada, British Columbia—			
Vancouver	Mar. 1–31	4	..
Ontario, Hamilton	Apr. 10–16	1	..
Nova Scotia, Halifax	Apr. 10–16	2	..
China, Amoy	Mar. 6–12	..	3
Canton	Feb. 20–Mar. 19.	40	8
Chang-Chiu	Feb. 26	Epidemic	..
Hongkong	Feb. 27–Mar. 12.	2	1
Shanghai	Mar. 14–27	2	14
Deaths among natives.			
France, Paris	Mar. 27–Apr. 2.	9	1
Great Britain, Liverpool	Apr. 3–9	1	..
Greece, Athens	Mar. 12–19	..	1
India, Bombay	Mar. 16–22	..	78
Calcutta	Mar. 6–12	..	4
Kurrachee	Mar. 13–19	1	..
Madras	Mar. 12–18	..	1
Rangoon	Mar. 6–12	..	25
Italy, general	Mar. 28–Apr. 3.	33	..
Naples	Mar. 27–Apr. 3.	7	2
Japan, Formosa	Mar. 6–19	16	3
Yokohama	Mar. 22	..	..
One case on S.S. *Ferd. Laciss* from Hamburg.			
Korea, Fusan	Feb. 28–Mar. 12.	2	1
Mexico, Aguascalientes	Mar. 3–16	..	12
Mexico	Mar. 6–12	.	3
Monterey	Apr. 4–10	..	2
Newfoundland, St. Johns	Apr. 3–9	1	..
Philippine Islands, Manila	Mar. 6–12	5	..
Portugal, Lisbon	Mar. 27–Apr. 2.	24	..
Russia, Libau	Mar. 28–Apr. 3.	6	..
Moscow	Mar. 13–26	51	20
Riga	Mar. 29–Apr. 2.	4	..
St. Petersburg	Mar. 20–26	37	8
Warsaw	Jan. 30–Feb. 5.	..	10
Spain, Almeria	Feb. 1–28	..	3
Barcelona	Mar. 29–Apr. 4.	..	2
Valencia	Mar. 28–Apr. 2.	7	..
Straits Settlements, Singapore	Mar. 6–12	..	3

Medical Record

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Original Articles.

SOME NEWER CONCEPTIONS OF MYOCARDIAL DISEASE.*

BY THOMAS E. SATTERTHWAITE, M.D., LL.D.,

NEW YORK.

THE complaint of Bertin, the French internist, in 1821, that myocardial inflammation was wrapped in "a melancholy obscurity," seemed to furnish the stimulus for a long series of investigations which in the end have borne excellent fruit.

For, a hundred years ago there were no real distinctions between the many morbid changes that take place in the myocardium. So that when Laennec discovered fatty degeneration of the heart, the first positive advance was made in myocardial pathology.

But another quarter of a century elapsed before fatty degeneration was distinguished clinically from the fatty deposition of the fat heart. It was Stokes who traced the cause of this degeneration to infective diseases, notably typhus and typhoid fevers. Hayem confirmed Stokes' discovery by microscopic examinations. Meanwhile, in 1856, Ricord found that syphilis also attacked the musculature of the heart. Then Da Costa of Philadelphia, while studying the hearts of soldiers that had survived the campaigns of our Civil War, discovered his "irritable heart," the result of muscle strain, and reported his findings to the U. S. Sanitary Commission in 1867.

Up to this period our attention had been mainly riveted on the muscular tissue of the heart as the *fons et origo malis,* but Bristowe found that the interstitial tissue might also be involved. Soon after, diphtheria and scarlet fever were proved to cause acute myocarditis, and then Huchard traced the source of interstitial inflammation to the coronary vessels. Finally, von Leyden of Berlin, in 1878-9, gave us the most complete clinical picture, up to that date, of the several varieties of the fat heart. These contributions have removed much of the obscurity that Bertin complained of in his quaint language.

As a result, we can now say that all toxemias, acute or chronic, some dyscrasias and hyperemias, if long continued or severe, and other conditions to be mentioned later, produce definite morbid changes in the heart walls, evanescent or permanent, as the case may be. It has been more difficult, of course, to connect characteristic clinical phenomena with each particular change, but even this has been done with such a degree of definiteness that, though important pathognomonic signs are still absent, we can nevertheless picture in our minds the several myocardial affections and their stages.

*Address delivered by invitation before the Medical and Surgical Society of Washington, D. C., May 4, 1910.

But to the profession at large these matters are not so well defined. Their attention has been directed mainly towards diseases of the endocardium or pericardium. Indeed, many of us have been keen to establish the precise location and degree of some endocardial lesion, to the comparative neglect of the myocardial, whose condition was really of greater importance.

The word myocardium, referring as it does to muscle tissue as the preponderating element in the heart walls, is to be understood here as a synonym for the heart walls themselves (Fig. 1). But in the word myocarditis we have to face the fact that its use has led to much misapprehension. Some still use it indiscriminately, or as the equivalent of myocardial disease in general, while to the majority it means myocardial inflammation, and therefore does not include the most common of all myocardial affections, degenerative changes.

About two years ago I proposed a new classification, to include all forms of myocardial disease. It was as follows:

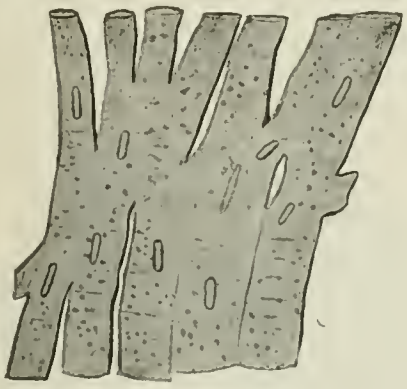

FIG. 1.—Normal heart muscle, x 250.

1. Acute parenchymatous myocarditis.
2. Aucte diffuse myocarditis, including the tuberculous, syphilitic, and suppurative forms.
3. Chronic myocarditis, including all of the diffuse inflammatory changes mentioned.
4. The fat heart.
5. The fatty heart.
6. Hypertrophies, whether due to severe exercise, vascular diseases, blood disorders, neurotic disturbances, possibly pregnancy.

To which I have added:

7. Atrophies.

Neither dilatation nor spasm is included in my table. They are incidents which occur at times in any of the varieties mentioned and cannot therefore be considered separately.

Some such classification as the above is essential for a clear conception of myocardial diseases, though many of the pathological phenomena here given are apt to be interconnected in any one instance. In fact, this complicated inter-relation has

led some internists to emphasize the clinical aspects of these affections at the expense of the pathological. Now it is true, in a general way, so far as symptoms and treatment are concerned at least, that chronic myocardial insufficiency is sometimes synonymous with myocardial abnormality or dis-

Fig. 2.—Acute parenchymatous change, x 250.

ease; but it is not so always. For example, the insufficiencies of the syphilitic heart and fat heart differ widely from others of the myocardial group, so that they need to be classed separately, while the more we study these subjects the greater will be the variations discovered. Hence the importance of considering the affections apart.

By those who are familiar with ordinary pathological views as to the origin of acute affections in general, it will be admitted that parenchymatous changes in the cell elements of a part are such regular precursors of inflammatory conditions that they are to be considered as early symptoms. And so a parenchymatous myocarditis may be but the first indication of the diffuse form, even though the character of the parenchymatous change is not fully understood. However, it is to be presumed, from what we know of similar processes elsewhere, that parenchymatous changes will not only produce fatty degeneration of the muscle cells, but necrosis as well, leading to dilatation and perhaps even to rupture of the organ.

Taking up another feature of myocardial disease, I will say that we have not duly appreciated its frequency. The statistics of Dr. Harlow Brooks* of New York illustrate this point. Of 457 cases taken from his post-mortem examinations, where death was credited to cardiac disease, in 330 the heart walls were diseased sufficiently to cause death,

Fig. 3.—Acute myocarditis, x 315.

while in many others heart wall disease contributed to the fatal ending; and yet in a considerable number the myocardial disease was not recognized during life, though, of course, much might have been done to arrest or control it. Now 126 of these

*Brooks, *New York Medical Journal*, February 9, 1907.

deaths, or 38 per cent., were due to uncomplicated degenerative disease of the heart walls.

My clinical records point to the probability that in 45 per cent. of my deaths in heart cases, degenerative changes in the heart were the chief disposing causes of death; though uremic poisoning or

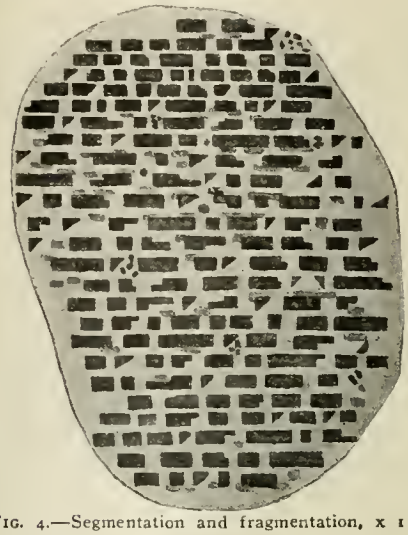

Fig. 4.—Segmentation and fragmentation, x 110.

other conditions may at times have been the actual causes.

Roemer of Tuebingen, while at Liebermeister's clinic, during a period of twenty years had a record of 44 per cent. of myopathic heart failures where there were no valvular symptoms, so that our clinical figures tally closely; while Brooks' figures, if applied to all his cases of myocardial disease, complicated and uncomplicated, might well corroborate mine.

Romberg has found chronic cardiac insufficiency (by which he means chronic myocardial disease) the most common of heart affections. At least, between the ages of 40 and 65 in men, and in women at a little later period, he found it more common than valvular disease. But I will go further.

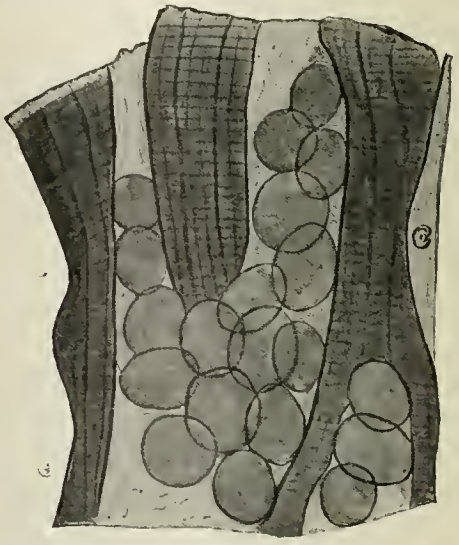

Fig. 5.—Abnormal deposition of fat, x 845.

If to these chronic forms we add all the acute myocardial affections associated with infections, dyscrasias, anemias, intoxications, etc., we can well believe that myocardial disease is more frequent than valvular disease. Other cardiac diseases, however, than the valvular and myocardial are very

rare, while valvular disease is tolerably sure to produce more or less myocardial disease; from which it is easy to see that the latter is the most common form of heart disease, and probably more so than all other forms combined. Schott (*New York Medical Journal*, Jan. 9, 1909, p. 65) says that diseases

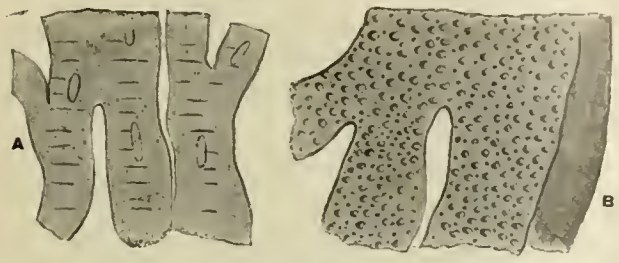

FIG. 6.—Fatty degeneration of cardiac muscle. *a*, beginning changes; *b*, complete degeneration, x 250.

of the myocardium, in comparison with those of the endocardium, are as five to two.

Taking up now the morbid changes of the tissues, parenchymatous alteration is the earliest of all. In diphtheria, for example, it may occur within the first few days, or at any time up to several weeks after the fever has subsided. Acute parenchymatous change is characterized, pathologically, by the occurrence of granules in the muscle cells, and the partial disappearance of the cross-striations. This early parenchymatous change is probably analogous to the "cloudy swelling" seen in the uriniferous tubules at the onset of an acute nephritis. (Fig. 2.) It antedates, I think, every other sign. Though diphtheria appears to be largely responsible for myocardial disease (Schmalz found it in 16 per cent. of his diphtheria deaths), it also occurs in rheumatism, with or without the articular signs; in tuberculosis, tonsillitis, measles, lobar pneumonia, erysipelas, epidemic influenza, septic processes, gonorrhea, and probably in all severe infections and intoxications. The parenchymatous change may be localized or general, usually the latter. Seen with the naked eye the muscle tissue is lighter colored than normal, while the cut surface is lack-luster in appearance, swollen, and moist. Microscopically the muscle cells are enlarged, less translucent than usual, and studded with minute particles derived from the protoplasm of the cells, and albuminoid in character, so far as microchemical tests show. In advanced cases the nuclei are similarly transformed. According to our present ideas, these changes are due either to the toxins of the above mentioned diseases or the continued fever. In alcoholism a similar condition has been noted. The mechanical effect of this change is naturally to limit the contractile powers of the muscle and cause cardiac debility sooner or later; so that the pulse may be increased in frequency in order to maintain the equilibrium of the circulation.

Now, inasmuch as we cannot dissociate these parenchymatous changes, clinically, from those of acute myocarditis that is a somewhat later event in the pathological chain, it will be convenient to describe the latter here. It presents a different microscopical picture. Here the muscle bundles are not only swollen with serum, filled with granules, and opaque, but the muscle striations may be nearly obliterated. Segmentation and fragmentation are said to occur occasionally. (Fig. 3.)

But we must not treat these conditions too seriously. They may be ante-mortem or post-mortem phenomena. (Fig. 4.) In all cases, however, the intermuscular tissue is swollen and infiltrated with blood globules, and the proliferating cells of the interstitial tissues and vascular sheaths.

What we are pleased to call acute myocarditis is therefore a diffuse inflammation in which the muscular tissue is only one of several elements involved. It may be localized or not. Occasionally the process may go on to suppuration. Usually the abscess is embolic and multiple, sometimes due to infective endocarditis, to pyemia, or some other infection. The abscess is usually fatal, discharging into one of the cavities of the heart, or into the pericardium, causing aneurysm, pyocardium, or even rupture of the organ. But the acute form may pass over into the chronic. For example, an acute tuberculosis of the heart walls, which, though rare, does exist, may go over into the chronic form; and so in syphilis and probably in gout, and some other affections. In fact, there is no doubt that in all of these instances the disease which at first originated in the larger cardiac vessels or their perivascular sheaths extends to the interstitial tissues along the lines of the smaller vessels. Even the elastic tissue may be involved, and it is a very important factor in the heart's action, expanding and contracting, and so aiding the muscular tissue.

Among other causes of cardiac hypertrophy apart from severe exercise are arteriosclerosis, congenitally small vessels, scoliosis, Graves' disease, and the neurotic heart of hysteria. In arteriosclerosis of the coronary arteries, the sclerotic process starts from the vessels or their sheaths, and then extends along their subdivisions throughout the heart substance, increasing its thickness and density.

If the congenitally small vessels described by Virchow are present, the muscular tissue of the heart may hypertrophy in order to propel the proper

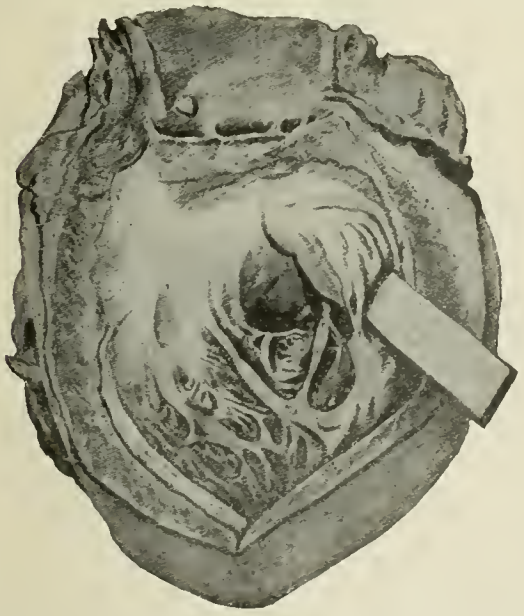

FIG. 7.—Fatty degeneration of heart, with thickened aortic leaflets and mitral stenosis (wooden wedge in button-hole opening), about one-half size.

amount of blood through the narrowed arterial channels. In scoliosis, as is now well established, the heart walls hypertrophy because the movement of blood through the heart chambers is restricted by the narrowing of the bony framework of the thorax, and some pressure must be brought to

bear on the right or left ventricle, as it may be, in order to maintain the circulatory equilibrium. In Graves' disease and in the hysterical heart the increased activity of the organ, due to the neurotic condition, increases the heart's rapidity and, if continued, eventually causes muscular hypertrophy.

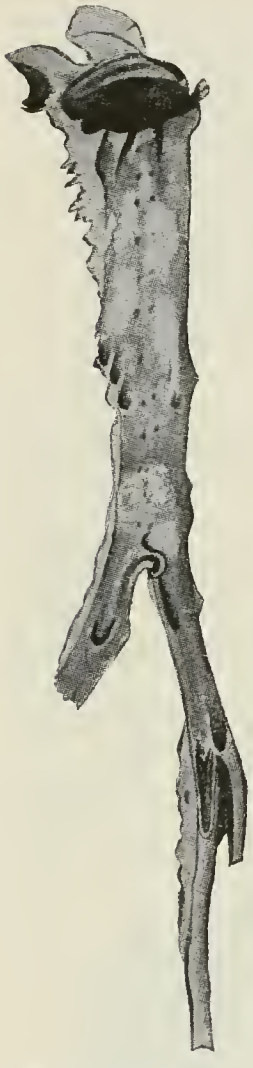

Fig. 8.—Arteriosclerosis of the abdominal aorta, reduced to about one-third size.

The terms fat heart and fatty heart imply some semblance of intimate structure. It is true they are closely allied, pathologically speaking, but in uncomplicated cases there is little clinical resemblance between them, as to natural history, diagnosis, and prognosis. In the fat heart, as we all know, there is a deposition of fat between the muscle fibers or bundles (Fig. 5), while the fatty heart is descriptive of a fatty degeneration of the muscle fibers themselves (Fig. 6).

In the fat heart there will not, as a rule, be any interference with the function of the muscle, though in advanced cases the fat may of itself interfere with the motility of the fibers by external pressure; while in fatty degeneration the protoplasm of the muscle itself has undergone a change that necessarily restricts its energy and may eventually destroy its vitality in whole or in part. There is no doubt, however, that the fat heart tends to degeneration; that is, it is apt to evoke in the muscle against which it presses, degenerative changes; but a fatty heart never becomes a fat heart.

The fat heart and corpulence are so closely allied that we cannot discuss one without the other. Quain, who made a special study of this subject, claimed that patients with fat hearts were invariably corpulent. I should modify his statement by saying that patients with fat hearts are generally corpulent. There is certainly a pretty constant connection between the two. And yet if a corpulent person is reduced by treatment the fat about the heart is apt to remain long after the external evidences of fat deposition have yielded.

On the other hand, beer drinkers and gluttons often put on bodily fat which their hearts do not share. With these exceptions, corpulence and the fat heart are practically coincident.

The fat heart may be said to occur at any age, but is rare in advanced life. For as the atrophic changes of senility set in, the deposits of fat usually disappear at the same time.

Von Leyden has claimed three varieties of the fat heart: (1) When there is a deposit of fat in the heart walls without organic affection of the muscle tissues. (2) A severe form associated with organic muscle disease. (3) A form complicated with disease of the aorta and coronary vessels, perhaps with kidney implication.

I am in doubt as to this third variety. As seen in Fig. 8, disease of the aorta is apt to be associated with the dilated heart of fatty degeneration, not fatty deposition. But there can be little doubt as to the occurrence of the first two varieties. Fatty degeneration, however, is more common than the fat heart. Just at this moment the evidence appears to favor the idea that the oily particles come from without, though it is more natural to believe that they come from within the muscle cells and are sequels to the albuminoid changes of acute myocarditis, especially as they are found in the very class of cases that suffer from acute myocarditis, as in the eruptive fevers, diphtheria, acute rheumatism, lobar pneumonia, influenza, tonsilitis, cellulitis, enteritis, or any acute attack of toxemia; also in chronic intoxications, such as lead poisoning or uremia.

But fatty degeneration (Fig. 7) is also found in wasting diseases like carcinoma and paralysis, in prolonged fevers after mechanical injuries or surgical operations, severe depression of the system, in pregnancy, and in senility. It is important to recognize these facts in order that we may be prepared for a sudden crisis. For when, in the affections named —especially in the toxemias due to diphtheria, in eruptive diseases, cellulitis, suppuration after operations—sudden death occurs, the probability is that the mischief is due to fatty degeneration of the organ, and the cause a toxemia rather than an

Fig. 9.—Bramwell's "withered apple" heart; natural size.

embolism, heart clot, or cardiac paralysis, which in times past were terms used to explain these accidents. In fact we may go so far as to say that diseases of the heart substance in which fatty degeneration plays an important part are the chief causes of death in heart disease.

Predisposing if not governing causes of fatty degeneration, however, are cardiac hypertrophy, fibroid disease, the fat heart, endo- and pericardial diseases, including tuberculosis, new growths, and arterial disease; overexertion, overexcitement, abuse in eating or drinking, very likely anemia. It is unfortunate that coronary arteriosclerosis has been regarded by some as the main predisposing factor in fatty degeneration. Evidence does not sustain this view. Coronary arteriosclerosis is, in my opinion, one of the rarer causes of fatty degeneration. While it may occur at any age, the grosser forms are certainly associated with other degenerative changes that are the concomitants of senility. It is certainly more common in advanced age than middle life. So that being both the most dangerous form of heart disease and comparatively frequent, the importance of an early and correct diagnosis is apparent.

Fig. 10.—Callosity at apex of heart in a case of purpura hæmorrhagica, about one-half actual size.

Unfortunately, its diagnostic features are not strongly marked, and in mild cases may be absent. In fact, there may not be any appreciable dilatation, and this is the one sign of paramount importance.

I have little to say about cardiac syphilis. It has been known to exist for more than fifty years, but my experience has told me that the danger of it has not been appreciated. One reason is that it usually occurs very late after the initial lesion, even 8 to 10 years, when the patient has begun to forget that he ever had the disease; or if he has had it, has thought it cured. It should also be remembered that cardiac syphilis may be hereditary. Some years ago I found from my clinical records that syphilis positively existed in five per cent. of my heart cases and probably in five per cent. more. I hold to this position still. Certainly there is a class of heart cases with a previous syphilitic history, or perhaps with locomotor ataxia, or some other affection of the central nerve system, where treatment will be ineffectual without the use of mercury or the iodides.

Atrophy of the heart occurs, but is comparatively rare. It may be a family peculiarity, or due to arrest of development, starvation, or some wasting disease, such as cancer or phthisis, or simply old age, when it is to be regarded as physiological. The atrophic heart has been known in adults to weigh only about three ounces, in fact a little less. These hearts in uncomplicated cases have a dark reddish-brown color and are in the condition that has been called "brown atrophy." The muscle fibers have yellow-brown pigment about the nuclei. Sometimes the organ is so shrunken that its vessels are thrown out into relief, "the withered apple heart." (Fig. 9). But there are no very distinctive physical signs of it during life. Of course, in uncomplicated instances, the heart's area will be smaller than usual. Otherwise the signs that have been described, such as faint turns, singing in the ears, palpitation, irregular pulse, precordial distress, and confusion of mind, will be suggestive, in conjunction with the diminished area, but they cannot be called pathognomonic. However, any one of us may be called in to see such a case, and the diagnosis will be made with reasonable certainty, if the heart is anatomically small in old age, or in any of the affections mentioned, especially if the pulse is weak and irregular, and there are fainting turns with cardiac distress. Such a heart came under my observation at a meeting of the New York Pathological Society, some years ago. It was taken from the person of a young man who died of sarcoma in the practice of Dr. R. E. Van Gieson. The heart weighed less than five ounces. In Bramwell's female cancer patient, the heart weighed only two ounces, twelve drachms, and ten grains. Fig. 9 is a life-size copy of Bramwell's case. According to Gibson, Quain knew of a more remarkable instance in a girl of fourteen, whose heart weighed only one ounce, fourteen drachms.

Fig. 10 is the heart of a female patient of mine who died at St. Luke's Hospital of purpura hæmorrhagica. The subserous hemorrhages are seen beneath the endocardium. There were similar effusions beneath the submucous tissues of the intestine and uterus. She had been under my care previously for a double lobar pneumonia, and had recovered without leaving any permanent fibrous adhesions in the pleural cavity, so that the idea then prevailing that fibrous pleurisy is never recovered from was disproved. At the postmortem was found (Fig. 10) a cardiac callosity, or invading fibrosis, which, as no other explanation offered, may perhaps have resulted from a previous pericarditis.

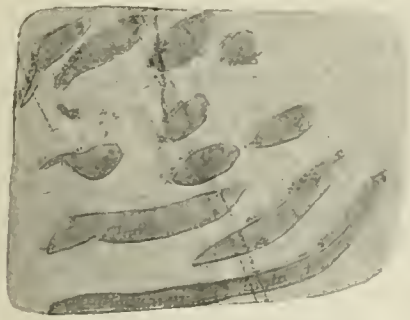

Fig. 11.—Fibroid invasion of the myocardium, x 210.

In Fig. 11 we see how an invading fibrosis can squeeze the muscular tissue.

Another method by which cardiac fibrosis develops is shown in Fig. 12. Supposing that in aortic endocarditis, as in Fig. 7, a particle is dislodged and finally arrested in a coronary artery; an infarct (white) may result. For the coronary vessels, though not terminal as in the brain, have really very slight capillary connections,

and the plugging of an arterial branch may cut off from the neighboring territory so much blood that it is practically starved to death. As a consequence, the muscle tissue involved (with such vessels as exist) atrophy, and the whole area is supplanted by fibrous material. The cardiac walls are then correspondingly weakened, and lose a portion of the tissue which regulates the contraction and expansion of the organ.

The life of cardiac hypertrophy consists in a gradual thickening of the heart's tissues, with dilatation and enlargement of the muscle cells; perhaps an increase in their number.

During this period, which may be called the first stage, the pulse is irregular, but its strength increases, the accentuation of the second pulmonary sound at the base indicating that the right ventricle has become enlarged. This stage is completed when the hypertrophy has been sufficient to propel the blood column with the required amount of force.

The second stage is marked by a return of the action of the heart and pulse to their normal conditions. This stage may continue indefinitely, so far as we know.

If, however, the dilatation increases, as it may from various causes, we then enter upon a period of failing compensation. This is the third stage. But now a sudden further dilatation will mean heart failure, and, if no relief is given, immediate death. Loss of rest, excitement, insufficient nourishment, unusual exposure, sudden strain, may, any one

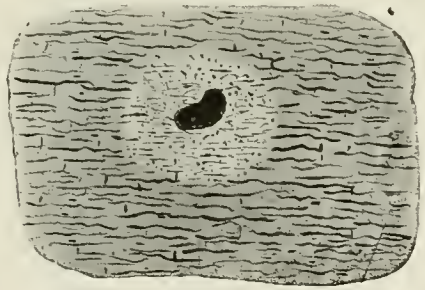

Fig. 12.—Cardiac fibrosis and the white infarct, x 67.

of them, cause sudden dilatation of the heart and death. And yet we should remember that cardiac hypertrophy itself is in all instances a benign process, devised by nature to relieve a worse condition. For in all these cases, even in the hypertrophied heart of an athlete, the muscular tissue has doubtless been reinforced in order to restore the tone of the organ, in recompense for a strain, or in other words a laceration.

The diagnosis should present little difficulty. Except in very stout persons or women with pendulous breasts, the outline of the heart can usually be made out with sufficient accuracy. Even if it cannot well be defined, the apex beat can be located by the stethoscope.

Cardiac hypertrophy therefore indicates the existence of some systemic primary defect or disease, that governs the prognosis; unless there happens to be some intercurrent incident or accident to provoke heart failure. Cardiac hypertrophy in nephritis should not, of course, be taken too seriously; the nephritis is the chief danger. But the athlete's heart is more liable to suffer from excitement or sudden strain than the normal heart, so that he should be warned, in order to guard himself against sudden dilatation. In mild cases, however, the hypertrophy may entirely disappear.

A patient of mine out hunting suddenly realized that he had strained his heart in attempting to roll over a heavy log to build his camp. He was a physician, and was fully alive to the fact that his heart had been permanently disabled. Subsequently, under a sudden dilatation from a cause incidental to the life of any busy practitioner, he was taken off without warning. The fatal issue in his case could hardly have been avoided, so long as he discharged the duties of his very responsible and arduous position.

In my experience, also, a patient may suffer for years from a severe strain, and ultimately recover from it. A male patient of mine, twenty-eight years of age, has almost recovered from a severe cardiac strain which happened six years ago.

In any case of suspected dilatation, it is extremely important to determine how much hypertrophy is present, certainly to the extent of noting the altered location of the apex beat or sound. Dilatation is, as we all know, characterized by a soft, weak, and irregular pulse, which is usually more rapid, unless the nervous system is implicated, or there is renal toxemia. The dilatation may be more or less extensive. But, clinically speaking, if the left margin of the heart does not extend beyond the nipple, it is not an alarming sign; if much beyond that point, the prognosis is unfavorable. In mild cases, however, the dilatation (as shown by the apex beat) will not reach to the nipple.

If, now, in the course of or after typhoid fever, diphtheria, or any of the acute or chronic toxemias mentioned, the pulse becomes weak and irregular, no matter what its rapidity, attention should be directed to the probability of some myocardial affection, and if there is precordial distress, or cyanosis, dyspnea, some edema, or, in extreme cases, anginoid attacks, a diagnosis of acute dilatation can be made with a reasonable degree of probability, which will amount to a certainty, if it is found that the heart's dimensions have suddenly been enlarged.

In such instances we should give the heart, as far as practicable, relief by rest in bed; for the horizontal position relieves the weakened heart, the diminished number of cardiac contractions accomplishing the same as a greater number when the body is vertical. If the parenchymatous change is associated with a pyrexia, sponging of the surface with alcohol and water will reduce the temperature, while there may also be a field for an antipyretic drug, such as aconite in small doses.

In apyretic cases, as in the various forms of chronic cardiac disease, it is more logical to relieve the peripheral pressure by warmth to the extremities, or by the use of nitrites or nitrates, than to stimulate the heart. For whatever temporary gain may be obtained for the tired heart by a cardiac compressor, cardiac activity will diminish as soon as the physiological effects of the drug have passed away.

We should also hesitate to give drugs merely for the purpose of lowering or increasing the pulse rate, because the rate may be adapted to the pathological condition. Through the influence of the nerve centers, central or peripheral, there is always a compensatory action of the heart, adapting its speed or pressure, more or less certainly, to varying conditions. Of course, when the acute symptoms have received proper attention, no time should be lost in endeavoring to eliminate the toxins (if there has been toxemia), by such means as are

calculated to remove or nullify the primary cause of the dilatation.

Von Leyden's views as to his first two varieties of the fat heart are valuable. In the first of them there may be shortness of breath, asthmatic attacks, and a rapid pulse, even when the heart muscle is not involved, caused by the extraordinary efforts made in the movements of the obese, owing to mechanical interference of the various fat deposits with respiration and circulation. Such persons seldom live to old age and succumb very easily to intercurrent infective diseases. This form, however, is curable under appropriate treatment, such as baths, exercises, gymnastics, and diet. But under certain circumstances, such as psychic disturbance, overeating or drinking, or training, it may pass into the second form.

In his second form* the prognosis and treatment are different. The prominent symptom is heart weakness, with precordial distress at any time, and orthopnea, while the blood is apt to stagnate in the veins, and there is cough and bloody expectoration, swelling of the liver and atrophy. The heart dilates, but the auscultatory sounds vary. The normal sounds are weaker, however, the apex beat less easily recognized; or there is a splitting of the sounds, or sometimes a systolic murmur at the apex due to muscular weakness at the mitral. The second sound above the aorta is usually stronger than the pulmonary. The action is also arhythmic, showing a defective action of the left ventricle. The pulse is small and irregular, but may be slowed or hastened.

When arteriosclerosis is detected in the peripheral vessels; or the contracted kidney by urinary analysis, we can realize that a fat heart already weak is meeting increased resistance which must tend to dilatation and heart failure.

Passing over its etiology, the diagnosis of the fat heart is comparatively easy, though always a matter of inference. It cannot be determined by physical signs. However, as Quain says, in stout people when the pulse is small and weak, the first sound feeble, the impulse weak, and the heart's area enlarged, it may be judged that there is a fat heart, with a fair degree of certainty.

So far as treatment is concerned, it does not present much difficulty, provided the patient takes his condition seriously, and will faithfully carry out some rational plan. A physician, seventy-six years of age, weighing 377 pounds, and unable to walk without assistance, I reduced over forty pounds in a few months, with very little difficulty, relieving his rheumatism and chronic eczema, so that he was able to resume, to some extent, his outside practice. He took several courses of the Nauheim treatment, and adhered to the rigid dietary I laid down.

Some, however, women especially, are quite willing to take any prescribed course, provided only their dietary is not restricted, and consequently treatment with them is a failure.

My dietary avoids fat meat, bread that contains much starch, and coffee, but includes often the use of sodium bicarbonate, advocated by Trousseau. I have found that my plan will reduce at the rate of from four to ten pounds a month, a rate that is sufficiently fast. Nor does it preclude tonics, wine, or other stimulants in moderation. As a matter of fact I have not had occasion to use alcoholics. My dietary is as follows:

*Russ. Med. Rundschau, 1907, S. 276.

8 A.M. Breakfast; three ounces lean meat without fat; one ounce gluten or whole-wheat bread, toasted; a cup of postum with milk, or lemonade.

10.30 A.M. A cup of beef-tea.

1 P.M. Five ounces of lean meat or fish; salad with French dressing.

3.30 P.M. Eight ounces of milk and Vichy water (half and half).

6 P.M. Three ounces of rare meat or fish, with pickles or salad; one ounce graham bread, toasted; stewed fruit.

8.30 P.M. Eight ounces of milk and Vichy water (half and half).

Vichy or plain water can be taken as desired during the day. This is not a severe dietary, as compared with some that have been recommended.

The general principles under which I practise reduction are restriction in the amount of sugar, starches, and fats eaten. Enough water should be taken to cause the normal amount of urea to be excreted. Oxidation should be increased by resistance exercises and by carbonated baths, which stimulate the skin and so improve the capillary circulation. Tea and coffee appear to restrict oxidation, and should for that reason, if for no other, be prohibited, or taken in extreme moderation.

Acid fruits and drinks should be taken very sparingly. An excess of them produces indigestion. They are better cooked. Sometimes all fruits should be forbidden.

In general, however, small fresh fruits may be taken with discretion, in their season. Sometimes the amount of both liquids and solids has to be much reduced. Laxatives should be taken so as to produce two full fecal movements daily; and stomachics also, if indigestion is acute. The patient should also take regular walks on level ground, of a given distance, and the distance should be gradually increased. Carbonated baths and resistance exercises are also valuable as auxiliaries in the treatment. But the vitality of the patient should never be reduced. On the contrary, it should constantly increase.

Stubborn cases may require the use of the hot box, or some other form of hot air apparatus.

With these methods it is practicable to reduce the weight without detriment to the general health.

In any case, however, before instituting treatment we should determine whether the fat heart belongs in Leyden's first or second class, and order the treatment accordingly. Obesity after middle life should be handled with extreme caution. A few years ago a contractor past middle life consulted me for heart weakness associated with obesity. He was leading an active out-of-door life. I put him on a restricted dietary, directed him to lead a less active life, and advised him of danger, in case he neglected my warnings. He did not visit me again, and within two weeks fell dead, dancing at a ball.

This man was to external appearances in robust health, notwithstanding his obesity. The lesson from such a case is obvious. As old age approaches the danger to life advances progressively in obesity, so that after middle life, as I have said, we should always be cautious in the treatment of these patients.

Romberg maintains that coronary disease is the most frequent cause of fatty degeneration, and that the diagnosis of coronary disease as its cause is certain whenever there is angina pectoris or cardiac asthma with sclerosis of the aorta, in a person over forty years of age. In this country most attacks

of angina pectoris are held to be of nonorganic origin. This is my view. Sclerosis of the aorta cannot be positively determined during life, and cardiac asthma is common to heart failure in any heart affection.

Some years ago I divided fatty degeneration into three stages, making the pathological changes conform to the clinical signs, and gave instances of each, as proved by my post-mortem examinations. According, however, to more recent views, the first fatty changes I then described are to a certain extent coincident with changes of an inflammatory nature, as in typhoid, and subsequent investigation may show that the changes I then described are secondary to more acute manifestations, so that my first stage of fatty degeneration was coincident with inflammation of the heart walls. This is a matter that requires further study. In my first stage, (the period of acute myocarditis of some) the duration is not long (as in the eruptive fevers, typhoid, or other acute toxemias), and the symptoms, such as a weak and intermittent pulse, feeble beat, or distant sound at the apex, with faint tones, and more or less dilatation, precordial pain and distress, will mark the first stage.

These signs I noted as early as 1879 in a fatal case of yellow fever that occurred at the Presbyterian Hospital, when I was pathologist to that institution. Of this I have my post-mortem and laboratory notes. In this stage the heart may stop; not, however, from the fatty degeneration observed by Hayem in the sudden death of typhoid fever, but from the toxemia, causing defective innervation. For the central nerve system regulates the action of the heart, though it may have nothing to do with its rhythmic activity. To put it physiologically, the contraction and relaxation which characterize the rhythmic action of the heart are due to the interaction of an alternating kind between the sodium, potassium, and calcium ions, and the contractile substance of the heart muscle.

In the second stage, the signs of a dilated heart are more pronounced. The left ventricle may reach to the left nipple, or extend beyond it; the right ventricle an inch or more bevond the right border of the sternum. The apex may be in the fifth, sixth, or seventh space, and the apex beat feeble. The pulse will usually be soft, intermittent, and infrequent. There may be, and often is, a lack of harmony between the heart and pulse-beats. These manifestations of arrhythmia are apt to be seen in persons who have passed middle life, and are inclined to be stout, but are at the same time anemic. In these instances there is often a distinct whiteness about the face, which is a noteworthy sign. This is common among the upper classes, especially with those who lead a rather inactive life.

The apex beat will be located with difficulty, or not at all. There will be dyspnea and some precordial oppression, with occasional attacks of dizziness. Abdominal symptoms will always be in evidence; occasionally gastric crises alternating with anginoid attacks. Cyanosis will occur at times. Such patients will often be irritable or whimsical, or nervous about trifles, and always concerned about their health. There will be a disinclination to undertake anything new, even to walk, and the gait may be uncertain. Occasionally, there will be hemorrhages, usually in the form of epistaxes. Edema of the face, hands, and feet will occur at times. Independent of valve murmurs due to obstruction, there may he systolic murmurs from leakage at the mitral, and if there is hypertrophy of the right ventricle, there will be accentuation of the second pulmonary sound. If acute dilatation takes place there will be precordial distress, pain, and dizziness, or a faint feeling. And there will be sharp anginoid attacks, if the dilatation is very acute.

If there has been corpulence it will help in the diagnosis; also if there is dyspnea after exertion.

Other signs which I regard as very important are—that the apex beat is not to be detected in persons of otherwise normal build; also, that the patient must sleep high at night with several pillows, or resting on his arms.

The urine may contain a little albumin and often a little sugar. This stage may last from two or three, to ten or fifteen, or even twenty years, depending on the degree of the degeneration and the ability of the patient to care for himself intelligently.

In the third stage there is implication of other organs. For example, there may be attacks of cerebral thrombosis or embolism due to abnormal heart action; or thrombosis of peripheral veins, but the circulation may be reestablished, and the patient resume an otherwise tolerably active life. Or, from a variety of causes, perhaps from indigestion, there may come a fatal attack of heart failure. Or, in old people particularly, a low form of meningitis, usually basilar, will develop the Stokes-Adams group of symptoms, with possibly the so-called "heart block." And yet even here the symptoms may yield and life be continued for months or even years, as in one of my cases of the Stokes-Adams type. Finally rupture of the heart may occur. But it must be exceedingly rare. Nephritis is the common terminal affection.

In the first stage the patient should be treated by rest and an appropriate but rather restricted diet, and general tonics, among which strychnine should have some part. It should be given in small doses, say from 1/50 to 1/60 of a grain, for adults, and should not be administered continuously for more than two weeks at a time. This, I hold, is important.*

In ordinary cases of fatty degeneration the patient, if anemic, should be put on iron: if tuberculous, on malt preparations and creosote or cod-liver oil; if arteriosclerotic, on the iodides; if rheumatic, on an antilithemic diet and antilithemic remedies, in conjunction with the hot-air treatment.

In the second stage the Nauheim system is appropriate in selected cases. In the third stage, where all hope of cure is at an end, the use of strophanthus and drugs of the digitalic group, the nitrites and nitrates, including glycerol nitrate and erythrol nitrate, camphor, and finally oxygen gas, have each their distinct fields of usefulness.

There is a tendency, however, to use adrenalin in these cases, so that the experiments of R. M. Pearce (Studies from the Bender Hygienic Laboratory, Vol. III., 1906, p. 51) should serve as a warning. Injecting 1/10 to 8/10 of a cubic cm. of this drug into a series of rabbits, sufficient to cause death sooner or later, the heart muscle showed more or less edema, and in one instance wide separation of muscle fibers. In another series, each rabbit heart was dilated, while there was granular and hyaline degeneration of the fibers, and some were necrotic. Adrenalin contracts the arterioles, and it is conceivable that the contractions of the coronary and other vessels produce temporary ischemia in the heart walls. In some of the

*"Diseases of the Heart," etc., N. Y., 1905.

rabbits there was a diffuse myocarditis. To be sure, adrenalin produces prompt physiological results when injected into a vein. But I have seen five minims of an intravenous 1/1000 solution, (1/200 grain) produce distressing symptoms in a patient, causing a blood pressure of nearly 200 in forty seconds, and a coresponding fall in from one to two minutes.

I have, however, been in the habit of employing the suprarenal extract in doses of one to three grains of Armour's powder, in capsules, three times a day, as a substitute for glycerol nitrate in the weak heart, and have found it useful, and have observed no bad effects from it. But in reference to the adrenalin chloride, we must realize that there is a lack of constancy in its action. I am prepared from my experience to say that the same amount given to the same person will not always have the same effect. These statements are confirmed in a measure by two blood-pressure charts of T. C. Janeway. (Clinical Study of Blood Pressure, 1904.) In one, ten minims of a 1/1000 adrenalin chloride solution were injected into the substance of the tissues. No effect was produced. In another case, twenty minims of the same strength were injected into the median basilic vein. In fourteen minutes the pulse had risen to 145 and the pressure to 225, but the latter had fallen at the end of thirty-three minutes to 55, and, in fact, no pulse was palpable, when it was found necessary to inject two grains of caffeine sodium salicylate, strychniæ sulphate, etc., to restore pulse and pressure.

I recently saw, in consultation, a patient where, in my opinion, the fatal issue was hastened by adrenalin. Physicians should, therefore, be on their guard against the internal administration of this particular preparation; viz., the adrenalin chloride. Its prompt action in surgical shock should not blind us to the fact that the primary action is followed by a dangerous depression.

So far as prognosis is concerned, in myocardial diseases, we must assume from analogical reasoning, together with clinical experience, that parenchymatous changes, if not excessive, can disappear with convalescence, and yet, by analogy, we must equally well hold that they can lead up to acute diffuse myocarditis; and may terminate in fatty degeneration also. In very many cases, however, we know that the patients recover wholly; at least so far as we can determine by clinical tests.

The same process of reasoning leads us to believe that even in acute interstitial disease the fibroid deposits may at times disappear entirely. So in tuberculous myocarditis there may be a disappearance of all signs of the tubercles, as in tuberculous peritonitis. The same may be said of syphilis. Moreover, a moderate degree of fatty degeneration is present in almost every adult heart, and if the post-mortem examination displays the so-called "tiger's heart," where the striations of fatty degeneration show in places through the transparent endocardium, one would hardly call it abnormal.

Reverting for a moment to cardiac syphilis, Huchard has claimed that angina pectoris is an important sign. This has not been my experience. Herzog's three signs are light precordial pain up to angina, tolerably rapid cardiac enlargement in young people or persons of middle age, with aortic insufficiency. Whether these points have value, time only will determine. Certainly organic disease of the arch of the aorta, or any thoracic aneurysm, would point towards syphilis. But cerebral signs are also suggestive. I had some years ago under my care a physician of New York past middle life, who gave no subjective specific symptoms of syphilis, but had suffered from chronic cerebral pains, in connection with his cardiac disease. A thorough course of mercurials and iodides, together with Nauheim baths and exercises, put him on his feet, and he is now, or was until quite recently, actively at work. So that the prognosis is not altogether bad. If the diagnosis is made early and the proper treatment instituted, success may be expected. In fact, there is no reason why a cure cannot be made. Even in advanced cases, where there is tabes dorsalis, for example, great improvement can sometimes be effected. Iodides and mercurials are the proper remedies, but mercury is the sheet anchor. Sometimes both of them should be given for months, with brief interruptions of a few weeks.

Apropos of the diagnosis of cardiac insufficiency as shown by the soft, rapid, and often intermittent pulse of myocardial disease in general, it is well to remember that there may be persons whose hearts functionate sufficiently well, until they are subjected to some special strain, physical, mental, or psychic. Then the insufficiency is apparent. Often a few steps about a doctor's office is all that is required. To determine the amount of this weakness various methods have been tried for more than a century. In fact, the determination of the functional capacity of the heart is a matter of very great importance, not only from the point of view of diagnosis, but for the purpose of controlling the effects of treatment. But the methods used have been open to so much criticism that internalists have usually given the subject a pretty wide berth. The first material advance was made by Spengler, in 1887, when he noted the effect on the pulse in typhoid fever convalescents after exercise and change of posture. Of all the methods proposed, three may be taken as examples of the most recent that have been published.

Katzenstein's, published in 1905, consists in compressing the femorals or iliacs below Poupart's ligament and noting the effect on the brachial artery. In healthy persons he has claimed an average rise of 5 to 15 mm. Hg. in from two to five minutes, as shown by the sphygmomanometer. In weak hearts, he has reported that the pressure either rose slowly or not at all, or fell, according to the grade of weakness present.

As to the accuracy of the method, reports have differed. In acute cases it is, of course, inapplicable. Compression of these vessels is not an easy task; an assistant is necessary to take the pulse. In ordinary private practice, a patient might very reasonably object to the procedure.

Herz has proposed a more practical plan—counting the pulse long enough to determine its average rate per minute. He then has the patient sit down and slowly flex and extend the right forearm, continuing the movement a minute, without contracting the muscles to any marked extent, the physician controlling the flexion and extension, but not using any force. In the normal heart the rate is not affected, but in the weak heart it is slowed from five to twenty beats per minute.

The older method of Schapiro (*Deutsche med. Woch.*, Feb. 9, 1905, s. 215) is another good one that should be practised more than it is. The pulse is taken first in the recumbent and then in

the sitting position. In health, there is an increase of frequency when the individual has assumed the sitting posture (after lying down) of from three to ten beats per minute. In the weak heart, there is an absence of or a diminution of this frequency in changing from the recumbent to the sitting position. I have used this method for the past two years, with a fair degree of success.

We have no better methods available than those of Herz and Schapiro, and, inasmuch as they are simple, practical, and fairly reliable, we should use one or the other to test the functional capacity of the heart, certainly until something better presents itself.

THE CRUX OF THE TUBERCULOSIS PROBLEM.*

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The crux of the tuberculosis problem is prevention of implantation. Without the tubercle bacillus there can be no tuberculosis, and without implantation there can be no new cases. There are many predisposing causes to tuberculosis which facilitate implantation and growth, but they are secondary, and in their greatest potency cannot produce the disease. On the other hand tubercle bacilli when scattered about freely enough may produce implantation without any of the predisposing causes. In other words, there is no environment, however bad, no poverty, however degrading, no hardship, however great, which can produce tuberculosis in the most susceptible person unless the tubercle bacillus is there to be implanted; and there is no environment, however good, no wealth, however ennobling, no ease, however sparing, which will prevent tuberculosis in the most resistent individual, if enough bacilli are continuously scattered in his whereabouts for a long enough period of time. There, no doubt, are individuals who can resist the development of tuberculosis to a fatal termination under any amount of exposure, but in such cases implantation probably takes place and dies out.

As there is only one essential cause of tuberculosis, so there is only one positive prevention of it. Prevention of implantation is positive; improvement of sanitary, sociological, and financial conditions is problematical. When these are bad they predispose to tuberculosis and their improvement may contribute to prevention but cannot in itself prevent the disease. These facts should be kept in mind in selecting measures when financial resources are limited.

Incarceration and destruction of the tubercle bacillus at the time and place of exit from a host without contamination of person, place or thing constitutes the essential element of prevention. This can be accomplished in consumptives by depositing the broken-down tissue in a paper box or cup while holding it close to the mouth, wiping the mouth with a paper napkin, folding up the paper napkin and placing it in a paper bag and finally burning the sputum box, paper napkin, and bag. Such a practice makes a tuberculous subject non-contagious and implantation from him impossible. The prevention of tuberculosis in its last analysis consists of making every person suffering from tuberculosis in a contagious stage follow this practice.

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What constitutes a contagious tuberculous subject? This question may be answered in a theoretical and in a practical sense. Theoretically every person who has tuberculosis and gives off tubercle bacilli is contagious. All persons with tuberculosis do not give off tubercle bacilli. As a rule the tuberculous subject does not give off tubercle bacilli until he has an open tuberculosis or ulcerative process. Exceptionally a tuberculous subject may give off bacilli in the urine through the kidneys without ulceration. It also has been claimed that a tuberculous subject may give off tubercle bacilli by the bowel, and through the secretions without ulceration, but the most recent investigations make this doubtful. Practically, a tuberculous subject is contagious when he gives off tubercle bacilli in sufficient numbers and continuously enough to produce a contagious environment capable of giving an implantation.

Tuberculosis is a contagious disease technically and practically. To get a clear idea of the contagiousness of tuberculosis one must learn to think about contagious diseases in a botanical sense. This is the only way in which one can reconcile the application of the word contagion at the same time to such diseases as measles, scarlet fever, smallpox and tuberculosis. The thistle and the corn are propagated in the same way, namely, by the production of seed and its deposit in soil. When the thistle ripens its seed is scattered far and wide by every current of air, and its distribution cannot be restricted except by placing an enclosure around the stalk and thus shutting off all soil. When the corn ripens the seed is enclosed in a husk and is fastened to a cob which is securely attached to the stalk. Unless assisted artificially it finds its way into the soil with much difficulty. The elements ultimately release the cob from the husk and the seed from the cob and the air currents carry it into the soil, but much time is consumed before this can be accomplished and, meanwhile, the corn can easily be taken from the field without scattering a single seed and destroyed. Measles, scarlet fever, and smallpox are like the thistle. The seed is scattered by every current of air and is deposited in all soil within reach. Prevention of the spread of these diseases can only be accomplished by keeping susceptible people away from them. Tuberculosis is like the corn. Its seed is given off in coarse, broken-down tissue, which has to be macerated and triturated by the elements in order that it may be distributed by the air currents, and which can easily be destroyed without dissemination before it can become macerated and triturated. One who knows how to handle a consumptive can be about him continuously from the beginning of his contagion to the time of his death without any risk of implantation.

Herein lies the secret of the prevention of tuberculosis. Every contagious case of tuberculosis should be placed in the custody of some one who knows how to dispose of the broken-down tissue which is given off without contamination of person, place, or thing and destroy the life in it. General directions to take care of the sputum are insufficient because they are seldom understood well enough to mean anything in practice. To most people they mean spitting into handkerchiefs, rags, and spittoons with contamination of clothing, bedding, floors, and furniture; the very thing which should not be done. Many half-informed people conscientiously refrain from spitting on the street

where the sputum could not produce an implantation, a practice which nevertheless should be discouraged, and deposit their sputum in a handkerchief then place the handkerchief in a pocket of their clothing, thereby contaminating their clothing; and at home they spit into a spittoon, into a toilet-bowl, or receptacle of some kind at a distance from the body and in the act spray the sputum over their clothing and upon the floor and furniture. Self-satisfied that they are taking every precaution against the spread of the disease they produce conditions dangerous to themselves and capable of giving implantations to others. Often they believe they are religiously following the instructions of the doctor, and in a sense they are, as the instructions are usually so general and indefinite that it is impossible to gather from them just what is necessary for safety.

It is probable that all ambulant cases of tuberculosis can be made non-contagious outside of their homes by such education and training as can be given them in the dispensary and in the office. Nearly all of them, however, gradually produce a contagious environment in their homes, and as the disease advances, unless under supervision, a contagious environment of high potency. The data bearing upon tuberculosis now at our command indicate that mere casual contact with the tuberculous subject, mere momentary existence in a place in which there are tubercle bacilli outside of a host, nay, even intermittent contact with a tuberculous subject, and intermittent existence in a place where there are tubercle bacilli outside of a host when the intervals are fairly long do not ordinarily give an implantation. The death-dealing powers of the elements, the physical impediments to entrance of bacilli-bearing matter into the organism and the disease fighting powers of the tissues of the body militate against it. Every person has his own measure of resistance to the tubercle bacillus, and this is increased by the struggle of the organism against the bacillus so long as the number of bacilli which gain admission remains within the capacity of the organism to resist. It is only in the home and in the workshop where the consumptive lives that a contagious environment is produced of sufficiently high potency to overcome the resistance of the average individual. The nearer the death point of the patient the higher the potency of contagion, so that it is probable that most new cases are implanted during the terminal stage of old cases.

This conclusion is supported by the ratio of developed cases to exposures. At present the number of new cases is less than the number of cases which prove fatal. Even before preventive measures were put into practice the number of new cases apparently did not exceed the number of fatal cases as the death rate did not increase. It is probable that the average duration of tuberculosis in human beings from implantation to death is at least ten years. During the greater part of this time it is non-contagious or intermittently contagious. The average time of contagiousness of sufficient potency to give an implantation is probably about six months. For every fatal case of pulmonary tuberculosis on an average three people have been exposed to what may be called a competent contagious environment in the home of the patient. To this must be added the number exposed in the workshop where advanced consumptives often work until they can stand up no longer and in houses which have been vacated by advanced consumptives who frequently change their places of residence. With these added it is probable that for every fatal case of tuberculosis on an average five people have been exposed to a competent contagious environment, and yet it is evident that out of five opportunities for implantation less than one implantation of sufficient vitality to terminate fatally takes place.

May we not conclude from these facts that in everyday life implantation of tuberculosis ordinarily takes place only in a competent contagious environment, and that for the prevention of the disease we may rest content with seeking out all competent contagious environments and abating them. Every fatal case may produce a competent contagious environment during the dying stage of the disease when besides the intensity of contagion we have the lowered resistance from sorrow, want and hardship, which follow in the wake of the disease, as it reaches its terminal stage. By supervising the stricken individual during this terminal stage we probably have it in our power to prevent new implantations.

The history of the progress of tuberculosis throughout the civilized world confirms the correctness of these deductions and would in itself force us to the conclusion that for preventive purposes all our efforts should be concentrated on making the terminal stage of the disease non-contagious. Whenever and wherever an effort has been made to remove the consumptive in the advanced stage of the disease from the family circle and put him under control there has been a reduction in the death rate from tuberculosis commensurate with the amount of work done, and in no place where isolation has not been practised has there been a very perceptible reduction in the death rate. It is true a gradual reduction in all parts of the world has followed immunity from prolonged exposure to the disease, improved conditions of living, and advancement in civilization, but this is in striking contrast with the reduction which has followed isolation where isolation has been practised.

In the Kingdom of Naples isolation of consumption was legally instituted in 1782 and was strictly enforced for at least half a century with a drop in the death rate from possibly 10 per thousand to approximately 1 per thousand—from what was looked upon by the whole world as a scourge to almost a complete extermination of the disease. In London following the establishment of consumption hospitals with isolation of contagious cases the mortality from tuberculosis dropped from about 5 per thousand to less than 2 per thousand between 1848 and 1910. In Germany, following the establishment of hospitals and sanatoria for the treatment of tuberculous subjects in all stages the mortality dropped from 3.7 per thousand in 1885 to 1.72 per thousand in 1906. Everywhere in the world where the consumptive has been isolated there has been a reduction in proportion to the isolation. In Paris where there has been no isolation of consumptives practically the same death rate exists as one hundred years ago, and in Austria, next to Italy, with practically the same climate where there has been little isolation, there is still a death rate of between 5 and 6 per thousand in some parts and nearly 4 per thousand for the whole country. So closely does rapid reduction in the mortality follow isolation of advanced cases that one cannot doubt the relationship between the two, and it is possible to work out ap-

proximately the relative ratio between them. One can almost calculate mathematically what the relative preventive value of isolation of a given number of cases would be during a given period of time and how long it would take to stamp out the disease in a given community with a certain definite isolating capacity for that community. In a careful analysis of the influence of the work of the Henry Phipps Institute in Philadelphia on the mortality from tuberculosis in that city it was found that the preventive value of isolation was by far the best of that of any of the work done by the institute.

How are we to isolate advanced consumptives? The most sensible way would be to admit them into separate departments of general hospitals. This could be done without danger to anyone and at relatively small expense for alterations. In Pennsylvania there are enough vacant hospital beds every day in the year to isolate all the advanced consumptives in the commonwealth, and what is true of Pennsylvania is probably true in some degree of other commonwealths. It is a waste to spend money for new equipment when adequate equipment already exists, and the money which is expended in this way ought to be used for maintenance. The Neapolitans over a hundred years ago, although they had the most exaggerated ideas about the contagiousness of consumption, successfully isolated their cases in their general hospitals. According to DeRenzi, out of 5,282 admissions into one of the general hospitals in Naples in 1828, 1,108 were consumptives and out of 1,366 deaths which occurred in that hospital during that year 699 were from consumption. One of the chief advantages in opening up the general hospital to consumptives is in the location of such hospitals in the centers of population near the homes of the people from among whom the stricken ones are to be taken. The poor are loath to permit their dying relatives to go beyond walking distance of their homes and the sentiment which is at the bottom of their objection must be taken into consideration in any broad scheme for isolation. It is much easier to isolate with the cooperation of the public than against its obstruction.

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PHTHISIOPHOBIA.*

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Fear has undoubtedly been one of the greatest promoters of human progress. For to fear an enemy is to study his resources, question his motives, spy out his movements, and strive by all efficient means to prevail against him. But when fear grows to be hysterical it is emasculated and is no longer a well-balanced element of power; it rather, in fact, sinks into weakness and stupidity, and from being a stimulating factor in human affairs, becomes a benumbing one. A word may sometimes convey unjustly this paralyzing influence and confuse our ideas. Phthisiophobia connotes unreasonable fear and carries with it an over-emotional quality. It suggests rather the attitude of the perfumed Paris than of the doughty Hector and is an unfortunate term. Words are very ancient, at least in their roots, and do not change their meaning with the swiftness of ideas. We come upon a word and think we have happened on a solution, whereas we have simply touched a problem. Thus sometimes a word actually blocks the way. Were I to express the actual attitude of the scientific world towards tuberculosis I would rather say that it entertains a wholesome fear of it, and that with this fear goes intelligence, courage, and a desire to extend protection from it. To show the correctness of this position and to bring the world to adopt it should be one of the objects of medical science. We should cultivate phthisicophilia rather than phthisiophobia, since we are deeply interested in the consumptive, for the very reason that he is the infecting center whence radiate many of our woes. To fear tuberculosis is to run from an idea, but to protect the tuberculous from others and from themselves is sane, sound, and effective; the very act of resisting a common danger energetically will dispel unreasonable fear. Ghosts have always frightened men out of their wits and always will. One should dispel the vague and nebulous ideas that project themselves in terrifying forms and strive for accurate and exact presentation, for known dangers incite us to caution, while the unknown excite panic and phobias. When we have a precise knowledge of tuberculosis and its effect on mankind, and can show that many places have been freed from its ravages, and can demonstrate the exact means by which this has been accomplished, we will have taken a long step toward substituting prudence for fright. That the world fears tuberculosis is undoubtedly true. The great mortality, the wide extent, the painful consequences, and the contagiousness of the disease are reasons enough for this. These features have always been characteristic of the disease, but they have recently been brought more vividly before the public by organized educational bodies, and designedly so. This has been done not, however, for the purpose of increasing their fears, but in order to promote their intelligence. It is the knowledge that an inundation is possible and the fear that it may come that has made the Dutch so careful and so skillful with their dikes; the result of their precaution is that a threatening disaster is controllable.

Tuberculosis is contagious, but its contagion is controllable. Typhoid fever is also contagious, and the new statistics show that there is a much larger proportion of secondary cases than had been supposed. In a small epidemic of typhoid fever in Willoughby, a town near Cleveland, which was carefully studied, only seven of the fifty-two cases could be traced to primary sources, such as infected springs and water courses, the rest were all secondary to these seven and due to associating with them, caring for them, eating infected food in their houses, to flies, etc. Yet typhoid fever is absolutely controllable as a contagious disease, so that if proper precautions are taken other patients may lie side by side with the victim of typhoid fever in hospital wards without having cause for the slightest fear, so long as they can have confidence in the attendants. The study of the individual tuberculous patient shows that in him also the contagion is controllable, and that he also may be rendered harmless to his fellows. It is this knowledge of what is possible in the case of the individual that must root out the fear of the disease generally. A vast amount of educational propaganda has been made in this direction, and it is effective in proportion as the people are receptive, i. e., as the people are intelligent. You cannot preach down un-

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reasonable fear, you must substitute something for it. Replace the generic idea of the disease by the thought of the individual. Replace the fear of illness by the fear of penalty from a vigorous administration of the law and the public will have something tangible to think about which will not scare it and which it will respect.

There are two groups of facts which placed in juxtaposition cause one to reflect. These are the relation of sound individuals in tuberculous homes, under what may rightfully be called natural conditions, and sound individuals among the personnel and attendants of tuberculosis institutions, under what we may call artificial conditions. The former residents in tuberculous houses become infected, the latter remain sound. Children associating with tuberculous mothers are exceedingly liable to contagion, and of all children living in infected houses twenty per cent. have tuberculosis. Sound clerks associating freely, and may I not say naturally, with a few, a very few, who are unsound, in the same ill-kept room contract the disease; one unsound animal in an otherwise immune herd will, within two or three years, render one-third of the whole herd unsound, while a separation of the sound from the unsound animals quickly makes and keeps the former immune. Some of the statistics of the Granchet Societies for the Preservation of Children are startling. The removal of the healthy children from infected families to houses in the country protects and preserves these favored ones, while 50 per cent. of their brothers and sisters who are left behind fall victims to the infection. On the contrary, in tuberculosis institutions, where so-called artificial conditions obtain, a case of infection among the personnel was almost unknown until v. Leube published his cases among nurses two years ago. Turban says that there has never been but one instance of infection among the attendants and officers of his institution and that that case could be easily explained and might have been prevented. Thus in one group we have occasion for fear and in the other sufficient reason for the annihilation of the fear. Under ordinary conditions, in a tuberculous family infection is the probable result, under artificial, or to speak more conventionally, under sanitary conditions infection is less probable than in the usual ordinary human intercourse. One cannot, therefore, resist the conviction that with tuberculosis we are in the presence of a controllable contagion. Thence comes the justification of the heroic endeavors undertaken by many municipalities, especially by New York. These measures, if carried still further to the point where the public can see without analyzing them, and adopt them easily, without that fatigue of thinking which many persons dread, will banish forever phthisiophobia.

It is impossible here even to touch upon sources of contagion, modes of infection, portals of entry, the relation of bovine and human tuberculosis, and many other subdivisions of the subject, the principles of which have been well established, even though the details have not yet been completely worked out. To extend this study to anything like even practical completeness will require the cooperation of a larger part of mankind, sick and well, than has yet by any means obtained. As this is to be a study of the individual, the individual must participate in it. The more he participates, the more his interest will grow; with increasing interest come increasing curiosity, sounder knowledge, and a greater protection for all.

This is the only way in which Koch's second law can be fulfilled. The first law, namely, to discover the infecting center, *i. e.* man and his habitat is comparatively easy to enforce. The second law, namely, to stamp out these centers, is the real difficulty. We can not, of course, literally stamp them out, but if we can render them innocuous we have effectively annihilated them as infecting centers and the law is fulfilled. Nothing can so win the confidence of a people as the conviction that there is a systematic and logical procedure by which an enemy of the public health can be destroyed. These two laws, which Koch early with the prescience of genius formulated, will contribute much to this social confidence after they have been still further applied. It must be understood that all this struggle has as its object to render tuberculous subjects less harmful and less numerous. With this conception of the tuberculosis movement there would be less antagonism to the building of new institutions for the sick poor, less fear on the part of nurses in caring for the sick, and less solicitude among friends lest the disease separate them; there would, in a word, be less general unreasonable fear.

Each individual man has a certain more or less well-defined place among his fellows. In the vast majority of persons this is so circumscribed that classifications can be made and people fall into groups of varying sizes. Every person is exposed to certain dangers; he takes certain risks in his very living, and the risks increase with the increased pressure of civilization. Each group of people has also its peculiar risks to which each individual constituting the group is exposed. If the precise attitude of each one could be ascertained and his proportion of exposure estimated, his liability to misfortune could be in a measure known. A knowledge of this measure of risk would replace the bogey which is based on an indefinite conception of human conditions and is often simply an impression derived from false observation and false reasoning. We would then have to do with a synthesis of accumulated facts rather than with an analysis from false premises, and would be much nearer the truth. Our factor of safety would be very much larger. It would probably be impossible to work this out from individual instances, but a study of the classes into which men group themselves would be simple and doubtless quite as accurate since the physical conditions surrounding many individuals of a certain group are astonishingly similar. If we peer into many of these groups we will find much that is not edifying, such as the inertia of custom, reflexlike automatic movements and mechanically associated ideas and crass obliviousness. This search will reveal such a mass of stupidity and entire forgetfulness of common lessons that it will lead to discouragement. The great mass of mankind are so intensely conservative as regards personal habits and live on such a level, unchanging plane that they resent an inspection of their lives and much more do they resent any modification of them. They are cast in plaster and can not be remolded. There are, however, certain basic facts that can be learned and from them certain fairly reasonable deductions can be drawn, which enable us to make a faithful picture of the individual lives about which we are concerned; pictures which are true, although they are not accurate.

From the standpoint of tuberculosis one can thus know the risks entailed by associating one's self with certain groups of men and estimate in a way

the percentage of the increment of fear which he should entertain. Lest such a knowledge should lead to pessimism or indolent optimism, which is equally subversive, it should be associated with the corollaries which indicate how the group may be lifted to a plane where fear is less justified. We would make fear then a motive to better one's condition and a stimulus for wide knowledge.

When one enters the large group of industrial operatives he immediately undertakes certain obligations and entertains certain casualties. He runs the risk of 1 to 2 of dying from tuberculosis. If he enters a group of sedentary workers such as clerks he runs the risk of 1 to 4 and 5 of dying from tuberculosis. The young child group which is housed with the parents runs one chance in twenty-five, but when the boy has been two or three years at school he runs one chance in ten of dying from tuberculosis. When he leaves school and goes to work he immediately enters a group in which the mortality is double that of his previous group.

There must be some analyzable cause for this gradually increasing mortality. As we walk along the way of life, passing as we are compelled to do from one group to another group, why should our feet become clogged with the mire of civilization and our footsteps grow so heavy that we sink into the slough long before our time? Every member of a group participates in the dangers of the group. Every animal that leaves an immune herd and enters an unsound herd will become unsound. The wise herdsman knows this and prevents it. Every one has a right to know what his chances of mortality are and what risk he runs. Having once learned this he can choose his way. Will he move along with the mass of his group in a natural way doing what the average member does, which is easy, or will be open his eyes, pick his way and follow what I have called an artificial path? If he selects the latter he can diminish his own risk and reduce his own mortality, and, in proportion as he does this, mitigate his own fears, although the mortality of his group remains unchanged; and if a sufficiently large number of his immediate companions act with him the mortality of the group will be modified in proportion to the number thus acting in common. If a little company of cigar makers persists in working in low, damp, dark rooms, sitting on opposite sides of the same table so that when one coughs he sends a gust of his breath into the face of his companion opposite, the mortality of that band will average 75 in 100. If it ventilates the rooms, inculcates personal cleanliness, and the members sit on one side of the table only the mortality will be reduced 25 per cent. and more, and the morbidity statistics will correspond. The rules for the control of any acute epidemic are simple and easy of execution, except when the victims are massed in a small area, because the demand is for the isolation of every individual for a short time, no matter what his civil condition. If a citizen has smallpox the duty of the patient and health officer is clear—there is but one thing to do. On the contrary, if the citizen suspects tuberculosis, one thing is necessary if a stone cutter, another thing if a cobbler, another if a clerk, and another if a housemaid or a laundress; one set of rules is necessary for the subject and other rules for the associates and those in the radius more or less extensive of the contagion. While the extremist may demand isolation for the advanced cases of tuberculosis, he is obliged to agree with the opportunist that the incipient, early, and arrested cases call for special rules. Moreover, the rules will be as numerous and as variable as the individuals attacked. We find ourselves, therefore, in a maze almost as impenetrable as life itself. For this disease is life tubercularized. Yet hysterical fear, phthisophobia, has no place here.

One of the causes of restlessness among the people is the sudden, irrational, intermittent, and desultory acts of over-zealous officials. It is the unexpected that puts the public on the defensive. Therefore, every procedure that is likely to interfere with customs and habits should be well considered and gradually and logically introduced. The farmers have at times been brought into direct antagonism to the whole tuberculosis movement by the rash conduct of unwise health officers, and this is likely to happen whenever the milk question springs suddenly into too great prominence. Notwithstanding the fact that the tuberculosis movement is a varied and complicated form of human effort, its solidarity is most complete, one part depends so intimately upon another that the whole should move evenly and compactly. The hospital, sanatorium, dispensary, and house visitation are integral parts of the one idea, worked out in different ways, and each one is essential to the perfect development of the other. House inspection and disinfection, registration and municipal surveillance are even more intimately connected than the agencies for treatment and cure; medical inspection of schools, children's camps, and all the armament necessary for the protection of the child are very closely knit together. All these departments must be made practical and popular that there may be a place for every person who needs any one of them. A disproportionate growth of one part obstructs the free, smooth movement of the whole. There is a broad and rather even development of the tuberculosis activities throughout the country, but they are not closely enough correlated. This is particularly true of public and private charities which are sometimes widely dissociated. To make these agencies co-operate as component parts of one harmonious whole requires a thorough organization, and this should begin with the federal government; then and then only will the weak places be discovered and strengthened. Should the national government determine to direct, regulate, and control the movement against tuberculosis, it would find itself at once in possession of an army of eager volunteers ready to be led. I doubt if anything would give more confidence to the nation in its efforts against consumption than an active, well-organized government control and nothing would more quickly banish fear. The belief of the average citizen in himself, in the organizing power of his fellows and in the power of his country, together with our great local jealousy and pride would give this centralized body an enormous centrifugal force that would be felt the length and breadth of the land. Institutions would multiply under the fostering care of intelligent leadership, and it would not be long before the slogan, "no tuberculosis," would begin to have a real significance.

You may have read the last part of the last chapter of Selma Lagerlöf's "Saga," where she tells of little Ruster, who went as a drummer boy at the head of a Swedish regiment when in 1813 it marched into Germany and who could never weary of telling stories of that wonderful land in the south. The people were as tall as church towers, the swallows were as big as eagles, and the bees as geese.

"Well, but the bee hives?"

"The bee hives were like our ordinary bee hives."

"How did the bees get in?"

"Well, that was their own lookout," said the little Ruster.

The ideas that have been suggested for the control of tuberculosis are very large bees, gentlemen, and how they will come into the bee hives of everyday practical life is something that will have to be found out sometime. In the meantime, we shall have to admit that a wholesome fear is our strongest defense.

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AMEBIC DYSENTERY IN NEW YORK.*

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In a previous paper, the writer reported three domestic cases of amebic dysentery, one infected on Manhattan Island, one in Brooklyn, and one on the Hudson River between New York and Fishkill. A review of the literature at that time showed records of about fifteen cases infected in and about New York City. Conversation with physicians and surgeons indicates that there have been many unrecorded cases. A study of the cases does much to abuse one of the idea that amebic dysentery is exclusively a tropical disease.

In order to emphasize the purpose of the former paper, and to again point out that amebic dysentery is endemic in New York, this additional case is reported.

History number 1602; admitted to the Hudson Street Hospital, July 9, 1909; male, 25 years of age; U. S.; single; driver. Family and past history unimportant. Present illness began about five months ago with frequent, yellow, watery movements, without pain, tenesmus, or other discomfort. He had about six or seven passages daily, one after each meal, and they were sometimes streaked with blood. The number of stools has increased up to the day of admission, so that today he has had ten movements accompanied with pain and tenesmus. The patient has and is still losing weight. One month before admission he began to have vomiting directly after meals. He has had slight epigastric pain and nausea. Pain has been relieved by vomiting; vomitus has not been noticed. Chief complaint, diarrhea. Physical examination unimportant. Examination of mucus obtained through sigmoidoscope and examined on a warm stage, reveals many motile amebæ.

Much controversy has taken place concerning the pathological significance of the *Ameba dysenterii*, some authors claiming that its occurrence in the stools is not of etiological importance. Perhaps the majority of observers has credited the ameba with being able to produce dysentery, and excellent evidence has been advanced in favor of that view in the fact that the organisms are found in the walls of the intestinal lesions and in the pus of secondary manifestations occurring in the course of the disease. For a long time evidence, however, was lacking which could be regarded as proof of the pathogenicity of *Ameba dysenterii*, because of the inability to grow the organism on culture media. In 1904 Musgrave and Clegg[1] working in the Philippines, were able to grow the ameba in symbiosis with organisms harmless to animals and man, and to reproduce the disease in man from these cultures, as well as in animal, by feeding experiments. Lesage[2] has reported the successful culture of ameba on leucocytes of the guinea pig, dog, cat, rabbit and man. He does not state how he made his leucocyte preparations, but says that "in culture the ameba has all the characteristics of the parasite studied in the human products. It reproduces amebiasis." Gauducheau[3] has succeeded in growing amebæ in symbiosis with bacteria. The amebæ no longer grew, if what he calls the nourishing bacteria were wanting.

In a large city like New York, it is reasonable to suppose that if infection took place through drinking water, there would be many more cases of amebiasis. It is a difficult matter to explain the city cases, but it seems a possibility that the domestic cat will be proven the source of infection in some endemic cases. Lesage speaks of "spontaneous dysentery" in the cat, and says that its organism is identical with the ameba of human dysentery. He believes that experimentation, showing that infection by puncture or injection into the nasal fossæ produces an amebiasis, explains those cases where no portal of entry accessible to food or to drink can be found. The objection might be raised that in this case the infection was bacterial, and the occurrence in the stools of amebæ a coincidence. The type of amebæ found in the present case, as well as in the three previously alluded to, was the large, phagocytic type, the organisms containing in their centers many red cells. The harmless type is smaller and nonphagocytic. It may also be added that the occurrence of amebæ in the stools of healthy persons is practically unheard of in this part of the country.

Diagnosis: Many cases of amebic dysentery are unrecognized, because physicians are satisfied with the examination of a stool collected in the usual way. The motility of the organism is lost soon after it comes to a temperature below that of the human body, and it succumbs below 65° F. Consequently, if a stool is to be examined, it should be passed into a bed pan which has been warmed just before the examination is to be made, and should contain water heated to about the temperature of the body. The mucus obtained in this way should be examined immediately on a warm stage. If the search through a specimen from a stool fails to disclose the ameba, mucus should be obtained through a proctoscope, and an immediate examination on a warm stage will make the diagnosis in a few moments. Amebæ are often easily found in this way, when repeated stool examinations have been negative. The occurrence of small ulcers close to the so-called internal sphincter is quite characteristic.

The endemic disease in New York characterizes itself by a suddenly appearing diarrhea, with a gradual undermining of the general health and strength. In the present case and in the other cases observed by the writer, there was no history of fever. The persistence of the disease for weeks and months and the positive findings in the stools when examined with the proper technique should make the diagnosis fairly simple. It may at times be difficult to determine whether a case is one of amebic dysentery, in which the organisms have not yet been found, or one of intestinal cancer with diarrhea. The writer has seen one case of chronic

*Read before the Medical Section of the New York Academy of Medicine, November 16, 1909.

dysentery probably amebic, mistaken for carcinoma, and two cases of intestinal cancer, which were wrongly diagnosed as chronic dysentery.

The treatment of this disease seems to have been firmly established, especially in tropical countries, where the medical treatment is apparently better understood than in temperate regions. Medical measures include diet and drugs. The diet should be one which leaves as little irritating residue as possible. Wilson and Pressby[4] report excellent results from the use of a diet of turnip top purée, and ascribe to it a curative effect. The drugs used are numerous. Perhaps the one remedy to attract the most attention at present is ipecac, its use having been revived, according to Woodhull,[5] some years ago by Docker in Bengal. It is given in large doses, up to a dram a day, either in single or divided doses. Its administration has been preceded by morphine hypodermically to prevent vomiting, but recently it has been administered coated with salol, which prevents emesis equally successfully. Raymond[6] in giving the results with ipecac in the tropics, advocates it in the highest terms, and quotes Manson as believing that ipecac is possessed of specific powers in amebic dysentery. Woodhull, while admitting the fallibility of all remedies, states that in a wide experience in the Philippines, he has never seen it fail. Thornburg,[7] on the other hand, admitting that it lessens the number of movements, does not believe that it kills the ameba, and says that its use is nearly always followed by relapse.

Another drug which has in recent years acquired a great reputation for efficiency in the treatment of amebic dysentery is kho-sam (*Brucea sumatra*, or *B. antidysenterica*), a plant found in Abyssinia, Cochin China, and Sumatra. Lemoine[8] regards it as a specific, if used early. In later cases, he says, it is more rapidly curative than any other drug, and succeeds where ipecac fails. Its action is hemostatic, astringent, and antiparasitic. Lemoine says that the ameba being hematophagic, the principal action of the drug is brought about by depriving the ameba of its chief article of food. Schneider[9] in corroborating Lemoine's recommendations of kho-sam's effectiveness, advised the powdered drug in one grain pills, three or four times daily. The literature in praise of this drug is very extensive.

At the same time that medicine is given, local treatment should be carried out, in the form of irrigations of quinine solutions, silver nitrate, argyrol, ice water, or the direct application of tincture of iodine to accessible ulcers, through the sigmoidoscope. The success of medical treatment depends on early diagnosis, and in the tropics, especially in the hands of our army surgeons, seems to be considerable. Many cases in this part of the world come to surgical treatment, possibly on account of too late recognition. Surgical treatment is indicated where medical measures have repeatedly failed, and consists of colostomy or appendicostomy and through and through drainage.

Addenda. Opportunity is here taken to report another case which came under observation after the preceding communication was made.

A. D., 31 years, male; lithographer; U. S.; married. Family and past history unimportant. Eight months ago, after feeling perfectly well, he was suddenly taken with diarrhea. He had eight or nine movements in twenty-four hours, several at night. They were foul smelling and bloody, but unaccompanied by tenesmus. The diarrhea kept up until the first week of January, 1910, with varying intensity, the patient occasionally having formed movements in the periods of improvement. He lost considerable flesh and strength, but apart from the bloody stools he had no complaint. He has not been out of Brooklyn, except to work in Manhattan, for over five years. About the first week of January he visited the Vanderbilt Clinic, where a provisional diagnosis of amebic dysentery was made, and the patient was sent to the Hudson Street Hospital. A negative stool examination was made, but mucus obtained in the eye of a rectal tube showed under the microscope many motile amebæ.

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149 East Sixty-Second Street.

A CASE OF FATAL HOOKWORM INFECTION.

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Hookworm infection is a subject of enough general interest, we believe, to justify us in recording the following instance of fatal infection which came under our observation in April, 1905. This case is perhaps of special importance, since it represents a quite typical example of the more acute and active types of the disease, whereas most of the cases which have been recorded in New York have been of the more chronic form, which rarely terminates in early death, at least without serious secondary complications.

But very little was generally known here in New York concerning the disease when this case was under our study. A striking illustration of this statement is perhaps afforded by the fact that the Board of Health registrar held up our death certificate until it had been investigated.

The patient was a male aged 32 years. He gave an excellent family and personal history, and up to the time of the present sickness his health had been even exceptionally good. He had recently returned from his wedding trip, which had been spent in Europe, whence he had returned by the southern route. While in Rome he drank unboiled and unbottled water on at least one occasion, and had also probably eaten salads and uncooked fruits, any of which might have been the portal of infection entrance. On his return to the States he noticed while in St. Louis that he was passing dark colored stools, but he was feeling perfectly well at this time.

Dr. Lee was called to attend him on the morning of April 24, 1905. He was then complaining of acute pain in the epigastrum, had vomited, and had

several diarrheal movements. Inasmuch as he gave a history of having dined indiscreetly on the previous evening the case was looked upon at this time as one of simple acute indigestion, and a saline cathartic was prescribed.

Seen later in the day, his pallor was pronounced and striking; he had a rapid shallow pulse, with labored breathing and gave the general picture of impending collapse. Inspection of a recently discharged stool showed it to be composed almost entirely of dark fluid blood.

Blood examination showed the following: Hemoglobin, 15 per cent.; red corpuscles, 972,000 per c.mm.; leucocytes, 8,400 per c.mm.; clot formation, very slow and incomplete. The alkalinity of the blood was also enormously diminished, only 80 mg. per 100 c.c. being present, calculated as NaOH. The red corpuscles showed all manner of malformations and variations in size. Both normoblasts and megaloblasts were abundantly present, and endoglobular and chromatophilic, as well as the less advanced types of degeneration were shown. The relative leucocyte count showed normal proportions, but a great many pigmented leucocytes were present as well as free pigment in the serum. No malarial organisms were found. In brief, insofar as the blood picture alone went, the picture was that of a very severe grade of primary or cytolytic anemia.

Examination of the feces showed the presence of large quantities of blood clot and partly digested blood, together with ova of a tapeworm, which subsequently proved to be the *Tænia saginata*. In addition to these, the movements contained large numbers of desquamated epithelial cells and considerable amounts of mucus.

A tentative diagnosis of duodenal ulcer complicated by tapeworm infection was made, and concurred with by Drs. Janeway and Flint, who had been called in consultation.

A second examination of the feces showed, however, in addition to the eggs of the tapeworm, ova of the *Ankylostoma duodenale*. The last mentioned were, however, found in lesser numbers than the former. On account of the almost collapsed condition of the patient it was thought best not to administer an active anthelmintic, but 5 grains of thymol was prescribed to be taken three times daily.

One day later the hemoglobin had fallen to 12 per cent., with a red cell count, curiously enough, precisely that of the previous day. Normoblasts and megaloblasts soon disappeared from the circulating stream, however, and the degenerative alterations in the cells became more marked. The alkalinity had fallen to 75 mg. per 100 c.c., a change, however, well within the range of technical error.

Under treatment chiefly of forced nutrition with salts of lime and iron, after three days the hemoglobin was raised to 18 per cent., with a slight fall in the red cell count to 960,000, a small increase in the leucocytes to 11,800 and a slight decrease in the coagulation time of the blood. Most significant of all, normoblasts reappeared in considerable numbers. On May 4, four days later, the hemoglobin had fallen to 17 per cent., but the red cells had increased to 1,080,000, and the clot formation was still more rapid. The alkalinity of the blood had risen to 96 mm. of NaOH per 100 c.c.

Following this temporary improvement in the blood picture the discharge of the tapeworm from the gut took place probably from the frequent diarrheal movements rather than as a result of the small doses of thymol. The parasite was a *Tænia saginata*, and about twelve feet in all were discharged. The head was not recognized. Ova of both tape and hookworms still persisted in the movements, the former in rapidly decreasing numbers.

Soon after this, a severe purpuric condition developed, with almost constant and uncontrollable oozing from the nasal and intestinal mucosa, and with frequent submucous and dermal hemorrhages. Rapid decline in the hemoglobin percentage and red cell count took place, while clotting became so slow and incomplete as practically not to occur at all.

In general, the subsequent management of the case was that of purpuric hemorrhage, in the hope that the vitality of the patient might be sufficiently aroused to permit of later specific treatment for the parasitic condition. Notwithstanding the most active measures in the way of stimulation and supportative treatment, including means designed to increase the coagulation of the blood, the hemorrhages proved to be uncontrollable, and the patient died from exsanguination ten days after he first came under observation.

This case represents in general an entirely typical form of the acute types of infection with the hookworm. In some respects, however, it is atypical. thus eosinophilia, usually present, was wanting in this instance, probably accounted for by the severe character of the infection and the slight body resistance to it. The association of the tænea with the hookworm is by no means an infrequent one, and there can be no doubt but that the presence of the tapeworm manifestly increased the severity of the symptoms.

Insofar as we are able to judge from the number of hookworm ova present in the stools the infection was not numerically a large one, but as has been frequently shown, this is oftentimes a relatively secondary factor as compared to the susceptibility or resistance with which the tissues of the patient combat the disease.

Probably this patient had been passing blood for a considerable time before he came under observation, and active symptoms did not arise until the case took on more or less hemophilic tendencies. these being first manifested by the profuse intestinal hemorrhage and later on by the multiple mucous and subcutaneous extravasations.

Although no parasites were actually recovered from the stools, no doubt can exist as to their presence on account of the absolutely typical appearance of the ova, although after incubation we were unable to procure the larval form from them, a respect in which we have also failed in other cases.

Attention should be attracted to the fact, now well recognized, that the blood picture alone was precisely that of a pernicious anemia, and had no examination of the stools then been made the case might well have passed as one of pernicious anemia terminating with intestinal hemorrhage or complicated by duodenal ulcer.

The failure to dislodge any of the parasites by the saline cathartic or by the subsequent small dosage with thymol is entirely what is to have been expected and corroborates our experience in other examples of this disease, where we have usually found it necessary to administer thymol in large doses in order to produce the desired effect. The condition of the patient being practically that of collapse from shortly after the time when he came under observation up to the time of his death definitely precluded any such measures being undertaken in this case.

Insofar as we may judge from the size and appearance of the eggs, they were those of the *Uncinaria americana*, although we are not at all certain that we were able to distinguish the ova of our domestic parasite from those of the European form, especially at this time, when our experience with the parasite and its ova was very limited.

The case was probably hopeless when it came under observation on account of the great loss of blood, the resulting grave anemia, and the evidently severe toxic condition of the patient. The usual stimulants were administered in massive doses, saline infusions and enemata were given and attempts to accelerate clotting of the blood were made by the administration of the lactate of calcium. It is possible that adrenalin might have been used to advantage, but we doubt very much if the ultimate outcome of the case could have been altered by any means even now at our disposal.

WHAT THE FIGHT AGAINST TUBERCULOSIS HAS ACCOMPLISHED.*

By STEPHEN J. MAHER, M.D.,

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First. It has saved the lives of tuberculous human beings. It has prolonged the lives of more tuberculous human beings. It has stamped out some local epidemics of tuberculosis among cattle.

Second. It has taught all people and all governments in the civilized world the enormity of the losses that they suffered from the prevalence of the disease and secured their adhesion to a plan of campaign against the common enemy.

Third. It has brought home to the minds of young and old, rich and poor, lettered and unlettered, a comprehension of the importance of fresh air, not only for the treatment of this disease, but for the treatment of many other diseases, and for the general purpose of the prolongation of life.

Fourth. Its stimulation of the pity and generosity of the rich has resulted in hitherto unheard-of benefactions for the study and cure of the diseases that affect mankind, benefactions that will continue to improve human life long after tuberculosis shall have been banished.

Fifth. It has established bonds of fraternity between the enthusiastic crusaders of all classes and all races and all countries, bonds that make for racial understanding and international good will.

These accomplishments, made possible only by great effort and sacrifice on the part of individuals and communities, are worthy ones, worth all that they cost; but are they as great as they ought to be at this stage of the battle?

To answer this question, one must look forward as well as backward. One must consider (1) the unparalleled size and resources of the attacking force, and (2) the present position of the enemy.

As to the first, you know them as well as I. You have seen the sanatoria, the special hospitals and dispensaries, the day camps, the out-door schools, the registration laws, the research laboratories, the visiting nurses, the aroused public opinion, and the golden flood of private and public donations.

But the enemy, how fares he? If he were to issue bulletins, would he not boast: "Yes, you have won a few skirmishes, but my principal positions are still intact. The children are mine; active men and women are mine; many of the aged are mine, as they all always have been. The farm is mine, as well as the city's slum, or the hold of the ship.

"You claim to know me. You call me the tubercle bacillus. But whether my relations in the cow and the bird are allies of mine or not, you do not know. You frighten into a panic all the friends of my victims by saying that they are a danger to everybody near them, but you fail to explain the immunity of most husbands and wives of consumptives, and of the attendants and physicians at your special hospitals.

"You spend energy and money, making criminals of all who spit in the streets, but many of your leaders say that it is impossible for me to enter the body through the air passage. You claim that your recent organized attack on me has reduced the number of my victims; but all your statistics show that my appetite for victims was decreasing at just the same ratio for fifty years before your hysterical sanatorium era. You say you know all about me now, that I am easily recognized. Well, do I have a prebacillary stage, as some of your skirmishers claim, or am I always an acid-fast bacillus? Know all about me! Then where do I come from? Was I made the tubercle bacillus by God Almighty in the beginning, and have I been the tubercle bacillus ever since? Or am I a pathogenic form of bacterial life developed from a non-pathogenic form by the influence of environment? And does this evolution take place now every day, or did it occur only once, some ages ago?

"And your vaunted fresh air cure that was to be my destruction! Most of the patients who were inmates of the best sanatoria five years ago are already dead, and most of those who are suffering the misery of sleeping in the open air this past winter will be mine five years from now. A few you have saved, but how few! In your desperation, even in your sanatoria, you have fallen back on the use of the discredited tuberculin that gave me such a series of victories twenty years ago. And those that you save, you don't know what saves them. 'The fresh air,' you say. But what does the fresh air do? Does it injure me? I grow better in the air than without air.

"You don't know me. You don't know my resources. You don't know my places of retreat. You don't know my allies. You don't know how to explain the few successes that you have had. How then can you expect to defeat me by your campaign of educating the people? Educators must know. You don't know. At least most of what you know about me is not so.

"What doth it profit Man to have beautiful sanatoria if the tuberculous die in the old way and at the old rate? What doth it profit him to have the death records show fewer deaths from tuberculosis if the stringency of the laws makes doctors report their dead consumptives as victims of bronchitis or pneumonia?

"Bah! Your crusade against me is vain. It was conceived in pious ignorance and has been carried on with the methods of a Chinese army, with much noise and many banners, and no guns!"

Of course it is not the part of wisdom to take too seriously the claims of our enemy, but in estimating the value of what we have accomplished, it is necessary to know what remains to be accomplished.

212 ORANGE STREET.

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EUGENICS AND MENDELISM.

ANYONE who thinks about the matter at all knows full well that in European overcrowded countries and in cities in all parts of the world the condition of the masses is susceptible of great improvement from every point of view. This statement, indeed, puts the case mildly, for in the largest cities the state in which the very poor live is a direct and constant menace to the nation and to the white race generally. Too many individuals are born nowadays who are handicapped from the outset by physical and mental disabilities, due to poverty, heredity, that is, if heredity plays an important part in the physical and mental make up, environment, and an upbringing which renders them unfit to wage successfully the battle of life. Such persons are a detriment to the nation to which they belong, and the most disquieting feature of the situation is that they increase at a far more rapid rate than the better class of citizens. This brings about the tendency not merely to further degeneration, in itself sufficiently alarming, but what is even more alarming, a deterioration of the general average. Thus certain countries of Europe are faced with these disturbing facts, that not only is the population of their towns degenerating, but the race, as a whole, is deteriorating in body and mind. The nations whose inhabitants are chiefly in towns are in the worst position, but even in America affairs in this respect do not give cause for unmixed satisfaction. In a few words, it may be stated as an undoubted fact that in all parts of the civilized world the least desirable part of the population from a physical and mental standpoint is producing the more numerous progeny, and it would seem that unless means can be devised to stay this flood of the unfit, in the course of time the entire race must descend to a lower level as regards physical and mental qualities. Men of light and learning everywhere recognize the gravity of the position, and various measures have been suggested, some of which have been in part adopted, to keep the race at a high standard.

Of late the aid of eugenics and more recently still that of Mendelism has been invoked in this direction, and by some enthusiasts it is declared that in the practice of these theories the solution of the problem lies. In this country, during recent years, a great deal has been heard of stirpiculture and the physical examination of those wishing to be married has been strongly urged. So far as the doctrines of Mendel and his disciples are concerned, less interest appears to have been taken in these in America. However, in Europe and perhaps, particularly, in Great Britain, the followers of Mendel have been strenuously insistent that in the adoption of these teachings rests the salvation, or rather, the physical and mental regeneration of the race. A few far-seeing persons have attempted to stem this tide of enthusiasm and to indicate the exact state of the case. Among these is Dr. Squire Sprigge, the editor of the *Lancet*, who in the *Contemporary Review* for November, 1909, subjects the matter to close scrutiny and throws the clear searchlight of common sense upon the points at issue. In the first instance, he very appositely draws attention to the fact that the problems of heredity are not yet solved, so as to be able to lay down any hard and fast dicta as to inherited predisposition to disease. At a debate on heredity from the standpoint of disease held by the British Royal Society of Medicine in 1908, it was shown that certain obscure and rare nervous diseases were hereditary and that organic epilepsy might be inherited. With regard to cancer some of the most prominent authorities deny that this disease can be proved to be hereditary, while several of the recent workers on tuberculosis believe that the condition is in no wise inherited, and a well known British authority confessed himself as sceptical of even a predisposition to tuberculosis being inherited. Of course, the obvious degenerates, drunkards, imbeciles, and those profoundly tainted with blood poisoning, as syphilis, should be debarred, if possible, from propagating their kind, but outside this class, who, in the present position of knowledge regarding the laws of heredity, is to say which couple is fit to mate and which is unfit?

The followers of Mendel assert that in the teachings of the remarkable Abbot of Brünn is to be found the solution of the fundamental riddles of heredity, and if this be so there is reason to believe that the question of suitable marriages may be successfully attacked by them. It must be borne in mind though that neither the truths laid bare by Mendel himself, nor the advance on these truths made by his disciples has up to the present solved the problem. Mendel discovered marvelous facts by his experiments in flower culture, notably in pea fertilization, and his followers have greatly improved on his experiments in fowl and rabbit breeding. But the result of experiments thus far do not authorize the statement that human breeding can be influenced in a similar way, although they may point to a possibility in that direction. Indeed, even in flower culture it is not known, except by individual experiment, what qualities will respond to the Mendelian notation, and whether such will be dominant or recessive in action. The possibility of avoiding the transmission in certain plants of certain qualities has been demonstrated by

avoiding certain alliances, and if any practical rules as to the transmission of disease can be given to medical men by the Mendelists, a great step in advance will have been made in regard to the position of Mendelism in eugenics. Now, according to Sir William Gowers, with respect to disease, the Mendelian theory appears to be borne out in the transmission only of pseudohypertrophic paralysis. The Mendelian theory has infinite possibilities in regard to the betterment physically and mentally of the human race, but as yet these are but possibilities. On the whole, Sprigge is far from being convinced of the value of the medical certificate before marriage, as one of the chief planks of the eugenic platform, until the Mendelians have supplied the medical profession with more accurate knowledge of the workings of heredity upon which to base their decisions.

It is the desire and object of medical and scientific men to improve the breed of human beings, but, on the other hand, it is not the intention of these men to lead the ignorant astray as to the chances of so doing. A little learning is a dangerous thing, and it is those who know little who are generally most certain concerning partially known scientific truths. This is the case with respect to eugenics and Mendelism. The learned biologist may hope and imagine that the most sanguine expectations of the Mendelists may be realized, but the dabbler in science is positive they will be and talks as if they were already realized.

THE ETIOLOGY OF CAISSON DISEASE.

The great feats of engineering which have been successfully accomplished on the two sides of Manhattan Island during the past few years and have resulted in the construction of the various tunnels, which give promise of adding so much to the comfort of the inhabitants of this city and its suburbs, are the products not only of the mentality of great mechanical geniuses and the expenditure of vast sums of money, but of no inconsiderable amount of suffering and loss of life as well. The chief cause of this latter factor has been the frequency of caisson disease, which has resulted from the tremendous air pressure under which the workmen were obliged to labor while forcing the steel tube through the soft mud and rock of the river bottom, a pressure sufficiently high to counteract the weight of the mud and water lying above. This disease, known to the workmen as "bends" from the attitude assumed by the sufferers, an acutely agonizing affection, has been more or less prevalent wherever work has been carried on under increased atmospheric pressure. Probably in few instances, however, has the liability to it been so great as in the present piece of work, for in few construction problems have as many men been engaged for so long a time under such high pressure.

Many theories as to the etiology of caisson disease have been advanced. The generally accepted opinion that it is due to the concentration of the normal gases of the atmosphere in the tissues of the body by the increased external pressure and their sudden expansion due to undue rapidity in changing from high pressure to low, thus explaining the disease on a purely mechanical basis, has been questioned by various authorities, who have claimed that the disease is due less to the normal gases under pressure than to the absorption of certain abnormal gases, as carbon monoxide and dioxide, nitric oxide, marsh gas, and sulphureted hydrogen, found in the tunnels by blasting, by decomposition, and by the exhalations from the bodies of the workers. In an effort to settle this question, J. E. McWhorter, one of the surgeons to the constructors of the Pennsylvania Railroad East River tunnel, has made a new and careful study of the disease, not only by close observation of the cases which have come under his care during two and a half years' service, but also by carrying out of systematic analyses of the gases found in the tunnels at various times and under differing conditions. In his article upon the subject, which appears in the *American Journal of Medical Sciences* for March, 1910, he states that whereas the usual conservative estimate of the amount of carbon dioxide which may safety be allowed in a tunnel is 0.1 per cent., as a result of several thousand analyses, he could show that at no single time did the maximum exceed this amount, that the minimum amount found was 0.045 per cent., and the average 0.07 per cent. Furthermore a study of the daily fluctuation in the amount of this gas, as compared with the number of cases of "bends" reported, showed no relation whatever between the two conditions. A study of the carbon monoxide also showed that this gas never exceeded the comparatively safe amount of 0.045 per cent., and reached this limit only for a few minutes just following the discharge of a blast. A clinical analysis brought out the fact that the pressure and the number of workers being the same, the prevalence of "bends" did not vary in relation to the amount of blasting, and so could not be dependent upon the carbon monoxide content of the air. Methane was never found in the air of the tunnels, and nitric oxide and sulphuretted hydrogen in only the most minute quantities. The ventilation in the tunnels was thoroughly adequate, between seven and eight thousand cubic feet of air passing through per man each hour.

The two most striking positive results of the present investigation were the finding at autopsy in a fatal case of "bends" that the right side of the heart was filled with gas, 80 per cent. of which consisted of nitrogen and 20 per cent. of carbon dioxide, and the relative great susceptibility of new and green men. In regard to the latter point McWhorter shows that of green men who entered the tunnel, 15.5 per cent. had attacks of "bends"; of the new men who claimed to have worked under pressure before, 9.4 per cent. were affected, and of the old workers, but 0.43 per cent. The investigation is certainly of value in confirming the old theory that the disease is of a purely mechanical nature, due to the absorption of an excessive amount of nitrogen, and in pointing out the relative susceptability of new men and the gradual acquiring of immunity to the unnatural conditions of life.

Bursitis of the Tendo Achillis.

Chronic disabling pain at the tip of the heel, aggravated by walking, and lasting for a long time, is a fairly well-known condition, and is frequently called "neuralgia of the heel," or "achillodynia," under the sheltering mantle of neuralgia, have in be very widely appreciated that many of these cases, as so frequently happens in diseases cloaked under the sheltering mantel of neuralgia, have in reality a perfectly definite pathological lesion underlying them, and causing the pain. In the *Deutsche medizinische Wochenschrift* for March 31, 1910, Franz König reports a series of such cases. In four of them there was an uncomplicated bursitis of the bursa lying anterior to the tendo Achillis, while in two others there was a bursitis associated with more or less marked exostoses. These exotoses have often been noted in conjunction with achillodynia and frequently have been removed in the hope of relieving the suffering. According to König, however, such bone hypertrophies are purely secondary and protective to the chronic inflammation in the bursæ. In his operation upon the bursæ, he has found the latter to be thickened, coarse, and callous, the inner surface to be red and swollen, and the cyst contents as a rule to be clear, though at times slightly turbid. The treatment advised by König consists of radical operative destruction of the bursæ, either by excision or by means of caustics. The etiology of these cases is varied. They may be due to direct trauma, or to a sudden strain on the tendon. More commonly, however, they are of infectious origin, occurring bilaterally, and most frequently traceable directly to an infection with the gonococcus. In persistent cases of this condition the excision of the bursa seems to be indicated. Where, however, the disease follows closely upon a urethritis, it would seem advisable, before resorting to a radical operation, to give the patient a thorough trial with an antigonococcus vaccine or serum.

The Cause and Prevention of Typhoid Fever.

After many years' search for the source of typhoid fever epidemics in the water and milk supplies of various communities, and an unsuccessful attempt to prevent this disease by guarding the purity of drinking water and the production of milk on farms, we are now turning from these measures, or rather adding to them new ones, in quite another direction. Modern investigations of the etiology of many epidemics has shown that there was frequently some connection to be found with certain persons, who had had the disease some time before, and whose feces and urine were found to be producing and distributing wherever they went millions of the bacilli of Eberth. One of these bacillus carriers, "Typhoid Mary," has become celebrated in the annals of the City of New York, for the number of her employers and their families she unwittingly infected, and the length of her sojourn under the protecting wing of the Health Department, a sojourn which was far from voluntary. H. Rondet in *Lyon Médical*, for November 28, 1910, gives many striking illustrations of the propagation of typhoid fever all over France by these typhoid carriers, who either infected the wells or the streams near their sources, the water of which was very soon drunk by the inhabitants, or who, like Mary, carried the germs on the unwashed hands in preparing viands for the table. The author contends that instead of saying that this is a water-borne disease, we should say that is of human origin. Whenever these germs find a person with weakened organism they attack his intestine and he succumbs to the disease. He believes that the bacillus coli, usually saprophytic in the intestine, under certain conditions becomes virulent and takes on the characteristics of the bacillus of Eberth. The chief prophylactic measure under these conditions should be the universal education of the public in frequent washing of hands and disinfection of stools and urine when these are not carried away immediately by the sewers.

Thermal Hyperesthesia in Insular Sclerosis.

Though a well marked case of insular sclerosis, characterized by nystagmus, scanning speech, and intentional tremor, is probably as definite and easily diagnosed an affection as any which comes to the attention of the neurologist, the diagnosis of the disease in its earlier stages and in atypical forms is at times far from a simple problem, and confusion with various other organic or functional disorders is not uncommon. Recently, Michael Sugàr of Budapest has investigated twenty-five cases of multiple sclerosis in respect to their thermal sensations, and he reports some distinctly interesting results in the *Deutsche medizinische Wochenschrift* for March 24, 1910. He has found, in every case of multiple sclerosis, isolated patches of skin over which, though at first examination with the cold and hot test tubes, the thermal sensibility appeared to be normal, and the tubes were easily and properly differentiated, if the cold tube were placed upon the skin and then quickly replaced by a warm tube at a temperature of 120° F., the second tube produced a sensation of painful heat, to such an extent that the patient cringed or jerked the part away. This peculiar phenomenon of intense heat hyperesthesia following cold, having been found in every case of insular sclerosis and never having been elicited in normal cases or in patients suffering from myelitis or hysteria, the author suggests that it may be of some value as a pathognomonic test in the earlier stages of insular sclerosis. He is now carrying his investigations further to ascertain the specificity of the test for this disease. If his results are as uniform in this as they have been in the series of examinations already made, he bids fair to give to the neurologists a diagnostic aid of no small usefulness.

News of the Week.

The Public Drinking Cup.—A law went into effect in Oklahoma, May 1, forbidding the use of public drinking cups in railroad stations and trains, parks, schools, and all public places.

An Amendment to the New York State Medical Law passed the Assembly in Albany on May 5, 1910, in the form of Assembly bill No. 2290, proposed by Assemblyman Wilkie. The chief change between the present bill and that of three years ago is in the exception to the paragraph allowing registered physicians only to practise medicine. In the old law this read: "This article shall not be construed to affect the practice of the religious tenets of any church." In the Wilkie bill this exception is changed to read: "This article shall not be construed to affect the practice of circumcision as the religious

tenet of any church." The passage of the Wilkie bill through the Senate is to be vigorously opposed by the Christian Science organization, which believes that the new amendment will interfere with their rights.

Examination for Bacteriologist and Pathologist, Philippine Service.—The United States Civil Service Commission announces an examination on June 8, 1910, to fill a vacancy in the position of bacteriologist and pathologist in the Bureau of Science, Manila, P. I., at a salary of $2,250 per annum, and a vacancy in the position of assistant professor of bacteriology and pathology in the Philippine Medical School at a salary of $2,000 per annum, and vacancies requiring similar qualifications as they may occur in the Philippine service. It will not be necessary for applicants to appear at any place for examination. Their eligibility will be determined upon the evidence furnished in connection with application and examination Form 375 concerning their education, training, and experience. The qualifications desired of applicants for these positions are as follows: (*a*) They must be graduates in medicine. It is preferred that they shall have received a doctor of philosophy degree (or have had an equivalent training) from a first-class institution. (*b*) They must be trained in bacteriological laboratory work and must have good technique. (*c*) They must have a good thorough fundamental knowledge of pathological anatomy. (*d*) They must have a knowledge and training in immunity and serum therapy. (*e*) They must be young, healthy, and energetic, and capable of doing research work; in fact, they should have all the qualifications needed by a first-class laboratory research worker. Each applicant for these positions will be required to submit with his application a photograph of himself, taken within the past three years, as a means of identification in case he receives appointment. An unmounted photograph is preferred. The name and date of examination, the competitor's name, and the year in which the photograph was taken should be indicated on the photograph. The age limit is 18 to 40 years on the date of the examination. Applicants should at once apply to the United States Civil Service Commission, Washington, D. C., for application Forms 2 and 375.

Smallpox in Boston.—Five cases of smallpox have been discovered in London street, East Boston. The infection is supposed to have been imported from Cape Breton.

Reception to Dr. Jacobi.—The Medical Society of the State of New York gave a reception to Dr. Abraham Jacobi at the Academy of Medicine, May 6, 1910, in honor of his eightieth birthday. Dr. Joseph D. Bryant made the address of welcome and Dr. Charles Jewett presented the guest with a bronze medallion of himself. This was unveiled by Miss Ruth McAneny, the granddaughter of Dr. Jacobi.

Dr. James Tyson.—A complimentary dinner was given to Dr. Tyson on May 5, on his retirement from the chair of the principles and practice of medicine in the University of Pennsylvania and on the completion of forty years of medical teaching. Dr. W. W. Keen acted as toastmaster, and addresses were made by Dr. Frank Billings of Chicago, Dr. Reginald H. Fitz of Boston, Dr. George A. Peirsol of Philadelphia, and the Hon. John Wanamaker.

Dr. John M. Swan of Philadelphia, Secretary of the American Society of Tropical Medicine, has been appointed medical director of the Glen Springs Sanatorium at Watkins, N. Y.

Abuse of Street Privileges by Physicians.—According to an ordinance recently passed, physicians' automobiles now have the right of way in the streets of Baltimore and are allowed to speed, as are fire engines and ambulances, other vehicles being obliged to make way for them. This is a senseless law, liable to abuse, and one which other municipalities will do well not to copy.

The Abolition of Smallpox Quarantine was recommended at a recent meeting of the Fort Madison (Iowa) Medical Society. This is in response to a query by the Iowa State Board of Health as to the advisability of the abolition of quarantine in order to promote more general vaccination.

The Crawford Long Infirmary is soon to be built in Atlanta, Ga., for the care of the students of the Georgia State University.

Employer's Liability Bills.—The two workmen's compensation bills, introduced by the Commission on Employer's Liability, have been favorably reported by the judiciary committees of both the Senate and Assembly in Albany.

Phipps Institute for Tuberculosis.—In the conduct of the Phipps Institute under the control of the University of Pennsylvania, Dr. Paul A. Lewis of the Rockefeller Institue will be Director of the Laboratory, Dr. H. R. Landis, Director of the Clinical Department, and Mr. Alexander Wilson, Director of the Sociological Department.

University of Pennsylvania.—A course in sanitary engineering, public water supplies, sanitation of buildings, inspection of foods, and kindred subjects covering a year's study is to be established open to the graduates of the medical department. Courses in tropical medicine, protozoology and entomology, and clinical work in tropical diseases are also in contemplation. Dr. Paul A. Lewis has been elected assistant professor of pathology.

The Drake Medical School Fund, which is being raised in order that the school may not be discontinued has reached the sum of $100,000. The sum needed is $150,000.

Charitable Bequests.—By the will of the late Harriet Abbey of Philadelphia the sum of $10,000 is bequeathed to the Episcopal Hospital for the endowment of two free beds, and the sum of $5,000 to the Home for Incurables for the endowment of a free bed. By the will of the late Samuel E. Shoyer of Philadelphia the sum of $5,000 is bequeathed to the Jewish Hospital Association for the endowment of a free bed in the name of Gabriel and Louise Shoyer. By the will of the late Lucinda Dodson of Muhlenberg, Pa., the sum of $8,000 is devised to the Methodist Hospital for the endowment of one or more free beds.

The American Gastroenterological Association will hold its thirteenth annual meeting at St. Louis, Mo., June 6 and 7, 1910, at the Planter's Hotel.

The Illinois State Medical Society will hold its sixtieth annual meeting at Danville, May 17, 18, and 19, 1910. The president of the society is Dr. Benjamin Gleesen and the secretary and treasurer Dr. Solomon Jones.

The Fairfield County (Conn.) Medical Association held its 118th annual meeting at Bridge-

port April 12, 1910. The officers who were elected were: *President,* Dr. Herbert E. Smyth of Bridgeport; *Vice-President,* Dr. William L. Griswold of Greenwich; *Secretary,* Dr. Frank W. Stevens of Bridgeport; *Treasurer,* Dr. James Douglas Gold; *Counsellor,* Dr. Samuel M. Garlick; *Censors,* Drs. Edward M. Smith, David C. Brown, and Samuel Pierson.

The Homeopathic Medical Society of the State of Michigan will hold its forty-first annual meeting in Grand Rapids, May 18 and 19, 1910, at the Hotel Pantlind. The president of the society is Dr. Charles G. Crumrine, and the secretary Dr. Dean W. Myers of Ann Arbor.

The New York Society of the American Urological Association, at the annual meeting on April 27, held a symposium on "Movable Kidney," in which members of the society, as well as invited guests from the New England Urological Society, participated. The following officers of the New York Society were elected: *President,* Dr. Edward L. Keyes, Jr.; *Vice-President,* Dr. Terry M. Townsend; *Secretary,* Dr. G. A. De Santos Saxe, and *Treasurer,* Dr. W. B. Brouner. *Executive Committee:* Drs. C. R. O'Crowley, V. C. Pedersen, W. J. Robinson, and Terry M. Townsend.

The Medical Association of the State of Alabama held its annual meeting in Mobile, April 18 to 22. The following officers were elected: *President,* Dr. W. H. Blake of Sheffield; *Vice-President,* Dr. Charles Lee Guice of Gadsden; *Censors,* Dr. V. P. Gaines of Mobile, and Dr. T. L. Robinson of Birmingham.

The Suffolk District (Mass.) Medical Society held its annual meeting in Boston, April 30, 1910. The following officers were elected: *President,* Dr. George H. Monks; *Vice-President,* Dr. F. B. Harrington; *Secretary,* Dr. David D. Scannell; *Treasurer,* Dr. A. K. Stone; *Librarian,* Dr. B. Joy Jeffries.

The Berkshire District (Mass.) Medical Society held its annual meeting at Pittsfield, April 28, 1910. The following officers were elected: *President,* Dr. H. B. Holmes of Adams; *Vice-President,* Dr. C. S. Chapin of Great Barrington; *Secretary,* Dr. I. F. S. Dodd of Pittsfield; *Treasurer,* Dr. J. D. Howe of Pittsfield; *Commissioner on Trials,* Dr. J. J. Hassett of Lee; *Councilors,* Dr. J. F. A. Adams, Dr. O. J. Brown and Dr. L. A. Jones of North Adams, Dr. H. A. Stockwell of Stockbridge; *Censors,* Dr. J. F. A. Adams of Pittsfield, Dr. M. M. Brown of North Adams, Dr. J. C. Burton of Pittsfield, Dr. J. B. Thomes of Pittsfield, Dr. A. T. Wakefield of Sheffield.

The Edgar County (Ill.) Medical Society, at a meeting held at Paris, Ill., April 28, elected the following officers: *President,* Dr. Harry Lycan of Vermilion; *Vice-President,* Dr. B. G. R. Williams of Paris; *Secretary,* Dr. Nettie A. Murphy of Paris; *Treasurer,* Dr. G. H. Hunt of Paris.

The Litchfield County (Conn.) Medical Society held its annual meeting at Winsted, April 27, 1910. The following officers were elected: *President,* Dr. G. H. Wright of New Milford; *Vice-President,* Dr. F. H. Lee of Canaan; *Secretary and Treasurer,* Dr. F. S. Skiff of Falls Village; *Councilor,* Dr. Elias Pratt of Torrington.

The Randolph County (Ark.) Medical Society met at Imboden, April 22. The following officers were elected for the ensuing year: *President,* Dr. J. W. Brown; *Vice-President,* Dr. L. H. Hall; *Secretary,* Dr. W. E. Hughes; *Treasurer,* Dr. Carl Shield.

The Worcester North District Medical Society held its annual meeting at Fitchburg, Mass., April 26, 1910. The following officers were elected: *President,* Dr. William N. Cowles of Ayer; *Vice-President,* Dr. C. J. Pierce of Shirley; *Secretary,* Dr. W. F. Sawyer of Fitchburg; *Treasurer,* Dr. F. H. Thompson, Jr., of Fitchburg; *Councilors,* Dr. Bigelow, Dr. E. P. Miller, Dr. E. A. Sawyer, Dr. Thompson, Jr.; *Censors,* Dr. E. P. Miller, Dr. Pierce, Dr. J. B. Donnelly of West Gardner, Dr. W. H. Page of Baldwinville, Dr. E. J. Tully of Fitchburg; *Librarian,* Dr. A. P. Mason of Fitchburg.

The Southwest Missouri Medical Association, at a convention held at Springfield, Mo., April 29, elected the following officers: *President,* Dr. W. J. Rabenau of Fordland; *Vice-Presidents,* Dr. O. N. Carter of Republic and Dr. J. E. Dewey; *Secretary,* Dr. H. S. Hill; and *Treasurer,* Dr. Lee Cox of Springfield.

The East St. Louis Medical Society held its annual election of officers, April 26, with the following results: *President,* Dr. L. D. Applewhite; *Vice-President,* Dr. U. S. Short; *Secretary and Treasurer,* Dr. C. W. Lillie.

The Alexandria (Va.) Medical Society has elected the following officers: *President,* Dr. S. B. Moore; *Secretary,* Dr. R. L. Wilkins; *Treasurer,* Dr. Llewellyn Powell.

Obituary Notes.—Dr. Howard T. Ricketts died last week at the American Hospital in Mexico City from typhus fever, a disease which he had been investigating in that city for some months. Dr. Ricketts was a graduate of the Northwestern University in 1896. Until recently he had been associated with the University of Chicago, but at the completion of his present researches was to have become professor of pathology at the University of Pennsylvania.

Dr. James Decker Spencer of Watertown, N. Y., died at his home, May 5, aged 62 years. He was a graduate of the Bellevue Hospital Medical College in 1870, and was a member of the American Public Health Association, the New York Academy of Medicine, and the Jefferson County Medical Society, and an ex-president of the Medical Society of the State of New York. Dr. Spencer was consulting surgeon to the Watertown City Hospital

Dr. William F. Barbat of San Francisco died suddenly in his office April 24, 1910, aged 36 years. He was a graduate of the University of California in 1895 and a member of the San Francisco County Medical Society, the Medical Society of the State of California, and the American Medical Association. Dr. Barbat was a former member of the San Francisco Board of Health in which capacity he did valuable work in connection with the plague in Chinatown. He was secretary of the San Francisco Medical Society, and on the executive board of the State society.

Dr. Oliver Barber of Saginaw, Mich., died at his home, April 26, 1910, aged 60 years. He was a graduate of the Bellevue Hospital Medical College in 1870, and immediately after graduation settled in Saginaw. Dr. Barber was attending surgeon to the St. Mary's, the Saginaw General, and the Woman's hospital, and at one time was professor of surgery in the Saginaw Valley Medical College and the Michigan College of Medicine.

During the Spanish War he was surgeon-major of the Thirty-fifth Michigan Volunteers and later division surgeon. He was at one time health officer of Saginaw. He was a member of the Saginaw County Medical Society, the Michigan State Medical Society, and the American Medical Association.

Dr. John J. Gilhuley of Bridgeport, Conn., died April 25, 1910. He was a graduate of the Bellevue Hospital Medical College in 1894 and a veteran of the Spanish-American War.

Dr. W. H. Kennedy of Kennedy, Ala., died, at his home April 24, aged 84 years. In 1872 he represented his county in the State legislature.

Dr. James B. Robertson of Clayton, N. C., died at his home April 28, 1910. He was a graduate of the University of Pennsylvania in 1861.

Dr. Hartwell A. Sibley of Dorchester, Mass., died at his home April 27, aged 61 years. He was for many years city physician of Chelsea. He was a member of the Suffolk County Medical Society and the Massachusetts Medical Society.

Dr. Andrew Jackson Weidener of Little Rock, Ark., died at his home April 26, 1910, aged 53 years. He was a graduate of the American Medical College of St. Louis and secretary of the State Eclectic Medical Board of Arkansas.

Dr. Hardy Murfries Banks of Englewood, N. J., died in New York May 6, 1910, aged 79 years. He was a graduate of the New York University, and was a member of the Bergen County Medical Society and the Medical Society of New Jersey.

Dr. Peter J. McCourt of Mount Vernon, N. Y., died at his home recently, aged 69 years. He was a graduate of the New York University in 1890, and was a member of the Westchester County Medical Society, the Medical Society of the State of New York, and the American Medical Association.

Dr. Henry Belt of New York died at his home May 6, 1910, aged 42 years. He was a graduate of the Long Island College Hospital in 1898, and was a member of the New York Academy of Medicine, the Medical Society of the County of New York, the Medical Society of the State of New York, and the American Medical Association.

Obituary.

EUGENE HODENPYL, M.D.

NEW YORK.

Dr. Eugene Hodenpyl died of pneumonia at his home in New York on May 5, 1910, after a short illness, in his forty-seventh year. Dr. Hodenpyl was of Dutch parentage. His preliminary studies were pursued at the Brooklyn Polytechnic Institute. He was graduated from the College of Physicians and Surgeons in New York in 1885. After hospital service and studies in pathology, especially in Tübingen and Vienna, he became a teacher in pathology at the College of Physicians and Surgeons, passing through the grades of assistant and instructor to the adjunct professorship. His long and faithful service at this institution was marked by enthusiastic devotion, especially to morphological phases of pathology, by numerous painstaking and fruitful researches, and by his skillful and highly successful teaching of undergraduate students. His demonstrative courses in gross pathology formed for a long period one of the most noteworthy features of the medical curriculum at this institution. He was for many years pathologist to the Roosevelt Hospital ,a member of the American Association of Pathologists and Bacteriologists, of the New York Academy of Medicine, and of the New York Pathological Society, of which he was at one time president. Upon his retirement from academic work in 1909, he devoted his entire time to the pathological service of the Roosevelt Hospital.

The later months of his life were given to the development of a new conception of the possibility of the successful treatment of carcinoma by transudates derived from cases of this disease, which had recovered or had long persisted. His first experiments upon animals were so promising that he felt justified in soon proceeding to the treatment of the disease in man. Here, too, such remarkable and encouraging results were obtained that in February of the present year, he published a preliminary note on his method of treatment, without, however, permitting himself to make any claims for the discovery of a cure for cancer. With admirable reserve in a few clear terse sentences, he framed his working hypothesis, set forth the significant effects of the injections upon tumor tissues, outlined the necessity for prolonged observations and obvious controls, and warned against hasty conclusions. Then he turned to the observations on his series of cases, upon which alone the final judgment must rest. But this task he was not permitted to complete. The suggestion which inevitably became public, that he had found a new way of treating cancer, brought to him a flood of urgent demands for help from all over the world, mostly from inoperable and hopeless cases. The great responsibility involved in a new mode of treatment, the ceaseless pressure of pitiful appeal, and the unremitting physical and mental strain bore heavily upon him. But the possibilities of service to science and more directly to his suffering fellowmen outweighed all personal considerations and led him to ignore the warnings of his professional friends. So at last he was able to offer but slight resistance to what seemed at first a relatively slight attack of pneumonia.

It is yet too early to judge of the significance of Dr. Hodenpyl's method in the treatment of carcinoma. The work of adequate proving can and will be taken up by others where it has fallen from his hands. But the passing of the genial spirit, the whimsical humor, the ready helpfulness, and the example of unselfish devotion to a life of service will be long and sincerely mourned by his many friends.

FREDERICK TILDEN BROWN, M.D.

NEW YORK.

Dr. Frederick Tilden Brown of New York City died suddenly in Bethel, Maine, May 7, 1910, aged 55 years. He was a graduate of the College of Physicians and Surgeons, class of 1880; a consulting surgeon for the Presbyterian and Nassau Hospitals, an attending surgeon at Bellevue Hospital, a member of the Academy of Medicine of New York, the American Medical Association, the Greater New York Medical Association, the New York Surgical Society, and the American Association of Genitourinary Surgeons. Dr. Brown was a skilful surgeon, a hard student, and devoted to his profession—too devoted, indeed, for the nervous breakdown which led to his untimely death was the direct result of overwork.

Correspondence.

THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

(From Our Regular Correspondent.)

MANILA, P. I., March 15, 1910.

THE seventh scientific session of the Far Eastern Medical Association was held at 9 A. M. on March 12, 1910, in the Administration Building of the Philippine General Hospital and consisted of papers on tuberculosis and miscellaneous subjects. The first paper, entitled "Statistics on Intestinal Parasites in the Philippine Islands, with Especial Relation to Intestinal Amebæ," was read by Dr. Y. K. Ohno of the Bureau of Science. Dr. Ohno stated that he had made a large series of investigations as to the prevalence of intestinal parasites both by race and month; it was found that the Chinese had the smallest percentage of infections and the Filipinos the largest. The infection among the Chinese was exceptionally small. With regard to the prevalence by months, his record showed that in May the largest number of cases occurred among the admissions to the Civil Hospital, and that the least number occurred in March. He also collected statistics from Bilibid Prison which indicated that the largest number of infections occurred in August.

In the discussion which followed Dr. Heiser stated that he was much interested in the paper by Dr. Ohno: that the large number of charts he had prepared illustrating his subject could not help but have considerable value. He was, however, of the opinion that the deductions reached by the author with regard to the largest number of amebic infections occurring in August are not of any great value in determining the period of the year at which these infections are most prevalent outside of Bilibid Prison. At Bilibid only sterilized drinking water is used and the amebic infections depend upon two factors which are not much influenced by the morbidity rate of Manila: First, the cases which are present in prisoners at the time of admission from provincial jails, and, second, those which occur in prisoners who are sent to the different provinces (where the seasons are also different) to carry out large public works, and who are returned to the prison after they become infected. He stated that in his opinion the statistics for the Civil Hospital were a better index because patients are admitted as soon as they contract the disease on the outside; that in this connection it was interesting to note that the largest number of cases occurred in May, which month corresponds to the onset of the rainy season; that this also agrees with experience in the United States and Europe with regard to intestinal diseases, like typhoid, which always increase during autumn, when the rains begin.

The next paper, entitled "Beriberi," was read by Dr. Gorosaku Shibayama, delegate from His Imperial Japanese Majesty's Government. Dr. Shibayama stated that during the past two years he had been a member of a commission appointed by the Japanese Government for the purpose of making an investigation into the etiology of beriberi; that in pursuance of these instructions he had observed a number of outbreaks, one of which occurred in a tin mine, and every effort had been made to associate it with the rice, but that no connection could be traced. He was of the opinion that the theory advanced by Dr. Fraser with regard to the etiology of the disease would not explain outbreaks which had occurred in Japan.

In the discussion which followed Dr. Highet of Siam stated that his experience in the Straits Settlements showed that multiple neuritis was quite common among workers in tin mines and was probably due to arsenic, and it seemed to him probable that what had been diagnosed as beriberi in the tin mines of Japan might have been neuritis due to arsenical poison, in view of which the data presented by Dr. Shibayama did not in any way nullify the rice origin of beriberi.

Dr. Aron stated that he was much interested in the food analysis which had been made of the food which was supplied to the tin workers, but that in view of the fact that no mention was made of phosphorus the analysis could scarcely be used in discrediting the rice theory of beriberi. Analyses of foodstuffs made by the ordinary methods showed only the amount of protein, carbohydrate, etc., which was not sufficient in view of the recent work on beriberi. He also desired to draw attention to the fact that he believed that the absence of phosphorus might not be directly connected with the outbreak of beriberi, but that its absence might simply interfere with the ingestion of nitrogen and also that, in his opinion, there might be other factors concerned in the causation of beriberi than the phosphorus alone.

Dr. Fraser stated that in his opinion in the cases mentioned by Dr. Shibayama arsenic or some other poison which might cause multiple neuritis had not been adequately excluded, but he desired again to reiterate his statement that he did not believe that there was sufficient evidence at the present time to show that the absence of phosphorus alone was responsible for beriberi.

The next paper, "Observations on Various Subjects of Tropical Medicine," was read by Dr. Aldo Castellani, delegate from the Government of Ceylon. The author gave a brief description of an acute condition of the bronchial tract which resembled acute bronchitis or the early stages of phthisis in which he was able to isolate the mycetoma organism which he regarded as the etiological factor. He also drew attention to his publication of 1905, in which he showed that dobie itch was not due to the trycophyton corpora; that the organism in this affection showed well-marked and different characteristics. He emphasized the importance of the use of iodide of potassium in cases of yaws, which in his opinion was the best treatment available at the present time.

The next paper, entitled "Mycetoma," was read by Major A. Hooton, I.M.S. delegate from the Government of India. In this paper the author gave a brief history of several cases of mycetoma which had occurred in one of the provinces of India. He showed photographs characteristic of this disease. He called particular attention to one case in which there had been secondary infection in the groin from the foot. He also called attention to the rarity of autoinfection.

The next paper, entitled "A Quick, Simple, and Accurate Method of Making Differential Blood Counts in Wet Preparations, and Its Advantage in the Diagnosis of Surgical and Tropical Diseases," was read by Surgeon E. R. Stitt, U. S. Navy. Surgeon Stitt stated that it was rare to find any large hospital in which the surgeons placed implicit reliance upon the leucocyte count, but that surgeons did not attach much importance to the differential count. This was due to the fact that the counts differed so much that no reliance could be placed upon them. He called attention to the experience of the yellow fever party which was sent out by the Marine Hospital Service of Washington. More than 5,000 slides of blood from yellow fever cases which were taken for the purpose of studying the white cells and making differential counts, but when this work was completed the commission reached the conclusion that it would be possible to prove almost anything desired with regard to leucocytes from their specimens. This led him to experiment with various substances, so that a more reliable method for making the differential count might be devised; he finally found that a 2 per cent. solution of ordinary commercial formalin gave most excellent results. The red blood cells found do not show any crenation. In fact, his experience was that the method could well be used in making malarial examinations. The white cells took on a slight purplish tinge and they could be easily counted and differentiated.

The next paper, entitled "Tuberculosis Among the Filipinos," was read by Dr. W. E. Musgrave. Dr. Musgrave gave a brief outline of his experience at the outpatient tuberculosis department of the Philippine General Hospital during the past year and gave statistics for 954 cases. These showed 45 per cent. of intestinal cases, as against an average of 15 per cent. reported by authors in the United States and Europe. In the second portion of this paper with regard to blood pressures of white races in the tropics he showed that during the first year the pressure remained about the same; that during the second year it often dropped to 120 millimeters. This drop continues and depends upon the length of residence. After ten years' residence the blood pressure drops to approximately 110 millimeters. The average blood pressure in Filipinos was found to be about 125 and did not show any great changes by years.

The next paper, entitled "Tuberculosis in the Philippines," by Dr. Isaac W. Brewer, Medical Reserve Corps, U. S. Army. Dr. Brewer called attention to the large

percentage of tuberculosis which exists in the Philippine Islands, and gave statistics which showed that the disease was more prevalent here than elsewhere.

In the discussion which followed, Dr. Heiser stated that the percentage of total deaths from tuberculosis is approximately the same in the Philippines as in other countries, that while there were many more cases here, yet that the percentage relationship to other diseases remained about the same, so that if it was reported that there were 15 cases of tuberculosis, for instance, among a thousand, to only 10 cases in the United States or Europe, that this did not necessarily mean that the percentage relationship was greater here.

The next paper, entitled "Notes on Amebæ, etc., at Baguio," was read by Dr. Bowman, of the Bureau of Science. Dr. Bowman stated that in three months' residence at Baguio he was unable to trace a single case of malaria or dysentery contracted in Baguio; that the examination of spring water around there failed to show amebæ, and the amebæ which had heretofore been reported by other authors as being present in surface waters was in all probability due to paramesia, and that it was almost impossible to distinguish the difference between these organisms and amebæ when both were in the encysted stage; that he based his conclusions upon the fact that he was unable to cultivate amebæ. He stated that on account of the fact that the Igorrotes are uncleanly in their habits, he naturally expected to find a large percentage of hookworm infection, but upon examination they were found by him entirely free from these parasites.

In the discussion which followed, Dr. Heiser stated that it might be of interest to the Association to know that the records of the Baguio Hospital for the past seven years show that no cases of malaria or amebic dysentery could be traced to infection contracted in or near Baguio, and also that the climate seemed to be ideally suited for the treatment of amebic dysentery, that it is the customary routine in the majority of cases of amebic dysentery received from the lowlands to give them no other treatment than rest in bed and proper diet, no drugs usually being required.

The eighth scientific session on climate, hygiene, and sanitation met at 9 A. M. on March 14, 1910, at Baguio, Benguet. The object of holding the session in Baguio was for the purpose of giving the foreign delegates an opportunity of inspecting the summer capital of the Philippine Islands. The meeting at this resort proved to be a most agreeable change from the hot lowlands and the session was held in perfect comfort, the thermometer registering about 70° Fahrenheit. The day previous the visitors were shown by automobile the hospitals, tuberculosis camp, markets, fields for outdoor sport, and other points of interest.

The first paper read was entitled "Unsolved Health Problems Peculiar to the Philippines," by Dr. Victor G. Heiser, Public Health and Marine Hospital Service, and Director of Health. The author stated that it was the object of the paper to present in condensed form a few of the unsolved problems which yet confronted the health administration and that he hoped that the delegates who came from countries in which similar problems had been encountered would give the benefit of their experiences in order that the same might become available here. In offering a solution the general conditions here must necessarily be kept in mind. First, that the country had a poverty stricken people with a poor physical inheritance, strongly imbued with superstition and habits which were the antithesis of the simplest health doctrines and practice, a people who lacked ambition productively to till the soil, a people the most of whom were apparently content in their ignorance and poverty and resigned to and uncomplaining of their many ailments; that work among them was handicapped by the inaccessibility of many of the islands by roads which, though being improved at a remarkable rate, were yet unfit for travel in many instances during portions of the year; and that they were handicapped with the lack of a common language, for as many as fifty or more dialects were spoken, and that English or Spanish were intelligible to only a small percentage of the population. That medical employees who were sufficiently interested in the cause of humanity to undergo the innumerable hardships and discomforts which accompany medical service in the tropics were rare, but that untold credit was due those who were carrying on the work, the burdens of which fell all the more heavily upon them owing to their limited numbers, and that the whole situation was complicated by a treasury of which it was quite possible at times to see the bottom, so that the proposition was not, "do all that is possible regardless of expenditure," but "your expenditure must not exceed this or that," so that one of the principal problems was, should a little be done toward each problem or should the efforts be concentrated upon one problem. So far the policy had been to do a litle toward each.

He pointed out that there were over 12,000 deaths annually from malaria, that great progress had been made in reducing the mortality by distributing quinine, draining land, etc. The engineering problems involved and money required to carry out projects for the elimination of mosquitos were in many instances far beyond the financial ability of the community concerned.

The surface waters in the islands, except the thermal, or those strongly charged with minerals, were infected with ameba, which made it imperative that a safe water supply be secured. Artesian wells were being rapidly bored, but there were many sections in which these were unsuitable, and the problem now was to find a way to furnish a safe drinking water in large quantities.

The disposal of excreta was another unsolved problem in places where the water carriage or sewage was not practicable; whether the pail system should be adopted and its contents used in fertilizing mulberry trees, and thus promoting the silk industry, was the best solution, or whether some other method might be available, were questions which were urgently awaiting solution.

The author stated that over six million persons had been vaccinated, but that work among the remaining two millions was complicated by the fact that it was not possible to send a potent vaccine into the remote sections in which they lived; that in this climate glycerinized lymph did not retain its efficacy for more than ten days and the dry points had also been unsatisfactory; that the distances and delays were such that cold storage was an impossibility.

With regard to tuberculosis, the author stated that this problem was much the same as in other portions of the world, but that certain features peculiar to the Philippines had to be added to it. On account of the poor physical inheritance and the unsuitable food which the natives eat they form much better soil for the implantation of the tubercle bacillus than people of a more hardy race. Also, that the well-nigh universal habit of chewing beetle nut and expectorating in the most promiscuous manner gave much freer distribution of the tubercle bacillus than occurred in other countries.

He stated that cholera was easily controlled after it once made its appearance, but that the fact still remained that outbreaks were constantly occurring over widely separated sections of the country in which the source of the infection could not be satisfactorily explained, and that this often happened in a remote section, so that before the news reached headquarters and relief was sent an epidemic frequently of large proportions was well under way. Cholera carriers had lately been shown to be responsible for some of these outbreaks, also that the change in morphology which the cholera organism undergoes also made it quite likely that deaths that were due to cholera were frequently overlooked or ascribed to other causes.

The infant mortality is another problem which gave considerable cause for concern, over 50 per cent. of the total number of deaths occurred in children under one year of age. Lately considerable work had been done in ascertaining accurately the causes of such deaths and it appeared now that improper diet was practically the principal cause. How best to supply the people with a suitable food which would be within their means was one of the greatest problems with which we are confronted; fresh milk in large quantities offered the best solution, but cow's milk is not available because these animals generally succumb to diseases like rinderpest and are unable to use the herbage here. Goats offer probably the best solution and efforts are now being made to breed a stock suitable for this climate.

The author stated that it frequently happened that the best efforts of the Bureau of Health still had to be devoted to stamping out the conflagration of disease which had been started before the American occupation and that this consumed a large amount of money and effort, but that until these had been entirely eliminated it was not possible to put any large amount of time upon the more constructive health projects. If

funds could be available here in the proportion that they were available in Cuba and Panama, for instance, that the health conditions in the Philippines could be much more rapidly improved, but that notwithstanding this fact results had been obtained here which would compare favorably with the two places just mentioned.

The next paper, entitled "An Experiment with Orange-Red Underwear in the Tropics," by Captain J. M. Phalen, United States Army, was read by Major W. P. Chamberlain in the absence of the author. The author stated that the Surgeon-General of the United States Army had ordered that an experiment should be made for the purpose of testing the value of the color of orange-red, in order to ascertain whether there would be any difference in the sick report under those affections which are ordinarily described as being due to the effects of climate; that is, nervousness, debility, irritability, loss of weight, failing memory, etc. One regiment for a period of one year was dressed in orange-red underwear and another regiment acted as control. The conclusion of the author of the paper was that there was practically no difference in the sick report of the two regiments, but that from the amount of testimony available it was evident that in spite of the fact that the weight of the underwear was practically the same as that of the white underwear, yet the men almost invariably complained of its being hotter. An experiment was made for the purpose of testing this complaint by placing a thermometer between the skin and the inner surface of the underwear and placing the subject in the sun for ten minutes, and then performing the same experiment with white underwear. This was done with various modifications and repeated a number of times, with the practical result that the thermometer was found to be in almost every instance five degrees higher in those who wore the red underwear than in those who wore the white underwear. The author also stated that in observations made upon persons who had been in the Philippine Islands more than nine years and had continuously worn khaki that in such parts of the body as were protected by it there was no evidence of pigmentation in the skin, from which he concluded that khaki was probably as protective as the orange-red.

In the discussion which followed Dr. Heiser stated that the data given in the paper of Captain Phalen were very interesting to him. As he understood it, these experiments were carried out with soldiers who wore khaki outer clothing and that controls also wore khaki but had white underwear instead of orange-red. Furthermore, if he understood correctly, the author stated that he had observed individuals who had been in the tropics for six years or more and wore khaki clothing continuously and that in such persons the protected skin showed no pigmentation, from which he inferred that the tropical light was effectually excluded by khaki. If that were the case, it seemed to him that in order to draw correct deductions it would have been better to make these experiments with soldiers who wore white outer clothing and orange-red underwear and with controls who wore white outer clothing and white underwear, or that one regiment should have been dressed entirely in white and compared with a regiment that was dressed in khaki.

Dr. Highet of Siam stated that it seemed to him also that no definite conclusions could be drawn on account of the fact that the question of the color of the khaki could not be eliminated.

Major Hooton stated that he agreed with Dr. Heiser that no correct deductions could be drawn from this experiment as to the effect of color on the human body in the tropics.

Major Chamberlain, on behalf of the author of the paper, stated that the question of the khaki did not seem as important to him when it was considered that the soldiers spent much of their time with their coats off, and that in this way they fulfilled, to a certain extent at least, the conditions of the experiment as it had been suggested.

The next paper, "The Relationship of Food to Physical Development," by Captain David McCay, I.M.S., Medical College of Bengal, Calcutta, was read by title.

The next paper, "Hygiene of Pregnancy," by Dr. Katherine C. Woodhull, Foochow, China, was read by title.

The next paper, "Community Measures Against Mosquitos," by Mr. Charles S. Banks, Biological Laboratory, Bureau of Science, was read by title.

Mr. Dean C. Worcester, the Secretary of the Interior, then gave a brief account of the climate of Baguio and contrasted it with that of Simla in India. He stated that it was a most remarkable thing that, even though Baguio was only 5,000 feet above sea level and in latitude 16, yet the average temperature was lower than in any similar known region in the world; that frost was a common occurrence in December and January, and that 30° Fahrenheit had been observed in temperatures taken in hollows near the ground. Another strange instance was that the temperatures were frequently from six to eight degrees higher eight feet above the ground than near the ground.

The mean maximum annual temperature of Baguio is 76.25° F., the mean minimum annual temperature is 52.44° F.; on an average rain fell three days in December, three days in January, two days in February, and seven days in March, and then it increases rapidly to twenty-six days in September and gradually decreases again to the rate given in December. He pointed out the beneficial effects produced in Baguio in those who were run down during the prolonged heat of the lowlands and of the favorable results it had upon amebic dysentery, and he stated further that no malaria existed there.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

DISINFECTANTS—INDIGESTION—GALLSTONE FORMATION—SCARLET FEVER OUTBREAK—INSPECTION OF SCHOOL CHILDREN—MEDICAL SOCIETY OF LONDON'S 137TH ANNIVERSARY—SATURDAY FUND—RED CROSS—OBITUARY.

LONDON, April 22, 1910.

DISINFECTANTS occupy the attention of both sanitarians and general practitioners, though the point of view may not be always the same. The Society of Medical Officers of Health lately held a discussion about them, begun by Dr. T. N. Barlow, who held that many differences of opinion as to certain disinfecting work depended on the advocacy of persons who were not medical men. He said much work done as disinfection was really useless and some was even quackery in its worst form. He took a wide view of the uses to which disinfectants are commonly put, *e.g.* watering streets, sprinkling ash pits, sluicing drains, and so on. So-called ozone producers and evil-smelling tablets came in for a word not very complimentary, reminding me of the old definition that a disinfectant is something that makes such a horrible smell as to compel you to open the windows and let in fresh air. Their only rational use, in Dr. Barlow's view, was in infectious diseases, to destroy the germs and so prevent them spreading. In these cases much is done on mere assumption, for want of exact knowledge of the factors at work in infection, and the dangers of relying on the indiscriminate scattering about of strong-smelling things is obvious. Cleanliness is more important than disguising one offensive smell by another.

Dr. William Butler said if disinfection were abandoned the public would cry out that proper precautions were neglected. He disinfected after erysipelas as specially dangerous to puerperal women. One advantage of doing so was the house was thoroughly cleansed; another that a sheet suspended at the doorway of an infective sick room would be more certainly kept damp if a disinfectant were used.

Dr. F. J. Allan insisted on the necessity of more thoroughly cleansing school buildings rather than distributing disinfecting fluids or powders.

Dr. Lawrence said less would be used if the Medical Officers of Health did not allow them so freely to be distributed, but in all cases ordered what they considered desirable. Dr. Calwell Smith said he not only ordered them himself but insisted on their application being carried out by his own staff.

Indigestion, subject always with us but never exhausted, came before the Harveian Society on the 14th inst. in a practical paper by Dr. E. I. Spriggs, based on 425 cases. He said diagnosis from symptoms alone could not be exact. Analysis of the contents of the stomach would often prove such a diagnosis incorrect. When possible the stomach contents or the vomited matters should be examined. Many patients objected at first to the passage of a tube, but it was not so unpleasant as they imagined. Of medicines he seemed to think most of alkalies combined with carminatives, or of bismuth carbonate.

Dr. Young seemed to have more faith in drugs, mentioning particularly creosote and charcoal. He agreed that the tube was not so disagreeable as many supposed and that washing out the stomach before the evening meal was of great use in dilatation.

Dr. Leonard Williams said the stomach was often too much pampered and much talk about diet was nonsensical. Nasal obstruction and eyestrain might give rise to indigestion, as no doubt may numerous disorders.

The rate at which gallstones may be formed was illustrated by a case related at the Clinical Section by Drs. Hertz and Adams. A woman had typhoid in December, a relapse from January 14 to 24. On February 1 had epigastric pain and vomited, with tenderness over gall-bladder. Attacks of vomiting followed from time to time and suppurative cholecystitis was diagnosed. On operation 4½ ounces of pus and clear fluid were evacuated and 25 faceted gallstones removed. The *Bacillus typhosus* was found in the pus and fluid. It was also found in the center of some of the stones. This was 68 days from the onset of the fever.

An outbreak of scarlet fever of a somewhat unusual type is reported at Ingatestone, Essex. Sixty-eight cases have been notified. Dr. Thresh, Medical Officer of Health for the county, reported to his board on Tuesday that he had spoken of it to three officers of the Local Government Board. The cases were mild among adults and half showed no symptoms at the beginning. He concluded that two diseases had been present—influenza and scarlet fever, the latter being spread by personal contact with very mild cases.

Dr. Thresh has also lately completed an inspection of all the schools in his county. He says the chief defects he met with were due to eyestrain and impeded respiration, both being partly remediable, but in a greater part preventable. He therefore urges his educational committee to apply remedies—proper illumination of the school rooms and the teaching of breathing exercises and the importance of nasal respiration. Parents should be persuaded to submit their children to medical treatment as soon as inspection shows the need of it.

The Medical Society of London celebrated its one hundred and thirty-seventh anniversary last month. You will remember that this venerable society remained outside the amalgamation of several others into the Royal Society of Medicine—not from any feeling of opposition to the scheme, but from difficulties connected with its finances and other circumstances. The Fellows were attached to the old constitution and felt there was plenty of room to continue its useful and prosperous career. Time has justified the decision, the fear that some expressed that it might decrease in numbers has proved groundless, and the number of Fellows is actually increasing. As Sir J. Tweedy said at the dinner, the Medical Society fosters the best talent of its time and he hoped would do so for another 140 years. The arrangements for the present session bid fair to contribute their share to continued success.

The Countess of Aberdeen presided on Tuesday at the annual meeting of the Health Association of Ireland, for which she has done so much and of which there are now 168 branches. In moving the report, Lady Aberdeen reviewed the work of the year, which included the distribution of literature, visits of nurses to homes of the poor, establishment of pasteurized milk depots, which it is computed have reduced infant mortality among the users from 14.5 to 4.5 per cent. In promoting sanatoria throughout Ireland much had been done. Two new institutions for prevention of consumption would soon be at work in Dublin. For one Mr. R. J. Collier had promised £1,000 a year for five years as a memorial of his father. For the other Mr. Arthur Ryan had placed a similar sum at their disposal for five years, which would enable a limited number of patients to be maintained in the hospital.

The report of the Hospital Saturday Fund shows receipts for last year of £30,662, as against £29,830 in the previous year. The management expenses were £2,422. The amount distributed to 213 institutions was £28,741, an advance of more than £1,000 above that of 1908.

The British Red Cross Society has made considerable progress of late. On Wednesday a Westminster City Division was inaugurated, when Sir F. Treves spoke at length on its aims, urging especially the importance of having only one organization in the country through which alone arrangements with the Admiralty and War Office must pass in time of war.

Edinburgh has lost by the death on the 15th inst. of Dr. John Smith a typical citizen. He graduated M.D in 1847 and practised medicine for a time, but eventually devoted himself to the dental branch, of which he became the chief exponent, the hospital of this department owing its foundation to him, as also did the Children's Hospital. He was surgeon-dentist to the late Queen Victoria and the Royal Infirmary and other hospitals—in fact, he held at one time or another almost all, if not quite all, posts of honor in his specialty, including the presidency of the Odontological, the Medico-Chirurgical, and the Harveian societies. His literary, artistic, and musical tastes were also remarkable. He was the author of many songs and verses which were very popular, a dramatized version of "Waverley," and some pantomimes. But his professional work was not neglected, as shown by his dental "handbook" and numerous contributions to societies and journals. His house was the rendezvous of a numerous circle of the leading literary and artistic celebrities of the academical city.

Dr. E. J. Munter, Medical Officer of Health for Gosport, died on the 13th inst. after a long illness, aged 60. A Glasgow student, he took the Faculty diploma in 1875 and added the Edinburgh College of Physicians in 1878. He was appointed Medical Officer of Health for Gosport in 1888 and has held a number of other offices there. He took a great interest in the volunteer and territorial services, in which he became Lieutenant-Colonel, and was commanding officer of the Southern Hospital.

Dr. Charles Hamilton Conolly, Medical Officer of Health for Wood Green, which office he held for twenty years, died on Tuesday, aged 56. He qualified in 1895-1896.

Dr. George W. Sidebotham, late Medical Officer of Health for Hyde, died on the 15th inst. A student of Owens College, he qualified in 1876-1877, was much interested in astronomy, served in the volunteers and became Lieutenant-Colonel in the territorials. He described a smallpox epidemic at Hyde in 1886 in the *Manchester Health Journal.*

Progress of Medical Science.

Boston Medical and Surgical Journal, April 28, 1910.

Blood Pressure in the Toxemias of Pregnancy.—The conclusions of R. M. Green are as follows: (1) The toxemias of pregnancy may be divided into a series of fairly distinct clinical groups. (2) In such of these groups as observed by the author the blood pressure bears a fairly constant relation to the other signs and is in general an index of the severity of the process. (3) Blood pressure alone, however, is not a reliable guide unless correlated with other signs. (4) Observations of blood pressure in conjunction with other clinical data may be of great value in determining prognosis and indications for treatment. (5) More extensive observations should be made on blood pressure in the forms of eclampsia described and in others not represented in the author's paper. (6) Such observations should be correlated with chemical examination of the nature of the eclamptic toxin.

Some Clinical Aspects of Pulmonary Embolism.—G. U. Sears presents a study of this condition as recorded in the clinical records of the Boston City Hospital. He finds that the most constant symptoms have been dyspnea, cough with bloody expectoration, and pain; but the suddenness of onset alone gives the first distinctive significance. The other two are so infrequent that their absence is of little importance. The discovery of physical signs of consolidation in the lungs may be of assistance in diagnosis, though a large infarction may lead to error by suggesting pneumonia. Differential diagnosis must be made from cardiac asthma, acute dilatation of the heart, angina pectoris, pneumonia and pleurisy, phthisis, bronchitis, and neuralgia. The characteristic points in this differentiation are passed in review by the author, who quotes illustrative clinical histories. Prompt medical treatment may tide over the crisis and give time for the establishment of a collateral circulation. Surgery has benefited a few cases. The chief reliance must be on prevention, and it may be that the pulmonary embolism may by the first manifestation calling the attention of the attendant to the fact that thrombosis has occurred in some peripheral vessel, but in conditions in which thrombosis may happen, as childbirth, abdominal operations, pelvic tumors, chlorosis, cancer, and other wasting diseases, the

occurrence of a steadily rising pulse not otherwise accounted for should lead to a suspicion that a thrombus was forming in some vein and measures adopted to prevent its separation.

Modern Dietetic Principles; Their Practical Application.—W. G. Thompson discusses this question, with special reference to typhoid fever, stomach ulcer, chronic nephritis, diabetes, tuberculosis, obesity, acute articular rheumatism, etc. He makes a plea for more accurate estimates on the caloric basis of food values by the general practitioner. Absolute accuracy can seldom be obtained outside of the hospital or laboratory, but sufficiently accurate data for clinical use may now easily be secured without special technical skill and without irksomeness for the patient. Tables of values and table scales have been devised. An empty dinner plate is set on the scales, a movable dial is turned so as to deduct the weight of the plate and before each article of food is added the dial is again turned to zero to give the exact weight of the food without the trouble of arithmetical calculation. In practice its use has shown itself to be perfectly simple and patients soon learn accuracy in its employment. The author says that the broad dietetic principles of the human race are directed by factors of environment, occupation, heredity, and individual experience, and are not to be prescribed by the isolated experiments of a few robust young subjects for a limited period. Most Americans consume more protein food than they really need, but the race as a whole is doing fairly well. Another sound principle of dietetics is not to continue the dietetic treatment of a local or special condition so long as to impair the health in other ways. For example, too rigid exclusion of meat may increase anemia; too narrow diet in ulcer of the stomach may lead to debility, and in some cases of diabetes the psychic depression produced by total abstention from saccharine and amylaceous foods may greatly aggravate all the symptoms.

New York Medical Journal, April 23, 1910.

The Statistics of Cancer.—This question is discussed by T. A. McGraw who says he feels justified in asserting that the United States statistics of cancer form no trustworthy basis for any statement *pro* or *con*, as to the alleged increasing prevalence of malignant disease. Men find what they look for and whatever calls attention to any disease will inevitably lead to an apparent increase in its prevalence. There can be no question that the exceeding attention paid by medical men to malignant disease during the last ten or fifteen years in every civilized country has been of great influence in causing the widespread opinion that it is increasing in relative frequency. Twenty years ago the great mass of the profession looked upon cancer and sarcoma as incurable diseases, and paid little attention to disorders which they regarded as hopeless. The instinct of the practitioner led him to refuse recognition to a malady which he could not successfully combat, and to hide from his patient, as long as possible, an evil which would plunge him into despair. What surgeon of that day cannot recall the many cases of advanced cancers of the breast and uterus which had been sent to him in their very last stages as cases of doubtful diagnosis. It required years of preaching and discussion to bring about a change of feeling and to inspire hope in the efficacy of early and thorough operations as a possible cure. Finally the resurrection of the old parasitic theory in a modified form confirmed the wavering belief of the profession in the local origin of malignant tumors, and induced a more general effort to make early diagnoses. As a result of this awakened interest there grew a conviction that cancer was much more frequent than had been believed, a conviction which became a certainty as operative surgery opened the abdomen to inspection and study. A curious effect of this change in point of view has been seen in the nature of diagnostic errors, a change which is due not only to greater attention but also to the recognition of injuries and irritations, as predisposing causes of malignant disease. When physicians became convinced that cancer of the uterus was due often to old lacerations, that of the breast to old injuries and inflammations, that of the lip to local irritations, and that of the stomach to chronic inflammations and ulcers, they began to see malignancy in every form of persistent irritation or tumefaction. This has been especially noticeable in tumefactions of the mammary gland. In former years the character of a malignant tumor was often not recognized before the occurrence of ulceration. Nowadays it is of frequent occurrence, for patients, suffering from fibrous tumors, fibroadenomata, cysts, or chronic inflammations, to come for operations, with a diagnosis from their family physician of cancer. These errors in diagnosis are probably rendered more numerous by the practice, advocated by many surgeons, of regarding every doubtful swelling as a cancer and of treating it accordingly.

Rectal Anesthesia.—J. H. Cunningham presents a review of the history of this method of anesthesia and the experiments which he and his associates have performed along this line. He commends the results which have been obtained in the Boston City Hospital during the last six or seven years. The employment of this method in diseases of the lungs, especially tuberculosis, abscesses, pneumonia, empyema, mediastinal abscesses, etc., has proved to be all that could be desired. Full details of his method must be read in the original paper, but we may quote his statement to the effect that the most satisfactory apparatus consists of a bottle, the body of which is 7½ inches in height, 5 inches being used for ether space, 2½ inches and the neck for vapor space. The diameter is 4 inches and the capacity of the ether space 29 ounces, so that a large amount of ether may be used without materially lowering the ether column. The efferent tube which leads to the bottom of the ether column ends in a bulb with several small perforations so that the air ascends in several small bubbles. The stopper and the connections should be tight. The bottle is placed in a water bath at a temperature of between 80° and 90° F. Ether boils at 98.6° F. It is desirable to keep the temperature below this point. By keeping the ether as warm as possible without boiling, the air forced in by the bulb is more easily saturated. If the operation is a long one it may be desirable to renew the temperature of the bath. We have employed all makes of ether and the results have been the same. The inexpensive ether has been quite as satisfactory as the most expensive. The efferent tube should be sufficiently long to allow moving the wash bottle away in case the operator wishes to change his position from one side of the table to the other. We have tried efferent tubes of varying lengths and have noticed no difference in the results; ether in no case being condensed in the efferent tube. The efferent tube should be of sufficient length to allow the etherizer to inspect the patient from head to foot still retaining the bulb in hand. We have not found it necessary to employ an "interceptor" as no ether is condensed in the tube. Experience has shown that the patient usually passes under the influence of the drug rapidly and with no sense of suffocation; that less ether is used not only in producing the narcosis, but also in maintaining it; that the stage of excitement is lessened or absent; that bronchial secretions are absent; that the ether recovery is more rapid, and that the disagreeable after-effects if inhalation ether narcosis is used are diminished or absent. This is especially true of vomiting. The author explains the theory of narcosis per rectum on the basis of the law of partial tension. A theory is referred to, first advanced by Vejux-Tyrode of Harvard, to the effect that a definite percentage of ether must be present in the entire circulation to produce complete surgical anesthesia. In human beings this amounts to a little under six volumes per centum. The rapidity with which complete narcosis results depends upon the rapidity with which the proportion of ether is brought up to nearly six volumes per centum. When ether is given by the lungs in the form of vapors it can only be administered in great dilution unless excretion be interfered with, and the proportion in the blood be raised above six volumes per centum, which would prove fatal by paralysis of the respiratory center in the medulla. On the other hand, when ether is administered by the rectum as a vapor, concentrated vapors may be given. Therefore, the chances for the rapidity of absorption and the raising to six volumes per centum will take place more rapidly while excretion may take place freely from the lungs.

Some Remarks on Flatulence.—This is a general paper by G. M. Niles who says that in his view a great proportion of stomach and intestinal flatus is swallowed atmospheric air—much greater than is usually credited to this source. This condition is designated aerophagia, and is generally found in nervous or hysterical persons. Incidentally it might be of interest to mention that this habit is not confined to the human race, but is occasionally acquired by horses, these equine freaks being called "stump suckers." Often the individual swallows air unconsciously but constantly, while the eructations are frequent, noisy, and sometimes so explosive that they reverberate almost like small artillery. An important point right here is the fact that in aerophagia the accumulation seems to bear little relation to the food ingested; neither is there much odor to the eructations or the gas

expelled from the anus. Little of this swallowed air, however, gets into the intestines, as most of it escapes back through the cardiac opening. It has been thought that the bulk of the intestinal gas made its way to the rectum, and was ejected therefrom, but it is asserted that, in healthy individuals, half or perhaps much more is absorbed into the blood, later on escaping through the respiratory tract. This accounts for the fact that, while normally there is at all times some fermentation going on in the intestinal tract, the gaseous tension remains about the same in the absence of either eructation or expulsion by the anus. After a general description of the symptoms the author lays down the diet and various remedial measures which have given him assistance in clinical work.

Journal of the American Medical Association, April 30, 1910.

Pleural Effusions.—A. J. Colton says that in cases of empyema in which the patient is desperately ill and septic it has seemed to him an heroic and shocking method to have an inch of rib dissected. Various forms of drainage have been used to avoid the necessity of resection, but all that he knows of have been failures. Rubber tubing is too flexible and soft when used alone, and soft tubes, besides failing to drain, frequently work loose and are lost in the pleural cavity, rendering necessary a still more serious operation. He has devised a tube, which he illustrates, which he thinks meets the needs. He has used it in a great many cases with perfect drainage and recovery of the patient. The method of its use is described. It is introduced into the seventh or eighth intercostal space in the midaxillary line, where the ribs are usually widest apart and the chest wall is thinnest. A linear incision is made one or two inches long, care being taken to avoid the intercostal artery by hugging the knife close to the superior surface of the rib. The opening in the pleural cavity is made simply large enough to admit the tube. If the tube is too long and injury feared to the opposite pleura, gauze can be wound around it as a guard to prevent its going in too far. After thorough pus evacuation, a loose dressing of gauze and a thick layer of absorbent cotton is laid over the tube to absorb the discharge, and is held in place by adhesive strips and a bandage. The dressing should be changed daily for a few days. The tubes should be made of silver in nests of three sizes, the diameter of tube as well as the length being varied to suit different cases. He summarizes his paper as follows: Effusions in the pleural cavity are not to be diagnosed solely by flatness on percussion; neither is the respiratory murmur always absent on auscultation, as is popularly believed. The most reliable means of diagnosing fluid and its character is by the aid of an aspirating needle, and this is not always to be relied on. The point which he wishes to bring out in this paper is the drainage of purulent cases by means of a tube without resection of a rib, whereby the operation is changed from one of a major type to a simple minor one, reducing very much the time required in doing it, as well as the danger accompanying it, thereby considerably lessening the mortality. In none of his cases did he attempt washing out the pleura, as he believes this is a dangerous procedure which should rarely be used. In all of his cases recovery has been rapid and without relapses.

Spastic Paralysis.—S. Kuh describes the symptoms and conditions of spastic paralysis, which may be merely a symptom of function neurosis or the result of an organic lesion. If the latter, it indicates an involvement of the pyramidal tract somewhere between the cortex of the brain and the anterior horns of the spinal cord. Spasticity and the associated exaggeration of the deep reflexes are both results of increased muscular tonus, the latter in turn being caused by the cutting off of the influences of regulation centers. These are not exactly located, though there is no doubt that one, and possibly the most important one, is in the cortex of the brain. Others are supposed to exist in the pons, the red nucleus, the spinal cord, the semicircular canals, and the cerebellum. It may appear only on voluntary movement as a slight stiffness, or it may cause intense contractures abolishing movement. Everything between these two is usually called spastic paresis or paralysis. We find that more or less weakness of muscles almost invariably accompanies their rigidity. If the lesion causing the palsy destroys the myelin sheath of the nerve but leaves at least some of the fibrillæ intact, what we call "intention tremor" is supposed to result. The syndrome from destruction of the pyramidal tract alone is seen in its purest form in three morbid conditions; in the later stages of cerebral hemiplegia, in the primary lateral sclerosis of Erb and Charcot, and in Little's disease. Senile spastic paralysis, resembling the Erb-Charcot malady in some cases, is due to arteriosclerotic changes within the cord. In some rare instances of hereditary or family spastic paralysis we have similar symptoms, and here too the microscope shows degenerative changes in the upper motor neuron. We find spastic paralysis in most cases of disseminated sclerosis, in various forms of myelitis, and in compression of the cord. It may also occur in general paresis. We have mixed forms in which it occurs as in the combined system disease and the characteristics of these conditions are described. In cerebral hemiplegia the paralysis is spastic. In ordinary apoplexy, however, there is usually a few days, rarely a week or more, when the paralyzed muscles are flaccid and then their tonus returns. This is especially the case with hemorrhage, embolism, or thrombosis. In tumor or abscess, encephalitis, etc., the spasticity is more apt to appear from the onset, especially if they involve an irritative lesion in the cortex. Functional and organic spastic paralysis may exist in the same case and the diagnosis be embarrassing. The patient's age, the condition of his cardiovascular system, of his kidneys, his heredity, the existence or absence of previous hysterical symptoms or stigmata are often of diagnostic value. Monoplegias of hysterical origin usually follow injury to the member, which could hardly occur with organic disease. The deep reflexes are almost invariably increased in organic disease, and facial paralysis is very common. True clonus does not occur in hysteria. Sensory disturbances are usually more profound in functional disease, and the abdominal reflexes are not abolished or lost in the latter. The deep tendon reflexes are not so significant as they may be affected in function as well as in organic cases, and the dragging of the leg in hysteria is very different from the semicircular swinging movement of the hemiplegic. Kuh does not attach the significance to the Babinski reflex that is often given it, as he is certain he has found it typical in several cases of hysterical paralysis. The influence of suggestion on the existing disability often clears the situation, but we must not forget that even organic paralysis is more or less influenced by excitements or mental depression. The electric reaction of degeneration, at least in the early stages, is, of course, conclusive evidence of organic disease.

Bilharziasis.—N. D. Brayton has studied the occurrence of bilharziasis in the Canal Zone. Until as late as 1904 the occurrence of this disease was not known in America, and its habitat was supposed to be almost exclusively African, although it had found a foothold to some extent in parts of Asia. He finds this it has been reported 104 times to the sanitary authorities of the Isthmus, chiefly in natives of the West India Islands, especially of the French islands. It has been suggested that its origin on this continent was in the importation of Hindoo laborers into British Guiana and Trinidad, but it must be remembered also that the blacks in this country came from Africa. In either case the disease can hardly have existed for a very long time on this continent, at the longest not over 200 years. Brayton describes the parasite and its methods of reproduction. Our knowledge of its life history is limited, but for part of its life it is a fresh-water organism, and it is likely that its intermediate host is a mussel, snail, fish, or fresh-water vegetable. It can live a long time in the human body. Its ova have been found as long as nine years after the patient had left the infected regions. The manner of infection is not well known, but it is presumed that the organism is introduced from fresh water by drinking, bathing, or exposure otherwise. Its period of incubation in the human being appears to be short. The portal vein is the principal habitat of the adult parasite, but young worms are also found in the liver, intestinal veins, the bladder wall, and the pelvic circulation generally in both sexes. Liver cirrhosis and gallstones may be produced by its presence and dangerous hemorrhage from the urinary organs. Cystitis and urethritis are common complications, and it is often the starting point of calculus. In the severer cases the entire syndrome of surgical kidney or surgical bladder may be produced. When the intestinal tract is involved the symptoms resemble those of tropical dysentery. Two cases are reported, one of which is of interest on account of the character of the ova found in the stools which were terminal spined, a character usually seen only in those found in the urine. Lateral spined ova, the characteristic type of the intestine, have also been found in the urine in one case observed. Whether this difference in eggs indicates a difference in species seems to be in dispute, though Manson inclines to this view. As regards prognosis and

treatment, the disease is rarely fatal, and on the Isthmus its discovery has been generally due to the routine examination of the stools. In case of moderate intensity appropriate general treatment is sufficient to cause amelioration, and in many cases the disease is self-terminating. Anthelmintics have no place in the treatment, and in urinary bilharziasis, except for grave complications, the disease should be left alone.

Gonorrhea.—J. H. Hurst reports a curious case of axillary glandular swelling which seemed to be connected with an eruption of pimples on the face and upper neck, the pus from which showed a mixed infection of staphylococci and gonococci. The infection could only be traced to a barber shop exposure. The swelling in the axilla later developed into an abscess, with abundant gonococcal pus.

Tabardillo.—H. T. Ricketts and R. M. Wilder state that they have found the organism of tabardillo (typhus fever) incapable of passing through a Berkefeld filter. For this reason they have been carefully investigating the blood of patients with the disease and have invariably found, on the fifth to the seventh day of the disease, a short bacillus which has roughly the morphology of those which belong to the "hemorrhagic septicemia group." On minute examination an unstained or faintly stained bar is seen to extend across the middle. Occasionally two organisms are seen end to end. Certain other bodies found may represent degeneration or involution forms of the same organism. They consist of two stained granules connected by an intermediate substance which is stained faintly blue or not at all. Frequently one of these granules or poles is larger than the other and stains a deep purple, while the smaller one takes a faint blue. They have also examined the dejecta and organs of a large series of lice, and have found polar-staining organisms only occasionally in normal lice, whereas they are present almost constantly in similar material from infected individuals. They describe the technique of their search for organisms; protozoa were not encountered. The authors discuss the significance of this organism as bearing on the question of the microbic etiology. From well-known analogies one might suspect the protozoan character of the germ, but they remark that we should keep an open mind of the subject. There are two reasons that favor a bacterial theory—the acute character and self-limitation of the disease and the immunity it affords, neither of which are characteristic features of protozoan disorders. Typhus, moreover, is an hemorrhagic septicemia from a clinical and experimental standpoint, and it has in this an analogy with plague and Rocky Mountain spotted fever which the authors are inclined to group with it as human hemorrhagic septicemias. The organism described has not been found susceptible of cultivation under ordinary conditions. While they say the evidence is not sufficient to claim for it an etiological rôle, yet they think it is sufficient, together with the theoretical evidence above offered, to be seriously considered and to justify further investigation.

The Lancet, April 26, 1910.

Acute Arthritis of Doubtful Origin.—G. B. Buchanan gives the histories of some thirteen cases of arthritis in which the origin was doubtful until some time had elapsed and he refers to the various starting points in cases of the disease which have been reported by others. Concerning young children, he says that they are very apt to get injured by tumbling about so that a traumatic origin can safely be assumed even if the history does not afford evidence of a definite accident. Nerve influence may be sufficient to induce a localized inflammation and it has been shown that arthritis may be induced after an injection of toxic bacteria, by cutting the nerve which supplies the joint. Treatment of these active forms of arthritis resolves itself into rest and the relief of pressure. The first hinders further preventable trauma and the second restricts the absorption into the general system and is carried out by the use of splints or extension. Further relief is secured by the aspiration which, in the milder cases, is all that is needed. Tubes are necessary for drainage in the pyogenic cases for although it is objected that in seropurulent conditions they are apt to induce fibrous thickening and subsequent ankylosis in the severe cases, this will take place anyway. If drainage cannot be properly maintained in this way, part of the joint should be resected to prevent pocketing of pus and this is especially called for in arthritis of the hip when the head of the femur often requires resection. Of the newer aids to therapeutics Bier's method and Wright's opsonic vaccination the author's own experiences have been at least disappointing. He prefers to express no opinion in regard to vaccine therapy until there is at the command of the profession more extensive collection of cases.

A New Method of Treating Acute Phthisis by the Alternate Use of Human and Bovine Tuberculin.—H. K. Crowe says that on general principles autoinoculations should have a greater effect in influencing the course of phthisis for good than artificial tuberculin, that is, regarding tuberculin merely as an agent which stimulates the system to produce antibodies; but tuberculin itself, if not at first, after repeated doses causes autoinoculation. It provides also an easy method of inducing autoinoculation in acute phthisis. Autoinoculations in this disease are dangerous if they be too prolonged in their effect, while the power to stop autoinoculation at will diminishes this danger. By using the T. R. and P. T. R. in an alternating fashion while the patient becomes sensitized to the one form, the power to prevent mischief is vested in the other, and on a continuance of inoculations of that other the inhibitory action is transferred to the former. For a full development of this inhibitory action hypersensibility should be developed, hence small doses should be used because an autoinoculation effect after the first dose or two is not desirable. The central nervous system may possibly play an important part in the processes of immunization.

Treatment of Graves' Disease with the Milk of Thyroidless Goats.—W. Edmunds refers to the later history of cases recorded by him one and two years ago, and adds the histories of several new cases. In a general way the condition of his cases has improved, but this has not always persisted. Improvement apparently affected the entire organism not being limited to any single organ or symptoms. The previous reports were published in the *Lancet*, issues of January 25, 1908, and April 10, 1910.

French and Italian Journals.

Presence of Diphtheritic Toxins Circulating in the Blood.—Gino Menabuoni has made careful investigations as to whether toxins of diphtheria can be found circulating in the blood of the patient after the throat infection has cleared up, and whether this is the cause of the late diphtheritic paralysis. His experiments were made upon rabbits, injecting the toxins, and examining the resulting gelatinous edema. He concludes that after a certain interval the toxins are no longer found in the circulation. Toxins were found from three to four days after the membrane disappeared from the throat; its presence is subordinate to the presence of the bacilli in the infective focus, living and virulant. As long as there is exudate we may expect to find the toxins in the blood. The paralytic phenomena are probably not to be attributed to circulating toxins. The period of true activity of these germs is very short, and they are most active during the first few hours after the infection. The toxins fix themselves slowly on the cells but quite stably. As a corollary we see the necessity of preventing this fixation very early in the disease by the use of antitoxin. The avidity of the toxins for the receptors of the antitoxin is greater than that for the receptors of the cells.—*Rivista di Clinica Pediatrica, January*, 1910.

Daltonism.—Alfonso Neuschuler defines Daltonism as a diminution in the chromatic sense, a dyscromatopsia, or partial or total achromatopsia. It is a diminution or loss of the chromatic sense. While absolute color-blindness for all colors is rare, a partial absence is not uncommon. It is more frequent in men than in women, on account of their more thorough education in colors. The total forms are generally bilateral, and associated with nystagmus and amblyopia. The most frequent forms of color-blindness are for red, for green, and for both of these colors. This condition may be congenital or acquired. In the congenital form the prognosis is absolutely bad. The secondary or acquired condition is dependent on general disturbances and symptomatic. There are various theories as to the causation of the congenital form, which the author recites. The symptomatology consists in alterations of perception for red and green, while the perception of blue and yellow is retained. In acquired Daltonism there may be atrophy of the optic nerve, or poisoning, as in alcoholic blindness. The use of santonin causes transitory disturbances of the color sense. The prognosis of this form is good.—*Il Policlinico, February 6, 1910.*

According to the statement of a Greek pastor of Lowell, Mass., 60 per cent of the large Greek population living in that city are afflicted with tuberculosis.

Book Reviews.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia. Assisted by H. R. M. Landis, M.D., Assistant Physician to the Out-Patient Medical Department of the Jefferson Medical College Hospital. December 1, 1909. Philadelphia and New York: Lea & Febiger.

The December number of this well-known review contains articles on: Diseases of the digestive tract and allied organs, the liver and pancreas, by D. L. Edsall; diseases of the kidneys, by J. R. Bradford; surgery of the extremities, tumors, surgery of joints, shock, anesthesia, and infections, by J. C. Bloodgood; genitourinary diseases, by W. T. Belfield; and practical therapeutic referendum, by H. R. M. Landis. The present instalment is of the same standard of excellence as its predecessors.

Compendium der Verband und Operationslehre. By Prof. Dr. Eduard Sonnenburg and Dr. Richard Mühsam. Second Edition, with 290 illustrations in the text. Part II., operations. Berlin: August Hirschwald, 1910.

In this, the second edition of the Sonnenburg's and Mühsam's "Compendium," the sections on general and special operative technic have been combined in a single volume, of which the contents have been largely rewritten and enlarged. Although most of the improvements on the older methods and the newer procedures are described, a few omissions have been observed. Thus in the description of transfusion the statement is made that the infusion of normal saline solution affords the only practical treatment in condition where an addition to the blood mass is indicated. No mention is made of the work of Crile and others with the transfusion by cannula of human blood—a process which seems to gain favor daily among surgeons. Aside from these and a few other, probably unintentional omissions, the book presents a condensed but very comprehensive manual of surgical operations.

The Prevention and Treatment of Abortion. By Frederick J. Taussig, A.B., M.D. Lecturer in Gynecology, Medical Department, Washington University; Obstetrician to the St. Louis Maternity Hospital; Gynecologist to the St. Louis Skin and Cancer Hospital; Fellow of the American Gynecological Society, and American Association of Anatomists. Fifty-nine Illustrations. St. Louis: C. V. Mosely Company, 1910.

The book here noted seems to afford the most practical and comprehensive manual on this important subject which has appeared in our language within recent years. The consideration given to this important topic by the textbooks is far too meager, and from the number of women who suffer from the complications attendant upon the premature expulsion of the ovum, it would appear that in such instances a knowledge of their treatment is very incomplete. The author of this book has undertaken to present to the general practitioner, in particular, the essential facts of this subject as we know them at present in a form which would serve as a guide to the variety of treatment demanded by the individual case. The first part of the book is devoted to the anatomy, pathology, etiology, and diagnosis of this condition as explanatory and introductory to the main portion on prevention and treatment. In the excellent chapter on the differential diagnosis of abortion, there is another factor which might have been considered, and that is the presence of an acute or subacute salpingitis. This condition may also give rise to uterine bleeding and localized pain of a kind simulating an incomplete abortion and the differential diagnosis should play an important rôle in a case of this kind.

Several chapters are devoted to a detailed consideration of the prevention of abortion, with particular reference to the necessity of more complete education and legislation regarding criminal abortion. In discussing the operative indications for abortions in general, Taussig believes that the best advice to be given to the general practitioner is to await developments in the absence of immediate danger and to operate only when complications ensue. Considering our present-day knowledge of the subject, this does not appear to be the best advice, and notwithstanding the fact that some, or perhaps many women, get well after abortion without operative interference, the majority, according to the author's own statement, certainly do not. If the general practitioner, so-called, is unable to clean out the uterus properly when necessary, the case should be turned over to some one who can do so. In concluding this brief comment on a most valuable book, reference must be made to the excellent manner in which it is printed and illustrated.

Age Incidence, Sex, and Comparative Frequency in Disease. By James Grant Andrew, Fellow of the Faculty of Physicians and Surgeons, Glasgow. London: Baillière, Lindall & Cox, 1909.

The writer of this book believes that data derived from one source sufficient to attempt a clinical classification of disease will be valuable to the diagnostician. Accordingly, he has taken the statistics of the Western Infirmary of Glasgow for a period of ten years, and has compiled them in such a way as to make them easy of reference. The book is therefore not one for general reading. The age, arranged in decades, at which any disease occurs is given, together with the sex and frequency. A complete index aids one to find quickly data relative to the occurrence of the diseases described.

A Textbook on the Practice of Gynecology. For practitioners and students. By William Easterly Ashton, M.D., LL.D.; Professor of Gynecology in the Medico-Chirurgical College of Philadelphia; Gynecologist to the Medico-Chirurgical Hospital, Philadelphia; formerly Lecturer on Gynecology in the Jefferson Medical College, Philadelphia; Fellow of the American Gynecological Society; one of the founders of the Congrès International de Gynécologie et d'Obstétrique; member of the American Medical Association, etc. Fourth edition, revised and enlarged, with 1058 new line drawings by John V. Alterder. Philadelphia and London: W. B. Saunders Company, 1909.

New matter has been added to the chapter on constipation, and the indications for the use of indoor exercises have been made to harmonize with modern ideas on the subject of defective body form in its relationship to abdominal and pelvic displacements. The equilibrium of the pelvic organs and the condition of the circulation depend largely upon the strength of the abdominal muscles, the capacity of the middle zone, and the prominence of the lumbar lordosis. So long as these three conditions are normal the uterus and the appendages maintain their position and there is no tendency to congestion unless pelvic lesions are present. When, however, the opposite conditions exist, indoor exercises are indicated, and, if properly used, will correct the physical deformities. In the chapter on the causes of diseases peculiar to women the effect of wearing corsets is considered from the standpoint of the abdominal wall as a factor in maintaining the balance of equilibrium of the organs of the abdomen and pelvis. The chapter on erysipelas of the vulva has been rewritten, and the local use of magnesium sulphate as devised by Dr. Henry Tucker is recommended; the local application of this agent has been used with such uniformly good results that he considers it a specific for this affection and other forms of inflammation. The operative management of suppuration of the pelvic connective tissue has been changed and special emphasis placed on the evacuation of pus by vaginal section. This route should always be selected because it is safer; it offers better advantages for irrigation and drainage; there is no danger of infecting the peritoneal cavity; and the operation is more quickly performed, which is a great advantage in patients weakened by sepsis. Alterations have been made in the chapter on ectopic gestation and the question of immediate *versus* deferred operation for intraabdominal hemorrhage due to tubal abortion or rupture thoroughly considered. Additions have been made to the treatment of cystitis, and tuberculosis of the genital organs has been fully revised. The pathology of shock has been rewritten and the views of recent experimenters carefully considered. Notwithstanding the fact that Crile's theory (which is that shock is an exhaustion of the vasomotor center) has been generally accepted by the surgical world, we are forced to the conclusion by the experimental work of Boise, Hendersen, and others that its true pathology is as yet undetermined. The Fowler-Murphy method for the treatment of diffuse suppurative peritonitis is now generally accepted by surgeons, and consists essentially of Fowler's position, pelvic drainage, and Murphy's drop-by-drop enteroclysis. This treatment is given in detail. The causes of movable kidney have been considered from the standpoint of defective body form. The treatment has been revised and special attention called to the importance of excluding gastroptosis before deciding on operative measures. A more modern and scientific exposition of the subject of gynecology has not been presented.

Jejunal and Gastrojejunal Ulcer Following Gastrojejunostomy. By Herbert J. Paterson, M.A., M.B., B.C.Cantab., F.R.C.S.Eng.; Assistant Surgeon to the London Temperance Hospital; formerly Hunterian Professor of Surgery and Pathology at the Royal College of Surgeons. London: John Bale, Sons and Danielsson, 1909.

This brochure is a reprint from the "Proceedings of the Royal Society of Medicine." It contains observations on jejunal and gastrojejunal ulcers following gastrojejunostomy. A full account of two cases occurring in the author's practice is given, and also an abstract of sixty-one other cases from the literature.

Physician's Pocket Account Book, and practical advice for professional success. By J. J. Taylor, M.D. Philadelphia, Pa. The Medical Council, 1909.

This book has about two hundred pages for accounts, with space for birth, death, and vaccination records. Suggestions for bills, collections, treatment of poisoning, etc., are included. The arrangement of the book is good and the busy practitioner ought to find it of great service in simplifying his bookkeeping, but the paper and binding should be better for a book that is destined for such constant handling.

A Textbook Upon the Pathogenic Bacteria, for Students of Medicine and Physicians. By Joseph McFarland, M.D.; Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia; Pathologist to the Philadelphia General Hospital and to the Medico-Chirurgical Hospital, Philadelphia; Director of the Laboratories of the Henry Phipps Institute; Fellow of the College of Physicians of Philadelphia, etc. With 211 Illustrations, a number of them in colors. Sixth Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1909.

As the name implies, this book deals exclusively with the pathogenic bacteria. For the study of the nonpathogenic bacteria and the pathogenic protozoa, the student is referred to the works devoted to those subjects. Part One, "General Considerations," discusses infections; immunity; sterilization, and disinfection; bacteria, their biology, their cultivation, and the methods of observing them; bacteriology of the air, water, soil, and foods. Part Two, "Specific Diseases and Their Bacteria," is subdivided into The Phlogistic Diseases, The Toxemias, The Bacteriemias, and Unclassifiable Diseases. In considering the specific diseases and their bacteria, the author gives a description of the disease and its lesions. Each species of bacteria is very fully discussed, as regards its distribution, morphology, alteration, toxic products, and pathogenesis. Where antitoxins, vaccines, or serums have been discovered, the method of using them is described. In speaking of the use of tuberculin, in the diagnosis of tuberculosis, the various tests, with the exception of the Moro test, are mentioned, but their comparative values are not discussed. The illustrations are good, many of them being taken from standard textbooks. The book is well written, and contains an extensive bibliographical index. It is one that will be found very useful to the student and general practitioner.

Air and Health. By Ronald Campbell Macfie, M.A., M.B.C.M. Author of "Romance and Medicine," "Science, Matter, and Immortality," etc. New York: E. P. Dutton & Co., 1909.

For the student of hygiene and sanitation, as well as for those who wish a good reference work on these subjects, the author has written a serviceable book. The work seems sufficiently exhaustive for all practical purposes, and the subjects discussed are considered in a logical and clear order of sequence. One may venture the hope that the chapter on ventilation will be widely read, for this is a subject which is worthy of very careful attention, and is about the last thing to be considered by our modern architectural engineers. He thinks the limit of permissible impurity of carbon dioxide content is about 10 volumes in 10,000. He quotes the experiment of Dr. I. H. Hance at the Adirondack Cottage Sanatorium, where ten guinea pigs were inoculated with dust from one of the cottages in which tuberculosis patients had lived, five of which became tuberculous; this seems a sufficiently good argument in favor of the fact of infection through dried tuberculous sputum. The smoke problem in great cities he acknowledges is very difficult to control. In London, a certain Mr. Spence suggested some years ago that the smoke should be conducted by the sewers to a few enormous chimneys, where it could be completely burned, and where the sulphuric acid in the smoke would act as a disinfectant. Of course, such a scheme would cost too much to be of practical value. The last chapter considers the open-air treatment of consumption and open-air schools, and the author believes that when a nation realizes the importance of open-air education and puts it to use, the children thus taught will outstrip all their rivals in the race for life.

The Practical Medicine Series. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Larynogology and Rhinology, Chicago Post-Graduate Medical School. Volume X, Nervous and Mental Diseases. Edited by Hugh T. Patrick, M.D.; Professor of Neurology in the Chicago Polyclinic; Clinical Professor of Nervous Diseases in the Northwestern University Medical School; Ex-President Chicago Neurological Society; and Charles L. Mix, A.M., M.D.; Professor of Physical Diagnosis in the Northwestern University Medical School; Ex-President Chicago Neurological Society. Chicago: The Year Book Publishers, 1909.

The first few pages deal with the symptomatology of nervous diseases in general. Then follow in order the discussion of the neurosis, diseases of the brain, meninges, and spinal cord; diseases of the peripheral nerves; miscellaneous nervous and mental diseases. This book, being a synopsis of the literature of the past year, is, like its predecessors of the series, of special value to the busy practitioner who wishes to keep abreast of the advancements in medicine but has not the time to thoroughly read the literature.

Visceral Surgery in Abstract. By Acheson Stewart, M.D., Junior Surgeon Mercy Hospital, Pittsburg, Pa. Pittsburg: Medical Abstract Publishing Company, 1909.

This is a small book that can conveniently be carried in the pocket. It covers briefly all the important facts in connection with the etiology, symptoms, diagnosis, and treatment of the various surgical conditions.

Arthrosteopedic Surgery (Extremities and Skeleton). By Stewart L. McCurdy, A.M., M.D.; Author of "Orthopedic Surgery," "Oral Surgery," "Anatomy in Abstract," "Emergencies in Abstract;" Orthopedic Surgeon to Columbia and Presbyterian Hospitals; Professor of Anatomy and Oral Surgery, Pittsburg Dental College, University of Pittsburg, Pittsburg, Pa. Pittsburg: Medical Abstract Publishing Company, 1909.

This book is of pocket size. It deals in a concise manner with all the important surgical conditions that are not included under the head of visceral surgery.

An Atlas of Dental Extractions, with Notes on the Causes and Relief of Dental Pain. By C. Edward Wales, M.R.C.S., L.R.C.P., L.D.S.; Assistant Dental Surgeon Kings College Hospital; Assistant Medical Officer (Education) London County Council; Late Dental Surgeon Victoria Hospital for Children, Chelsea, etc. Philadelphia: P. Blakiston's Sons & Co., 1909.

This book is a concise treatise on the relief of dental pains, either by means of local applications or in extreme cases by extraction. The first chapter considers the causes of dental pain and their treatment. The remainder of the book deals with extractions. It gives a description of the technique of extracting, with a limited number of selected forceps. There are eleven plates illustrating the application of the forceps to the different teeth, and showing the position of both patient and operator. The footnotes to each illustration describing the steps of the operation of extraction are excellent. This book will be found useful to medical men in a country practice or on board ship, where there are no dental surgeons.

The Operations of Aural Surgery. By C. Ernest West, F.R.C.S., and Sidney R. Scott, M.S., F.R.C.S., Surgeons to St. Bartholomew's Hospital, London. Philadelphia: P. Blakiston's Son & Co., 1909.

The authors attempt in this volume to describe all the chief surgical measures in otology, from incision of a furuncle to the operations for brain abscess, labyrinthine disease, and meningitis. They say that all the procedures recommended have been well tested and found of value, and that nothing is presented which is not the result of clinical experience. They believe that the acceptance of meningitis as a condition admitting of merely palliative treatment is discreditable to aural surgery, and they describe their method of dealing with this condition. The volume is well done, so far as it goes, but is scarcely written with that breadth of view or that exhaustiveness which would make it indispensable as a book of reference for the aural surgeon.

Society Reports.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Eighth Triennial Session, Held at Washington, D. C., May 3, 4, and 5, 1910.

GENERAL SESSION, TUESDAY AFTERNOON, MAY 3.

(Special Report for the MEDICAL RECORD.)

THE PRESIDENT, DR. EDWARD L. TRUDEAU, IN THE CHAIR.

Symposium on Artificial Immunization.—The Formation of Antibodies.—Dr. LUDVIG HEKTOEN of Chicago presented this paper, which was read by the secretary. Dr. Hektoen stated that active immunization gave rise to the reaction products known as antibodies and to an increased sensitiveness to the primary immunizing substances. Any substance capable of inciting the formation of antibodies was an antigen. For two or three days after the injection of an antigen in a normal animal there was, as a rule, either no change in the antibody curve, or there might be a fall in the specific antibody if such were already present; at the end of this period of latency new antibody appeared; at first it increased rather rapidly and then somewhat more slowly until the maximum was reached, which in most cases seemed to take place about the tenth day; soon after this began gradual return to the normal standard. This was the third phase of the curve and it might last only a few days, several weeks, or even longer. Taking the curve as a whole, it represented the rise and fall of free antibodies in the blood, and one might regard it in any part of its course as representing the balance between production and loss of antibody. On this basis it was evident that in the second part of the curve the amount being produced exceeded the amount being lost, consequently antibody accumulated in the blood and lymph. When the acme was reached the production and loss were equal, but production soon fell and the curve gradually sank. Animals, including man, normally carried in the blood small amounts of a large number of antibodies. In many instances they possessed specific affinities for antigenic substances, and probably they were not essentially different from the corresponding immune bodies. The height and duration of the simple curve varied, depending on the kind and amount of antigen, the place of introduction, and largely also on the individual animal. In immunization with toxins and with bacteria the rule was to begin with rather small, harmless quantities and to reinject with increasing quantities, carefully graded to avoid severe reactions and prolonged depression of antibody production, at intervals of a few days for a considerable period. With increasing doses it seemed that most was attained when they were given at intervals of four and five days. The same bacterium or corpuscle might give rise to lysin, agglutinin, opsonin, and other specific bodies. In some cases the different bodies appeared to increase in the same proportion and to describe parallel curves, but in other cases this was not so. This asymmetry in the course of antibodies educed in the same animal for the same body suggested that we were dealing with distinct substances. Furthermore, that it would not be safe in all cases to conclude that because one antibody, like the opsonin, was high or low the other antibodies must also be high or low. It would seem that largely the same mechanisms produced all antibodies. Observations that had been made suggested that the lessened resistance to streptococcus and other infections of the acute eruptive diseases, notably smallpox and scarlet fever, and of tuberculosis, might depend in a measure on the inability of the body to respond freely to the stimulus of more than one antigen at a time. And the aggravation of the primary disease, *e.g.* tuberculosis, as secondary infection developed, might depend on depression in the manufacture of tuberculous antibodies by the antigen of the new infection, as illustrated by the suspension of the tuberculin reaction by an attack of measles. The antibodies were formed in the blood-making organs and given off to the blood or formed elsewhere and stored temporarily in these organs.

On the Relation of Anaphylaxis to Artificial Immunization.—Dr. FREDERICK P. GAY of Boston read this paper. He said that the condition of hypersusceptibility of anaphylaxis which might follow an initial injection of various toxic or nontoxic proteins had in the last few years attracted the merited attention of experimenters. This condition of anaphylaxis was experimentally demonstrable after a period of incubation, on reintroduction of the sensitizing protein, by a train of violent or fatal symptoms which did not occur in the normal individual. In such a manner, either by artificial inoculation, or without doubt in many instances by certain natural means of infection, an animal might become highly susceptible to intoxication with a substance which produced no effect under usual conditions (horse serum), or might be killed by a dose of bacteria or bacterial products which was under the amount that was fatal for the untreated animal. The condition of anaphylaxis was obviously related in some manner to conditions of increased resistance or immunity; either condition might occur following the introduction of a given antigenic substance and both depend on a similar incubation or reaction period. The fact that the two processes as demonstrated were apparently of diametrical opposed import to the host in no manner assured us that a nonfatal anaphylactic intoxication might not be of ultimate value. This latter view was, indeed, taken by many observers. It would at least be admitted by all that nothing approaching a final decision as to the actual relation of these two processes could at present be given.

Artificial Immunization in Nonbacterial Disease.—Dr. S. P. BEEBE of New York read this paper. He stated that a large portion of our knowledge concerning the processes of immunity and nearly all the practical applications of this knowledge had been concerned with infectious diseases. However, many of the theories which had made progress possible had been elaborated upon the basis of experiments with snake venoms, hemolytic reactions, and pure proteids, and this kind of laboratory experimentation had preceded, or been coordinate with, our advance in knowledge concerning the infections. He said that they had in the venom of poisonous snakes and in certain proteids of vegetable origin, such as ricin, examples of nonbacterial toxins; and the results obtained by the employment of these substances had been of great importance in the history of immunology. From a practical standpoint also such studies had been of value, and Calmette had perfected his methods of producing antivenin to such a degree that its therapeutic value was not to be doubted. Other animal toxins, such as those from the scorpion, from spiders, from the tarantula, heloderma, and from bees had been used as antigens to develop immune sera, and in a few instances such sera had been used therapeutically. Toxic substances of vegetable origin had been used as antigens for many experiments in immunity investigation, and in some instances notable additions to our theoretical and practical knowledge had been obtained. As was now well known, the injection of any alien proteid stimulated the formation of antibodies whose presence might be detected by one of several methods. It

seemed probable to the writer that he might do violence to no one's cherished belief in the infectious origin of tumors if he included in this discussion the question of immunity to cancer. At the present time the methods which appeared to be available for immunizing an animal with already growing tumors were as follows, it being understood that these methods were successful in only a certain percentage of cases: First, by repeated subsequent implantations of tumors, Gaylord and Clowes having shown that by this means the later plants grew for only a short time, the original tumor soon felt the effects of the developing immune forces and was completely absorbed. Gay had modified this procedure by obtaining complete absorption of the first tumor by the subsequent transplantation of only one graft, provided it was done before the development of metastases. Similar observations had been made by Van Dungern and Coca working with the transplantable sarcoma of hares. It would seem from the results of these experiments that a method of vaccination was a logical procedure in the treatment of malignant tumors, but it must be observed that efforts to accomplish the same results with tumor extracts, or with tumor cells killed by heat or chloroform or other physical means, had not served to stimulate the development of the immunity. Nothing short of the living tumor cells was capable of having such an effect. The interest which all cancer investigators had had in the experiments on cancer immunity had been greatly stimulated by the recent observations of Hodenpyl. He was fortunate in having under his observation a human patient with carcinoma who showed most remarkable spontaneous regression of a far-advanced tumor, the tumor being primary in the breast with extensive metastases in the liver. The regressive processes were accompanied by the production of chylous ascitic fluid. This fluid had been injected subcutaneously and intravenously in a considerable number of patients with very favorable therapeutic effects in many instances. In some cases there was at first complete absorption and apparent recovery, but during the last few weeks these cases had shown a renewal of the growth. It was, of course, impossible for us to say in what manner this fluid acted, but in view of the experimental work of the last few years the results did not seem surprising. Startling as had been some of the effects following injections of this fluid the procedure seemed to be a logical one, and, regardless of the ultimate outcome of the observations, they had at least served the purpose of awakening new interest and of giving a new lead in this most perplexing and difficult line of work.

Dr. J. George Adami called attention to the possibility that during the past score of years they had been directing their attention too exclusively to the specific antibodies and not sufficiently to those more basal phenomena which preceded the development of these specific antibodies, that was to the phenomena of nonspecific immunity. They had been too much accustomed to consider the individual case. If the body cells in general had the capacity to destroy, say, typhoid bacteria, they had been too apt to take this as an indication that the body cells naturally produced specific antityphoid bodies. There was absolutely no justification for this conclusion, no more than for concluding that the gastric juice could indifferently digest clams, planked shad, sweetbreads and calfsfoot gelatin. The first stage of bacterial antagonism in the system was nonspecific.

Dr. Alfred Stengel of Philadelphia said that he wished to speak of the practical or clinical aspect. Most of them, after all, were vitally interested in the practical side of all these matters of immunization. The laboratory worker would come up to a certain point, but the possibilities of untried results in our practical work would have to be studied and seen by practical clinicians. It was therefore important that they should be alive to that possibility. The clinician must keep close to the laboratory worker, and the latter, reciprocally, must keep close to the clinician for the inspiration or direction of his work.

Dr. Leo Loeb of Philadelphia said very interesting results had been obtained so far in experimental work on tumors, but the results had been very contradictory in many respects. They had never been able to produce experimentally by inoculation with tumor active sera with which they could cure cancer. On the other hand, there was no doubt from clinical and experimental data that under certain conditions antibodies were produced in the course of tumor growth. Why wasn't it possible for them to show experimentally in most cases the presence of such antibodies? He believed that the condition was similar to that prevailing in certain cases of internal secretion. In certain cases we could prove the presence of internal secretions by injections of the extracts of the organ producing that internal secretion, or by injecting the blood serum. In other cases in which we could be absolutely sure of the presence of an internal secretion we could not prove its presence by the injection of extracts of the organs or of the blood sera. It seemed to him that this conception might prove of use in immunity. Certain antibodies were produced continuously in very small quantities and very rapidly removed from the body, and that was probably the case in tumor growth, and they could not therefore make use of passive immunity, but, on the other hand, they had much better prospects for using active immunization in cancer growth, and he believed that in the near future quite marked progress would be made by that same means of immunization.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held March 21, 1910.

The President, Dr. Reynold Webb Wilcox, in the Chair.

Blotting Paper Moulds for Obtaining Crayons of Carbonic Acid Ice.—Dr. Sinclair Tousey showed this device which consisted in a hollow cylinder made by rolling several layers of blotting paper around a lead pencil or a glass vial, which was then removed. One end of the tube thus formed was tightly stoppered. The other end was placed firmly against the nozzle of the liquid carbonic acid tank, and wrapped around with adhesive plaster to make an air-tight joint. The carbonic acid cylinder employed was a small one, eighteen inches long and four inches in diameter, and containing five pounds of the liquefied gas. It was laid upon its side, with the lateral nozzle turned downward. The liquid should then be allowed to flow out into the porous paper tube. A portion of it immediately vaporized and escaped through the meshes of the paper, producing cold enough to freeze the remainder. The liquid should be allowed to flow very slowly, taking perhaps a minute to fill the tube. Turning it on full force would blow the tube off and waste a great deal of the liquid. When the mould was full of ice, the liquid would begin to spurt out around the adhesive plaster, and the flow should then be turned off. The adhesive plaster being unwrapped, the porous paper cylinder would be found to contain a crayon of carbonic acid, resembling very much the crayon used for writing on a black-board. The blotting paper might be unwrapped from one end of

the crayon, so as to expose the latter. The blotting paper was flexible enough and a sufficient non-conductor of heat to serve as a handle for the crayon, which must not be touched by the naked hand. Frozen carbonic acid, Dr. Tousey said, had been successfully used in treating port-wine stains, a type of nevus for which no other treatment was at all satisfactory. Other lesions for which it was excellent were lupus, condylomata, warts, moles, and epitheliomata.

Dr. William S. Gottheil said the employment of solid carbon dioxide in dermatotherapeutics was the most important remedial procedure that had appeared for many years. He had no hesitation in saying that more definite and lasting good could be accomplished with it than with all the elaborate radiotherapeutic and high frequency apparatus. Deformities and diseases that were formerly either untreatable, or manageable only with great difficulty and at much expense of time and labor, could now be handled with ease and confidence. Nevi of all varieties and of any extent, xanthomata, superficial malignant growths, tatooings, gunpowder stains, and many other deformities and new growths could be removed with a minimum of scarring, or even without any very apparent production of cicatrical tissue. It was a destructive agent that was anesthetic, so that no special measures to obviate pain were required; and one that was manageable in a way that was entirely different from other destructive agents. The entire thickness of the integument might be destroyed, or any layer of it alone, so that deep-seated and essentially untreatable conditions, such as large cavernous angiomata, might be covered with successive layers of delicate connective tissues by the cautious employment of the agent, until the deformity was relieved. The method of obtaining it that had been demonstrated by Dr. Tousey was one that the speaker said he had employed for more than two years, only that he made a larger mass, usually five or six inches long and one to two inches in diameter. Properly drawn, this mass was hard to brittleness, so that it could be cut into any desired shape. It should be almost translucent, and it could then be kept for hours. Dr. Gottheil said he had been receiving letters from physicians all over the country, requesting information as to the method of using the solid carbon dioxide, many of them wanting to use it on members of their own families or friends, and he would repeat here the warning that he had frequently given. The technique for getting the material and for employing it was of the greatest importance. Failure to get it in proper form, want of success in its use, or excessive and undesirable reaction were caused by lack of experience. It could be handled almost as an instrument of precision by those accustomed to its use, but it was well to know something about it before employing it on an important case.

Dr. Albert C. Geyser said that in one case of recurrent keloids where he had employed at one time the *x*-ray and at another the carbon dioxide, the former was practically painless, while the use of the latter was followed by such excessive pain that morphine had to be resorted to to control it.

What Do We Actually Know About Tuberculosis? The Wheat and the Chaff.

I. **Introductory: Some Open Questions in Tuberculosis.**—By Dr. Thomas E. Satterthwaite. (Will be published later.)

II. **The Crux of the Tuberculosis Problem.**—By Dr. Lawrence F. Flick of Philadelphia. (See page 830.)

III. **The Problems of Immunity in Tuberculosis.**—By Dr. Francis M. Pottenger of Los Angeles, Cal. (Will be published later.)

IV. **Phthisiophobia.**—By Dr. J. H. Lowman of Cleveland, Ohio. (See page 832.)

Dr. Beverley Robinson said that personally he was opposed to the expenditure of large sums of money from either public or private sources for the erection of sanatoria for the treatment of tuberculosis, for the simple reason that many such patients would be compelled to return and live in the same environment and under the same conditions in which the diseases was bred. Another objection to the sanatoria method of treatment was its limitations—only a few, a very few, could thus be taken care of, in spite of the enormous expense it entailed. In order to get at the root of the evil, the speaker said, we must get rid of the essential conditions that produced tuberculosis; the underlying, fundamental defects of living and environment and the lack of proper housing and sanitation, which were, after all had been said and done, the governing factors of the disease, rather than a few microbes. While the tubercle bacillus was the direct, exciting cause of pulmonary tuberculosis, it was only harmful under certain conditions; its development depended on the soil, and under favorable conditions of living, even the most susceptible individual was less apt to take the disease. Over thirty years ago the late Austin Flint showed that tuberculosis, like many other diseases, was self-limited, and that many recoveries took place under proper hygienic conditions. In addition to those that recovered, a certain proportion could be expected to improve, and finally, we knew there were some that would inevitably die, even under the most favorable surroundings and in spite of all treatment. Dr. Robinson said that thus far, the results of the sanatorium treatment of tuberculosis had not been particularly encouraging, and he believed that the benefits attached to it were neutralized, to some extent, at least, by the environment of the patient, and the mental attitude produced by his too close association with others similarly affected. In closing his remarks, the speaker said he was opposed to the treatment of cases of active tuberculosis in general hospitals. Regarding medication, he was firmly convinced that creosote, both internally and by inhalation, had a distinct curative effect in a certain number of cases of pulmonary tuberculosis.

Dr. Charles J. Hatfield of Philadelphia said he wished to enlarge upon one point of special interest that had been brought out in Dr. Flick's paper, namely, in reference to securing quarters for advanced cases of tuberculosis in general hospitals. In the general hospitals throughout the State of Pennsylvania, there were, broadly speaking, 2,000 vacant beds each year, exclusive of a certain proportion that must be kept ready for emergency cases. Throughout the State there are about 8,000 deaths from tuberculosis each year. It has been found that the three last months of the life of a tuberculous patient are the most dangerous from an infective point of view, because it was then usually that he is unable to take care of himself, and must be taken care of by some one. Among the 8,000 patients who die yearly in the State of Pennsylvania, there are many who are very poor, who cannot take care of themselves, and who are not properly taken care of by their relatives or friends. If they could be placed in some local, general hospital, and taken care of in a special ward set apart for that purpose, it would remove one of the chief sources of infection, and at the same time help solve the problem of what to do with these advanced cases of tuberculosis. Whereas many of these patients are disinclined to be transported far from home to an institution specially set apart for tuberculosis, very few of them probably would object to going to a local, general hospital. The handling of these patients in a general hospital would also serve as an effective argument against phthisiophobia. On the other hand, there is no good, scientific reason why, under proper precautions and with the aid of trained attendants, these patients could not be safely taken care of in any general hospital. In order to bring the matter to a practical test, Dr. Hatfield said, a number of petitions

were circulated and sent to the Governor, and the State Legislature was asked for an appropriation to defray the expenses of advanced cases of tuberculosis in general hospitals throughout the State, at a cost of $1 per day for each patient admitted. The Governor did not get an opportunity to act on the petition, as the bill referred to did not get further than the Committee on Appropriations. A communication on the subject was also sent to 137 general hospitals throughout the State. Of these, ten replied that they had no room for tuberculosis cases; fifteen had no way of isolating such patients; nine were undecided. Two hospitals consented to test the plan. From the re-remaining 101 institutions no replies were received.

Dr. L. Rosenberg of Bedford Station, N. Y., said he entirely agreed with Dr. Flick and Dr. Hatfield in regard to the absolute necessity of some sort of segregation of advanced cases of pulmonary tuberculosis, or their more careful home supervision. Unless this was done, he believed that the complete obliteration of tuberculosis in any civilized community was impossible. Some of the statements made by Dr. Pottenger in regard to immunity were perhaps too optimistic. While some degree of immunity was possibly conferred by a pre-existing tuberculosis in early life, it was not in accord with the speaker's observation that this was sufficient to protect the individual to the extent implied by Dr. Pottenger. On the other hand, he believed that certain races enjoyed more or less immunity, and that city dwellers were more immune to the disease than those who lived in the country. In a paper published several years ago, Dr. Woods Hutchinson claimed that the low mortality from tuberculosis among the Jews, as compared with that among the Irish and negroes living under similar conditions, was due to the fact that for centuries the Jew had been an urban dweller, and thus had acquired a certain degree of immunity. Dr. Rosenberg said he now agreed with Dr. Hutchinson, although at the time he was inclined to believe that the lesser mortality among the Jews was due to their more abstemious habits rather than to a racial immunity. The speaker expressed the hope that we would some day discover an artificial method of immunization against tuberculosis. He believed in the use of tuberculin in the treatment of tuberculosis, but at the same time he was not as optimistic as Dr. Pottenger in regard to it, neither as to its curative effects nor as to its power to prevent relapses. It was still a very empirical method of treatment and would remain so until we had a tuberculin, or some other cultural product of the tubercle bacillus, of known and standard strength.

Dr. Ira Van Gieson said he was strongly opposed to the tubercle bacillus being made the scapegoat of tuberculosis. While every reasonable precaution should be taken against the spread of the disease, there were evidences in many quarters of over-zealousness and even hysteria. By some, the tuberculous patient was regarded in the same light as a leper, and legislation had even been invoked to prevent these patients from passing through certain States. People acquired the disease by their own negligence, and then blamed the tubercle bacillus. Every man was the architect of his misfortunes and every man was the architect of his own tuberculosis. A man had no more right to get tuberculosis than he had to walk off the roof and break his neck, and among favorable surroundings and under right conditions of living the tubercle bacillus would probably be practically harmless. The idea of getting rid of tuberculosis by exterminating the tubercle bacilli was, in the present stage of our civilization, a Utopian one. They were as ubiquitous as snakes in Madagascar, and attempts to exterminate them always reminded Dr. Van Gieson of the story of a native of that far-off island who was found furiously attacking a group of snakes. When asked why he wasted his time killing them when there were so many more left he said that he did not care about the snakes, but that he objected to having them in his front parlor. Dr. Van Gieson said he was unalterably opposed to the use of tuberculin therapy. Under ordinary conditions, the human body was a poor habitat for the tubercle bacillus, and by injecting tuberculin, instead of helping the patient to throw off the infection, we merely added fuel to the fire and gave him so much less chance to recover. It was analogous to hitting a man with a club as a means of first aid to the injured.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Clinical Meeting, Held April 14, 1910.

Dr. Eli Long in the Chair.

A Case for Diagnosis.—Dr. Mary Sutton Macy presented a child, 14 months of age, who had been seen on the previous day for the first time. The baby had been spontaneously delivered. There was a tumor over the bridge of the nose which had existed since birth. When the child cried it became smaller. The tumor pulsated and a tentative diagnosis had been made of hernia of the frontal sinus, or a meningocele, or a pulsating angioma. The tumor was reducible by pressure.

Dr. Ward Bryant Hoag said that he had seen an exactly similar case at the New York Polyclinic. It had appeared in Dr. Kerley's service and they had concluded the tumor was a meningocele.

Dr. L. Pierce Clark said that he had seen but two or three of these cases at the Randall's Island institution. He was surprised that the meningocele disappeared in greater part when the child cried. The condition here was practically the same as in spina bifida and a similar operation of closing the communication with the cranial cavity might be undertaken. One should bear in mind that these cases did poorly under any form of surgical manipulation.

Dr. Henry W. Frauenthal believed this was a case of meningocele. The *x*-ray would aid them greatly in making a diagnosis.

A Cretin Six Months of Age.—Dr. Ward Bryant Hoag presented this patient. The labor had been difficult; not only was the delivery of the head difficult, but that of the shoulders as well. Instruments had been used. There was an interesting question as to whether the excessive traumatism of the neck and body had an influence in destroying the substance of the thyroid gland. When he first saw the child on March 28 it weighed eleven pounds and six ounces. The mother supposed that the child was a hopeless idiot and brought the baby to the hospital because of an umbilical hernia. He had coarse hair, a broad nose and a broad slit between the eyes; the mouth was characteristic of cretinism, but the tongue did not protrude from the mouth. There was the short condition of the bones. The broadened hands and shortened fingers were held in the characteristic position. The child apparently had no mentality. One-quarter of a grain of thyroid extract, which was equivalent to one and a quarter grains of the fresh gland, was given twice daily. At the end of one week the child nursed better and was warmer, although he had lost three-quarters of a pound in weight. One-quarter of a grain of thyroid extract was then administered three times a day and during the next week he gained one-half a pound. There had been a slow, but gradual improvement. So far as Dr. Hoag knew this was the youngest cretin ever reported.

Dr. Godfrey R. Pisek said that the picture was so typical that there was no doubt about this case being a true cretin. At this early time of life it was difficult to make a diagnosis between a cretin and a Mongolian idiot.

Dr. Eli Long said that the youngest cretin he had ever seen was eleven months old. The child was brought to the clinic because it never cried. When the photograph was taken the diagnosis was practically made. The oldest cretin he had ever seen was a man twenty-three years old. He had been to the hospital where sweet breads were ordered, but he had not been able to afford them. He was very phlegmatic and constipated; he slept nearly all the time. After taking thyroids he first became very thin. His teeth dropped out. He was unable to sleep. Then a marvelous change occurred for the better.

Dr. Charles Herrman recalled a case that he had recently seen in which the administration of thyroids was followed by falling out of the hair, which eventually grew again. The palms of the hands and the soles of the feet peeled as extensively as after an attack of severe scarlet fever. Emphasis should be laid upon early treatment in these cases as results were then much more favorable. These patients never attained a normal intelligence.

Dr. L. Pierce Clark said that the paramount interest in cretin therapy centered to-day in the effort toward successful thyroid transplantation. As arterial anastomosis was becoming more practical it seemed reasonable to look forward to a more hopeful future for these cases. It was a therapeutic aggravation to rely upon thyroid feeding for a number of years and then upon its withdrawal to see the patient relapse and become worse than he was at first. It had not been sufficiently impressed on the clinical mind that cretinism *per se* had but little or nothing to do with idiocy as ordinarily understood. No special therapy could improve the mental outlook of an idiot. The type here shown might more properly be called cretinoid in as much as it lacked the intensity of coarseness and stupidity of the endemic cretinism of Switzerland.

Cases of Head Nodding in Colored Children.—Dr. Charles Herrman presented five children treated in Dr. LaFetra's service at the Vanderbilt Clinic. One boy had been treated when six months old and the condition had disappeared. He was now four years old and the trouble had reappeared two months ago. It was unusual to see the condition in a child of this age. The most interesting point in these cases was the etiology. Rickets was supposed to play an important part, but practically all the colored children brought to Vanderbilt Clinic were affected with this disease. Rickets was not an essential etiological factor. Eruption of teeth was considered by some to be a factor in causation, more marked if dentition was difficult and the children were restless and slept badly. Few of the cases gave a clear history of a fall so that if traumatism occurred it was probably the result of incoordination as part of the disease already existing. Dr Radnitz some years ago attributed the condition to the effort the child made to fix objects but dimly seen in a dark room. Some years ago Dr. Herrman had investigated twenty cases and found but one-half of them lived in dark rooms. Therefore this could not be the sole cause. The most plausible theory seemed to be that the condition was caused by the long continued rhythmic kick in comparative darkness. Dr. Herrman was inclined to believe that the head movements with nystagmus in infants was a coordination neurosis to which certain children were predisposed. A certain stage of development in the nervous system was an essential factor. The nystagmus was often unilateral, even if bilateral it was usually more marked in one eye. This was difficult to explain if it was due simply to fatigue of the eye muscles. The children had a peculiar way of "cocking the head," holding it to one side and looking out of the corners of the eyes, and this was so characteristic that it might almost be considered pathognomonic. Errors of refraction and astigmatism were not present, and vision was normal. Bromides had little or no effect. The children should live out of doors.

Dr. L. Pierce Clark said that in as much as nodding spasm of the type presented occurred only in infancy and all cases recovered the real cause should be looked for in a retarded anatomic development in the bulb mechanism of coordination of head and eye movement. Its frequent association with other disorders of development helped on this hypothesis. The partial recurrence of the head movement in the eldest boy might be caused by fright. He looked upon it as a choreiform disorder induced by a congenitally weak coordination mechanism. It would be interesting to note whether infants once afflicted with nodding spasm developed chorea in later life.

A Case of Endocarditis Acquired at Sixteen Months of Age.—Dr. Ward Bryant Hoag presented this case, a girl eight years of age, whose birth was normal. She was considered a normal child up to the age of fourteen months. At this time she had been fed indiscretely and was very ill from the age of sixteen to twenty months. She was very short of breath, had moist râles, a certain amount of edema of the lungs and could scarcely walk across the floor. She was put to bed and confined there for a number of weeks. When allowed to be up her activities were carefully supervised and she improved greatly. Her fingers were not clubbed and she was not at present suffering from any shortness of breath. A loud thrill was heard over the heart. There was but little cardiac hypertrophy, the apex being very near the normal point.

Dr. Roland G. Freeman believed that this was a case of congenital heart disease which had only become manifest when the child became ill.

Dr. William P. Northrup said there was no doubt in his mind but that the case was one of congenital heart disease. He had made autopsies upon nine similar cases, three of which had been under observation at the Foundling Hospital. In each case there was narrowing of the pulmonary orifice with defective septum ventriculorum.

Friedreich's Ataxia: Two Cases.—Dr. Edward Livingston Hunt presented two patients, who were sisters. Their ages were eleven and three and one-half years. The history of the pregnancy and labor was absolutely normal in each case. There was no history of alcoholism, tuberculosis, or syphilis. The older child was late in learning to walk and had walked with difficulty since the age of five years. There were no knee jerks, but a lateral curvature of the spine existed. She had marked choreiform movements, but not nystagmus. The younger child began to have difficulty in walking a few months ago; this was the only symptom present. The unusual feature in this case was the early age, two and one-half years, at which she developed ataxia. The mentality of both children was very good. The older child also had clubbed feet with a marked prominence of the instep. Dr. Hunt said that there had been only about 200 such cases reported.

Dr. L. Pierce Clark said that the chief interest to him in the subject under discussion was that they were now in a position to refute the theory propounded by Oppenheim and his school that Friedrich's ataxia was an hereditary, luetic affection. The Wassermann and Noguchi blood tests in these cases were entirely negative. Dr. Clark referred to the theory of Edniger and Gowers which best explained the disorder here as in muscular dystrophies, where blood tests for hereditary lues were also negative. This theory maintained that certain muscles groups, nerve tracts, and ganglia had not only a defective development, but also met with an untimely death.

Dr. Richard B. Kruna believed that it would be reasonable to attempt some forms of exercise in these cases, in fact a reeducation.

Dr. Henry W. Frauenthal thought that this instruction should be given with the child in front of a mirror; they should be taught to concentrate their minds on the work they were doing.

Dr. Hunt said that the prognosis in these cases was not good, such patients usually dying before they reached the age of twenty-five years.

A Case of Gummatous Infiltration of the Meninges.—Dr. Godfrey R. Pisek said that this patient, a girl of six years, had been born prematurely and weighed three and one-half pounds at birth. She had a younger brother who was said to be in good health. With the exception of pneumonia and pertussis she had had no serious illnesses until the present one. About one year ago she had a convulsion, prior to which the mother had noticed that the child was deteriorating both mentally and physically. The fact was elicited from the mother that about three weeks after the birth of the child there had been scaling of the palms of the hands and the soles of the feet, which promptly disappeared under treatment. The mother learned that the father had a luetic history and was treated during her second pregnancy with the result that she gave birth to a healthy, robust boy. Physical examination of the patient showed a fairly well developed girl of six years, with unimpoverished nutrition, but with marked cyanosis of the hands and feet, the skin of the feet being dry and atrophic. When in the erect posture she assumed a leaning position from the hips. She could stoop and walk alone, but preferred help. In the sitting posture she had a relaxed spine. She also had inguinal adenitis. The left median incisor tooth was notched and loose and the lower medium incisors were notched. There was general caries of the teeth. The heart sounds were normal; the liver was one inch beneath the right costal margin; the spleen not palpable; a spasticity of the lower extremities, exaggerated knee jerks, and Kernig's sign were present. There was some hyperesthesia over the whole body. There were no anesthetic zones found. The language was repetitional and somewhat incoherent. The eyes showed a peppery granular appearance around the macular region and a pale disc. This was an descending atrophy of the optic nerve due to degeneration compression. A tentative diagnosis of gumma of the base of the brain was made upon clinical symptoms as at the time neither father nor mother admitted leutic infection. The Noguchi modification of the Wassermann reaction was made and was negative. The question of the relation of the mother to the condition was interesting. The Noguchi reaction was negative for the father, but positive for the mother. Thomsen and Boas, who had examined a large number of cases, had concluded that a positive Wassermann reaction in the mother lessened the possibility of the child's being born sound. Latent syphilis might give a faintly positive reaction in the child or it might entirely fail during the first month. The mothers who bore syphilitic children were themselves to be looked upon as syphilitic if their blood gave a positive Wassermann reaction. Dr. Pisek reviewed the work of Knoepfelmacher and concluded that it would not be at all unexpected to find that 40 per cent. of mothers, whether they had symptoms or not, failed to show complement fixation. While it was too soon to draw any absolute conclusions serious doubt was thrown on the Colles law, and it might be fair to claim that it would be only a matter of time before the incorrectness of the law would be established. At present it seemed highly probable that the mothers of children with hereditary syphilis were syphilitic also.

Dr. William P. Northrup said that he was not sure that this was a case of gummatous infiltration of the meninges. It might be a case of proliferation of the connective tissue. He had seen many cases with a thickened dura and pia but with no gummatous infiltration.

Cases of Intestinal Infantilism of Herter.—Dr. Roland G. Freeman referred to five cases reported by Dr. Christian S. Herter in 1908 in which the symptoms were arrested development of the body, marked abdominal distension, often with dilation of the abdominal veins over the upper part of the adbomen. There was usually very marked fatigue and some anemia. There was a tendency to looseness of the bowels with occasional attacks of diarrhea, often with fatty stools, even though there might be but little fat in the food. Theses cases were liable to have an excessive appetite and thirst and increased secretion of the urine. Herter found an absence of the ordinary intestinal flora of the intestines of young children. The organisms present were Gram-positive, the prevailing organism being the *Bacillus bifidus* of Tissier, the *Bacillus acidophilus*, and the *Bacillus infantilis*. The *Bacillus coli* and the *Bacillus lactis acrogenes* were infrequently found during the active stage of this disorder. The urine showed a rise in the ethereal sulphates, a pronounced indicanuria, and an excessive phenol together with the presence of aromatic oxyacids. Herter found gelatine particularly useful in increasing the weight in these cases. Dr. Freeman had recently seen three cases of this condition. The first case had been under his care for eight months. She was three and one-half years of age and greatly debilitated. No food had been found which would agree with her until about a month ago when she began taking buttermilk. She had gained two pounds in weight and there was an improvement in her general condition. Examination of her urine and feces showed the characteristic condition described by Herter. The administration of intestinal antiseptics had had no influence on the bacteria of the intestines. The second case was a child nineteen months of age; she also showed the classical symptoms and there were also some colon bacilli present in the feces. The child had not gained on any modification of milk that had been tried. She did best on a preparation of dried skimmed milk to which a moderate amount of fat was added in the form of cream. The third case was a child seventeen months old who had an attack of vomiting diarrhea and fever last July. She had not done well since that time and similar attacks had followed at intervals. Many different foods had been tried and a wet nurse had been secured, but the child did not gain in weight. This case approached that type of intestinal infantilism described by Herter, but was not entirely characteristic. The bifidus was present in the feces as well as the coli communis and some cocci.

A Case of Spastic Paraplegia Treated by Resection of Posterior Nerve Roots.—Dr. John J. Moorehead presented this patient, a boy, seven years old. There was difficulty in learning the child's early history. However, it appeared that the boy had been well until he was two years of age, although he had never walked. When he entered the hospital he had a typical spastic condition which was most marked in the lower extremities, especially on the left side. There was the characteristic irritability of the reflexes, very marked knee jerk, ankle clonus, and Babinski's sign. A laminectomy was performed following the technique laid down by Dr. Taylor. Because of the little space between the transverse processes it was found impossible to expose a sufficient amount of the cord to do a hemilaminectomy and they had had to resort to a bilateral laminectomy. Digitations of the second, third, and fourth lumbar posterior roots, and three upper right lumbar roots were divided. After the operation there was a rise of temperature and rapid respiration which aroused fears lest pneumonia might develop. Four days after the operation the temperature was 101° and a satisfactory convalesence followed. The spasticity became markedly lessened within three days after the operation; the reflexes had disappeared absolutely and had not returned. The general tone and nutrition of the lower extremities had been very much improved and the boy was in a position for further orthopedic and educational means of treatment.

Dr. Godfrey R. Pisek said that when the boy entered

the hospital he knew that he was a good subject for operation as the spastic paraplegia was associated with a good mental condition. The spasticity had been very marked; the boy was able to walk only on his toes holding onto the furniture.

Dr. L. Pierce Clark thought that Dr. Moorehead was to be congratulated upon the excellent clinical results in this case. Orthopedic training could now be employed with great advantage. He advised a further resection of half of the dorsal nerve roots of the first and second sacral in a year from the first operation. His own series of operated cases were making excellent progress under physical training and he would present them to the Society again in the fall.

A Congenital Freak.—Dr. Henry W. Frauenthal presented a child with congenital clubbed feet and hands, a congenital dislocation of the hip on one side, and a knee which was at right angles to the normal axis.

New Signs of Meningitis from French Authors, with Illustrations.—Dr. William P. Northrup spoke of the new signs of which he had read in French journals and their application which he had employed in three cases. He illustrated his remarks with pictures, called "identical reflexes" and "contralateral reflexes."

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Lichtträger mit Chirurgischen Ansatz. Von Dr. Dreuw, Berlin. 8vo; paper; 3 pages; illustrated. Leopold Voss, Hamburg, Germany.

Puder-Aërotuba. Von Dr. med. Dreuw. Berlin. 1 sheet; illustrated. Leopold Voss, Hamburg, Germany.

Physiology of the Special Senses. By M. Greenwood, Jr., M.R.C.S., L.R.C.P., F.S.S. 8vo; cloth; 239 pages; illustrated. Longmans, Green & Co., New York.

Rhinology. By P. Watson Williams, M.D. (Lond.). 8vo; cloth; 273 pages; illustrated. Longmans, Green & Co., Philadelphia, Pa.

Yearbook of the Department of Agriculture, 1909. 8vo; cloth; illustrated, 6652 pages.

Hypnotism and Treatment by Suggestion. By J. Milne Bramwell, M.B., C.M. 12mo; cloth; 216 pages; $1.75 net. Funk & Wagnalls Co., New York.

Grundriss und Atlas Speziellen Chirurgie. Von Prof. Dr. Georg Sultan. 12mo; cloth; illustrated; 16 marks. J. F. Lehmann, München, Germany.

Burdett's Hospital and Charities, 1910. Sir Henry Burdett, K.C.B., K.C.V.O. 12mo; cloth; 938 pages; 10/6 net. The Scientific Press, London, England.

Practical Pathology. By G. Sims Woodhead, M.A. (Cantab.). 8vo; cloth; 798 pages; illustrated. Oxford University Press, New York.

Emergencies of General Practice. By Sargent and Russell. 8vo; cloth; 364 pages; illustrated. Oxford Univ. Press, New York.

Consumption, Its Prevention and Home Treatment. By H. Hyslop Thomson, M.D. 12mo; cloth; 75 pages. Oxford Univ. Press, New York.

Manual of Surgery, Vol. I. By Thomson and Miles. 12mo; cloth; illustrated; 886 pages. Oxford Univ. Press, New York.

Manual of Surgery, Vol. II. By Thomson and Miles. 12mo; cloth; illustrated; 861 pages. Oxford Univ. Press, New York.

Die Experimentelle Pharmakologie. Von Meyer und Gottlieb. 8vo; paper; 482 pages; illustrated; 12 marks. Urban & Schwarzenberg, Bermain, Germany.

Fractures and Dislocations. By Lewis A. Stimson, B.A., M.D., LL.D. (Yalen). 876 pages; illustrated. Lea & Febiger, New York.

Diseases of Infancy and Childhood. By Henry Koplik, M.D. 8vo; cloth; 944 pages; illustrated. Lea & Febiger, New York.

Transactions of the American Pediatric Society. 8vo; cloth; 207 pages; illustrated. E. B. Treat & Co., New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of May 7, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	663	166
Diptheria	406	40
Measles	1,311	24
Scarlet Fever	584	29
Smallpox	1	—
Varicella	135	—
Typhoid Fever	27	8
Whooping Cough	99	10
Cerebrospinal Meningitis	8	6
Malarial Fever	—	—
Totals	3,174	283

Tuberculosis Sanatoria in Sweden.—A significant phase of the campaign against tuberculosis in Sweden is the establishment, by various industrial concerns, of sanatoria for tuberculous workmen from their own factories. The Vulcan Match Company, the Ljusne-Voxne Timber Company, the Sandviken Hardware Company, the Eriksson Telephone Company and the Stora Kopparsberg Company are among those who maintain such institutions, each accommodating from fifteen to thirty patients. At these sanatoria the workmen are received free, and their families may be admitted for a small charge.

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 6, 1910.

CHOLERA

PLACE	DATE	CASES	DEATHS
India, Bombay	Mar. 23–29	..	2
Calcutta	Mar. 13–19	..	60
Monlmine	Mar. 6–12	2	2
Negapatam	Feb. 26–Mar. 4	..	7
Rangoon	Mar. 13–19	..	2

YELLOW FEVER

Brazil, Manaos	Mar. 27–Apr. 2	..	2
Para	Apr. 3–9	7	5
Ecuador, Babahoyo	Mar. 16–31	1	1
Guayaquil	Mar. 16–31	21	7
Venezuela, La Guaira	Apr. 7–15	1	1
	Apr. 16	..	1

PLAGUE

Brazil, Pernambuco	Feb. 16–Mar. 15	..	2
Ecuador, Guayaquil	Mar. 16–31	13	6
Egypt—Provinces:			
Assiout	Mar. 26–Apr. 1	4	3
Fayoum	Mar. 26–Apr. 1	1	1
Girgeh	Mar. 26–Apr. 1	1	..
Minieh	Mar. 26–Apr. 1	9	4
India, Bombay	Mar. 23–29	..	190
Calcutta	Mar. 13–19	..	37
Kurrachee	Mar. 20–26	57	58
Rangoon	Mar. 13–19	..	12
Persia, Bouchir	Mar. 24	a1	..
Turkey in Asia, Beirut	Apr. 9	1	1
Bassorah	Apr. 27	..	Present

SMALLPOX

Austria, Galicia	Apr. 3–9	3	..
Brazil, Pernambuco	Feb. 16–Mar. 15	..	106
Canada, Nova Scotia, Halifax	Apr. 17–23	2	..
Chile, Valparaiso	Mar. 26–Apr. 2	3	..
China, Amoy, Kulangsu	Mar. 13–19	..	2
Hankow	Mar. 6–19	4	2
Nankin	Mar. 12	..	Present
France, Nantes	Mar. 1–31	1	..
Paris	Apr. 3–9	6	..
Germany, general	Mar. 27–Apr. 9	17	..
Great Britain, Sheffield	Apr. 3–9	4	1
Greece, Athens	Mar. 20–26	..	1
India, Bombay	Mar. 23–29	..	81
Kurrachee	Mar. 20–26	3	2
Rangoon	Mar. 13–19	..	28
Italy, general	Apr. 4–10	24	..
Naples	Apr. 4–10	6	..
Japan, Formosa	Mar. 20–26	4	..
Korea, Fusan	Jan. 26–Feb. 1	1	..
Mexico, Mexico	Mar. 13–19	..	2
Portugal, Lisbon	Apr. 3–9	37	..
Russia, Libau	Apr. 4–10	9	1
Odessa	Mar. 27–Apr. 2	48	6
St. Petersburg	Mar. 26–Apr. 2	46	9
Spain, Barcelona	Apr. 5–11	..	4
Madrid	Mar. 1–31	..	6
Seville	Mar. 1–31	..	6
Valencia	Apr. 3–9	6	..
Straits Settlements, Singapore	Mar. 13–19	..	1

a Superior council of health, Constantinople, Mar. 30, 1910.

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Original Articles.

THE SCAPHOID SCAPULA.

A FREQUENT ANOMALY IN DEVELOPMENT OF HEREDITARY, CLINICAL, AND ANATOMICAL SIGNIFICANCE.*

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WE have been taught to think of the vertebral border of the scapula in man as having a more or less convex outline. It is thus described and represented in text books on human anatomy, and common observation establishes this fact. In apes, monkeys, quadrupeds, and, indeed, throughout the entire range of vertebrata, the vertebral border of the scapula, is, as a rule, more or less convex. We see, therefore, that comparative anatomy lends support to the idea that the vertebral border of the scapula, under normal circumstances, in man should be, as we have been taught to believe, more or less convex. But scapulæ having more or less concave vertebral borders, are by no means rare in man. Indeed, such scapulæ are relatively frequent. Now, since throughout the vertebrata the vertebral border of the scapula is more or less convex, a more or less concave border occurring either in man or the lower animals must be anomalous. Furthermore, such a vertebral border must be an anomaly in development, a something inherent with the individual, and cannot be a reversion, since more or less concavity of the vertebral borders predominates neither in man nor other vertebrates. The vertebral border, sometimes called the base of the scapula in man, is that border adjacent to the vertebral column extending between the superior and inferior angles of the bone; but, for the purposes of this communication, only that portion of the border extending from the mergence with the spine of the scapula to a variable point along this border and usually to a point about opposite the process for the attachment of the teres major muscle will be considered as the vertebral border. It is along this part of the vertebral border that a more or less distinct concavity may be made out with relative frequency in the living subject, and a scapula presenting such a concavity, I desire here to designate the scaphoid scapula (Fig. 1).

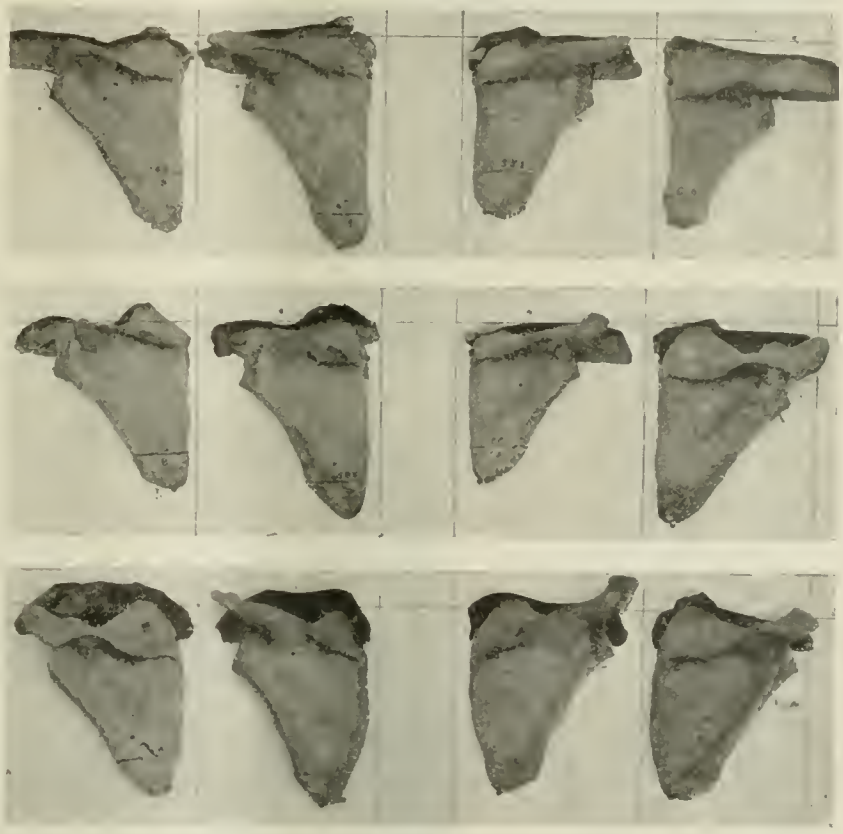

FIG. 1.—The upper row shows scapulæ of the scaphoid type, having more or less concave vertebral borders; the middle row shows scapulæ having more or less straight vertebral borders, all of the scaphoid type; the lower row presents scapulæ whose vertebral borders are more or less convex, average scapulæ, the dominant racial type.

Observation I.—On September 18, 1906, while making a routine physical examination in the neurological clinic of the St. Louis University School of Medicine of a seven-year-old boy, a victim of major and minor seizures, I was impressed with the peculiar development of the vertebral borders of his shoulder blades. Each was distinctly concave from the mergence of the spine of the scapula with the vertebral border to a point slightly above the inferior angle, and these borders with the inferior angles stood out prominently, winglike. The vertebral borders were abnormally far apart, and, instead of slanting downward and outward, as do shoulder blades in the average individual, their course was quite parallel with the vertebral axis. The boy's neck was longer than the average, his shoulders were hanging, drooped downward and

*Presented to the St. Louis Medical Society in general session, February 5, 1910.

forward, and the right shoulder was lower than the left. The chest was well formed, though shallow, and it was somewhat narrowed at the lower costosternal junction. The claviculæ took a distinctly horizontal course, the abdomen about its lower one-half was unduly prominent, and, as he stood before me, his general attitude was one of extreme sluggishness (Fig. 2). He was much under size for

Fig. 2.—Front and back view of a boy, seven years old, epileptic, with scaphoid scapulæ.

his age, and his muscle development was defective, without evidences of atrophy. He was able to assume normal attitudes, to elevate and approximate his shoulder blades in a normal manner and to execute all movements with coarse strength proportion to his muscle development. His head was large, rather bulging along the plane of the frontal and parietal eminences. The auricles were prominent and somewhat defective, his nose was rather short, with poorly developed nostrils. His lips were separated and an examination of his nasopharynx disclosed adenoids. His second toes were much longer than the great toes, and there was slight webbing between the second and third, and third and fourth toes of both feet.

An examination of the mother, age 39, showed a similar type of physical development, and the vertebral borders of her scapulæ were even more markedly concave than those of the patient. Subsequently the other children in this family, a boy of 5, a girl of 3, and the father, 43 years of age, were examined. The father presented an average physical development, and the vertebral borders of his scapulæ were distinctly convex, but those of the younger children were as concave as those of the older brother. The younger brother's physical development was somewhat better than that of the older, though in him it was much less than that of the average boy, and in features and general development he resembled his older brother and mother. The girl's neck was relatively shorter than that of either brother, and she resembled her father more than she did her mother. Her general development was defective and her attitudes were sluggish. This brief description of the patient, his younger brother and sister, and of his mother will serve to illustrate a certain type of individuals—a very common type, indeed—met with in every branch of society in both child and adult life, and in individuals presenting this type of development the scaphoid scapula will be frequently found.

Since this, my first observation of the scaphoid scapula, I have noted it many times in the course of routine physical examinations, and in only a few instances have I found it well marked in individuals even approaching average physical development. Thus far I have always found it associated with other signs of deviation from the average. To enumerate these here would be but to repeat the long list of heretofore recognized anatomical physiological, psychic, and psychoneurotic stigmata. While even genius may occasionally be found in an individual of defective development, "Mens sana in corpore sano" is the ideal in human development, and that which we all recognize in the average individual approaches this ideal. The scaphoid scapula may be found even in a man of genius, but its natural habitat is in the deviate.

I have said that the scaphoid scapula is relatively frequent. Let me illustrate: Through the courtesy of Dr. R. P. Scholz, I recently had the privilege of studying in a preliminary way a group of ten public school children, all suffering from adenoids, all one or two years behind the average in school work, all showing defective physical development, under size, sluggish attitudes, etc., etc., and in every one I found the scaphoid scapula well marked. Through the courtesy of the attending physician, Dr. J. R. Clemens, and the Sister Superior of St. Joseph's Orphan Asylum,

Fig. 3.—A group of defective boys from St. Joseph's Orphan Asylum, all showing arteriosclerosis, palpable glands, etc., etc., and scaphoid scapulæ, and other anomalies in development.

I have begun the study of fifty-eight boys and their immediate relatives. This study is far from completion, and will serve the purpose of some future communication. These boys range in age from five to fourteen years. Eleven of these are reported by the Sisters as average in their school work. Ten of the average boys show the scaphoid

scapula. All of these are under size, most of them show other decided physical defects and have sluggish attitudes. Three are mouth breathers and two have nocturnal incontinence. Forty-seven of the boys, out of a total number of 58, are reported by the Sisters to be much behind in their grades; 40 out of 47, or about 85 per cent., show the scaphoid scapula, and 7, or 15 per cent., show convex vertebral borders; 27, or about 58 per cent., are mouth breathers; and 8, or 17 per cent., are bed-wetters. All are under size, show other anomalies in development, other clinical signs, and every one of them would be recognized at a glance as a deviate from the average (Figs. 3-4).

I shall not at this time offer further evidence upon the frequency of the scaphoid scapula in the living subject, but will merely say that my observations, confined almost exclusively to private and dispensary work, warrant the prediction that further studies of backward and defective children, studies of inmates of epileptic homes and colonies, asylums for the insane, of penitentiaries, and of deviates in general, will establish the relative frequency of the occurrence of this anomaly. The scaphoid scapula occurs less frequently and usually to a much less degree in individuals who on superficial examination pass for average individuals—even in such of seeming excellent mental and physical endowments. But when found in such individuals a closer study of their mental and physical states will not fail to disclose other physical anomalies alone or in combination with mental tendencies differing from those of average individuals. I have observed it in successful business men, even in captains of industry, in prominent preachers, in excellent lawyers, in capable physicians, in educators, in inventors, artists, and artisans; indeed, among members of what we call our best society who are leading useful and successful lives. Remembering what is said tonight, should any member of this society later discover that he is the possessor of the scaphoid scapula, let him take comfort in the fact that he is not alone.

FIG. 4.—A rear view of defective boys from St. Joseph's Orphan Asylum.

Immediately following my first observations of the scaphoid scapula, a search of the literature at my command failed to disclose any reference to the anomaly here described, and conversation with several well posted anatomists indicated that their ideas had been in accordance with the teachings of text books on anatomy, that the vertebral borders of the human scapulæ are more or less convex. It was not until the actual preparation of this paper was begun, in looking up some references given me by Professor R. J. Terry, of Washington University, I was led to two articles, one by St. George Mivart (The Appendicular Skeleton of the Primates, *Phil. Trans.*, Vol. 157, 1867, p. 304), the other by Thomas Dwight (The Range of Variation of the Human Shoulder Blade, *Amer. Nat.*, 1887), that the slightest reference bearing upon this anomaly was found. Under the heading, "Exceptional Forms," St. George Mivart says: "The vertebral margin is generally more or less convex, but sometimes in man, the gorilla and orang, ateles and chrysothryx, it presents a sigmoid curve. Sometimes it is nearly straight, as in the Indris; sometimes it is very strongly convex as in Perodicticus." Thomas Dwight, in speaking of the variations of the vertebral border, states: "The most common form of scapula presents a line slightly curved at the lower part and then straight as far as the root of the spine, from which point it inclines slightly forward till it ends at the upper angle. The forward inclination of the upper part, though varying in degree, is, so far as I know, constant, but the rest of the line varies much. Sometimes it is almost straight, sometimes the whole border of the bone is convex, sometimes the border below the spine is concave." He illustrates the variations of the vertebral border with a figure of the tracings from several bones, and he figures several complete scapulæ, one of which I should unhesitatingly call a scaphoid scapula. This variation in the vertebral borders mentioned by both Mivart and Dwight was noted by them in dry bones and was considered and described by them as a variation within the normal; but the main thesis of this paper is, that the scaphoid scapula is an anomaly in development, originating in the progeny from some abnormal circumstance operating in the parents; is thereafter transmitted from parent to child and so on through several generations; and, unless the abnormal circumstance again becomes operative in the descendants, the scaphoid scapula finally disappears and the racial type again becomes dominant.

Dry Bones.—Following my first observations of the scaphoid scapula, I was for a long time on a quiet hunt for a dead specimen, but it was not until the summer of 1909, a short time after mentioning my quest to Dr. V. P. Blair, that he brought me three typical scaphoid scapulæ, having found them among a lot of scapulae in the anatomical department of Washington University. It seemed desirable to make a study of these, and, furthermore, to inspect a lot of scapulæ with a view to determining the relative frequency of the scaphoid scapula among dead bones. Prof. R. J. Terry kindly placed at the

disposal of Dr. Blair and myself the dry scapulæ of the anatomical department of Washington University. These scapulæ had been accumulated during the course of years from bodies studied in the anatomical department and consisted of 165 bones. Among these were found five fetal and seven child scapulæ, the remaining number being from adults. A much smaller, but similar, group consisting of 33 scapulæ, all from adults, in the Anatomical Department of the St. Louis University School of Medicine was kindly placed at our disposal by Prof. A. C. Eycleshymer—making a total of 198 bones. A general survey of these scapulæ readily suggested their classification into three divisions: (1) Scapulæ having vertebral bodies more or less convex; (2) scapulae having vertebral borders more or less straight; (3) scapulæ having vertebral borders more or less concave (Fig. 1); 121, or about 61 per cent., were more or less convex; 51, or 26 per cent., had more or less straight vertebral borders; 26, or 13 per cent., showed concave vertebral borders. It must be remembered that these bones came from individuals, many of whom had doubtless been unfortunate derelicts—deviates, if you please—and their bodies had in consequence found a resting place in the dissecting room.

A closer inspection of these bones showed that almost all of those we had classified as straight were really more or less concave, so that from an anatomical point of view, a simpler division would be: (1) Scapulæ having more or less convex vertebral borders; (2) scapulæ having more or less concave vertebral borders. For certain purposes, however, as I shall later show, it is desirable to adhere to our first classification—an arbitrary classification which I had long employed in my clinical studies. But, adopting the anatomical classification for the moment, we should have in the scapulæ studied in reference to their vertebral borders, 61 per cent. more or less convex and 39 per cent. more or less concave.

As one might well imagine, there are all gradations within certain limits in the degree of concavity as well as in the degree of convexity in the vertebral borders of human scapulæ. The gradations in the vertebral border between the average, or convex, and the straight, and between the straight and the concave are so minute that a consideration of the outline alone would leave one in doubt at times as to the classification of a particular scapula, even in the dry bones, but this is especially true in the living subject.

Of the fetal and child scapulæ, four had vertebral borders more or less concave, one more or less straight, and seven more or less convex. It must be remembered, however, that in the fetal and child scapulæ, the vertebral border of the dry bone represents only its osseous development, the cartilaginous portion of the border having been lost. About 80 scapulæ from the Medical Department of the Washington University have been subjected to further study by me. In these studies I have been able to show that scapulæ having straight and concave vertebral borders are very nearly related, indeed, belong to a distinct type, which I shall hereafter designate the scaphoid type, since scapulæ of this type further differ from those having convex vertebral borders in the following particulars: First, the mean scapular index of the scaphoid type is 2.3 less than the average or convex type; second, that the scaphoid type of scapulæ differs from average scapulæ in the direction taken by their vertebral borders when these are compared with a straight line, and that the vertebral border more nearly parallels in the scaphoid type the long scapular axis; third, that the spine in the scaphoid type, as a rule, forms more nearly a right angle with the long scapular axis than does the spine of the average scapula; fourth, that the anterior and posterior lips and intermediary surface of the vertebral border in the scaphoid type of scapulæ are much less developed than in the average type, and that the greater the concavity of the vertebral border of the scapula, the less marked will be the lips and the intermediary surface; fifth, that the tuberosities varying both in size and number, frequently found along the vertebral borders, which I shall hereafter call vertebral border buds, are much more common in the scaphoid than in the average type of scapulæ. These essential differences, based upon my studies of infantile, child, adult, and skeletal bones, and in the living subject, seem to me to entitle the scaphoid type to a distinct anatomical classification.*

Let us for the moment turn our attention to the embryo and fetal forms of scapulæ. A consideration of these should lay the foundation for the hereditary nature of the scaphoid scapula. I have already partly accomplished this in indicating its relative frequency in certain living types and in the study of the family in which my first observations were made. A study of the embryo forms should go a long way toward determining the origin of the scaphoid scapula, and perhaps give us a clue to the solution of the problem of its causation. I am greatly indebted to Professor Eycleshymer for his kindness in turning over to me a part of his collection of embryos and fetuses. Of those in which the scapular form could be made out through the skin, I found 22 specimens. Of these 14 had convex and 8 had concave vertebral borders. I have subjected several of each type to a fine dissection, laying bare the greater portion of the scapulæ, especially freeing their spines and their vertebral borders. Through the kindness of Dr. W. H. Foster, of the Anatomical Department of the St. Louis University, the scapulæ of three of Professor Eycleshymer's monster forms have been laid bare and I have similarly dissected two fetuses, each in about the seventh month of development, which were kindly turned over to me on January 14, 1910, by Dr. Carl Fisch. In my studies, comprising nine embryo, two fetal, and three monster forms, I have noted the general condition of each, the contour of each vertebral border, compared one with the other, compared the size and shape of one scapula with another in the same fetus, measured the length of the long scapular axis, and when possible, simply by noting the transparency of each scapular form, have attempted to determine the degree and form of its ossification. My studies of the scapulæ of embryo, fetal, and monster forms justify, it seems to me, the following conclusions:

1. As early as the end of the sixth week in development, the human cartilaginous scapula has acquired that form which differentiates it from all other forms, and which in its essential particulars it maintains throughout its further development. Even the vertebral border buds were discernible in one specimen, measuring only V. B. 24 mm.

2. The vertebral border of the ossifying plate parallels with striking accuracy the contour of the cartilaginous vertebral border; where this is convex,

*My studies in detail of dry scapulæ and of embryo, fetal and monster forms will be published elsewhere.

it is convex; where this is concave, it is concave; where it is partly convex and partly concave, it, too, is the same; in one specimen the buds on the cartilaginous vertebral borders have their counterpart opposite, on the margin of the ossifying plate and in a more distinctly scaphoid type of vertebral border there is entire absence of lips and intermediary surface—just as we have found in similar specimens in the dry bones.

3. Early embryo forms of scapulæ are but the prototypes in miniature of the later fetal, infantile, child, and adult forms.

4. In the same subject having scapulæ of the scaphoid type, decided differences in the size and form of the scapulæ and specific differences in the contour of the vertebral borders are common. In my studies of scapulæ in living subjects I have been deeply impressed with the relative frequency of decided differences in size and form and specific differences in contour of vertebral borders and with the presence of vertebral border buds in those individuals having the scaphoid type. May not these features so frequently found in this type be indications of Nature's efforts either to maintain, or to return to, the dominant—the racial type?

Beginning with the recognition of the scaphoid type of scapulæ in child and adult life, I have shown the same forms in dry bones and traced them back to the sixth week in embryo life. It is, therefore, reasonable to suppose that a histological study of embryo forms of the average and scaphoid type of scapulæ would show either some microscopical differences in structure, or some vascular changes, or both, and I have begun such a study which will serve the purpose of some future communication. Having indicated the frequency of the scaphoid scapula in the living, dry, and embryo forms, and having learned in my first observations that a mother and all of her children had the same type of scapula, the offering of further evidence at this time of its hereditary nature, it seems to me, would be superfluous. My studies in its hereditary ramifications are, indeed, thus far mainly fragmentary. Any one who has attempted to examine personally all the living members of a family will appreciate the difficulties in such investigation. I have, nevertheless, been able to do this in 22, and in many families in a fragmentary way in my studies of the scaphoid scapula in its hereditary and clinical bearings, and I have formulated a few hypotheses based upon such investigations; these are as yet merely tentative. They may be confirmed or completely upset by further investigation; but, in order that those who may become interested in the study of the hereditary, pathological, and clinical significance of the scaphoid scapula, it seems to me to be proper at this time to set them down as working hypotheses. Not only are these hypotheses based upon my studies of the scaphoid scapula in its hereditary and clinical bearings, but they are here given as possible exemplifications of the main thesis mentioned in the beginning, which I shall here repeat:

Thesis.—The scaphoid scapula is an anomaly in development originating in the progeny from some abnormal circumstance operating in the parents; is thereafter transmitted from parent to child and so on through several generations; and, unless the abnormal circumstance again becomes operative in the descendants, the scaphoid scapula finally disappears and the racial type again becomes dominant.

Hypothesis I. Since scapulæ having more or less convex vertebral borders have been shown to represent the racial type of scapulæ, we should expect under normal circumstances that the children of parents having this type of scapulæ should have a similar type.

Hypothesis II. From one or both parents having scaphoid scapulæ, we should expect, under normal circumstances, in their progeny: (*a*) If only one has it, the children to show it less marked than the parent having it; (*b*) if both parents have the scaphoid scapula, we should expect their children to have it more marked than either parent, or at least to be as well marked as the parent showing it to the least degree.

Hypothesis III. Both parents having average scapulæ, we should expect under abnormal circumstances their children to show scapulæ of the scaphoid type, the degree in each child from the oldest to the youngest depending upon either the remoteness from or the activity of the abnormal circumstance producing it, and as a rule the youngest child should show the scaphoid scapula to a less marked degree than the oldest.

Hypothesis IV. Where only one parent has the scaphoid scapula, we should expect, under abnormal circumstances, all of the children to show it to a greater degree than the parent having it, and, all things being equal, the youngest child should show it to a less marked degree than the oldest.

Hypothesis V. Where both parents have scaphoid scapulæ, we should expect, under abnormal circumstances, all of their children to show the same type, but to a greater degree than either parent, although depending upon the remoteness from or the activity of the abnormal circumstance, the youngest child may show it less than the oldest, but equal to that parent having it the least.

What is the certain abnormal circumstance at work in the production of scapulæ essentially differing in so many particulars from the average type of the human race, the scaphoid scapulæ. From the day of my first observations, this question has occupied my mind. I came very early to the conclusion that no known or assumed circumstance in the life of the individual after his birth could give him a scaphoid scapula, such as I was constantly seeing in my practice, and that it must be a hereditary or congenital circumstance at work. If a hereditary or a congenital one, it must be in the very early development of the individual, either transmitted to him from his parent or parents or originating in consequence of some disturbing factor in his early development, and the validity of these assumptions has been, I believe, practically established in my studies of living, dry, and early forms. Its origin could not be explained by any known or assumed local *in utero* factor heretofore believed to be at work in the production of monsters or other gross anomalies, because I early found it occurred in whole families, and was present in a varying degree in a very large percentage of our population.

Observing that, when the scaphoid scapula was found to a rather marked degree, it was almost invariably associated with other anomalies in development, either physical or psychical, or both, and that its natural habitat was in the deviate—in those individuals who frequently show blighted physical and mental development—I have thought of it merely as one manifestation of a blight affecting the whole organism; and, since I could not for a long time find any clue bearing definitely upon its origin, I have thought of the underlying abnormal circumstance as an X-blight.

Searching for the nature of the X-blight in my studies of individuals having scaphoid scapulæ, the product of parents under Hypotheses III, IV and V, those hypotheses supposing the working of a certain abnormal circumstance, I have found in them, in addition to the associated general conditions and other anomalies in development, certain clinical signs, first and foremost of which is the relative frequency of arterial changes—sclerotic changes, which we all recognize as keeping pace with advancing years after the fortieth year of life. But in individuals of such parentage these arterial changes occur much earlier than in average individuals, in some discernible by the ordinary methods of clinical investigation as early as the fourth year of life, and in older individuals a degree of sclerosis out of all proportion to their years. In such individuals I have also found with great frequency an abnormal degree of lymph gland palpability. Associated with arterial and lymph gland changes in these individuals will be found histories of frequent catarrhal affections developing in early infancy and childhood and persisting for years, and, as already pointed out in my studies of defective children, the relative frequency of adenoids and of nocturnal incontinence.

I have given some attention in my search to those diseases, which Sir William Gowers (Lectures on Diseases of the Nervous System, Second Series) a few years ago classified as abiotrophies, meaning thereby "Diseases from Defect of Life," as pertaining to the whole individual or one or more of his organs, and in which he traced either a hereditary influence or a pathogenesis due to "failure in vitality." Among those due to hereditary, abiotic influences, he refers to early baldness or grayness of the hair, the various forms of muscular dystrophies, certain early and late degenerations of the nervous system, hereditary optic atrophy, Friedreich's disease, the scleroses; and of those due to failure in vitality, the forms of neuritis incident to metallic poisoning, and the later manifestations of syphilis, such as tabes and general paresis. In such abiotrophies, the scaphoid scapula, other anomalies, and arterial changes will be frequently found associated in the same individual. It is not my purpose, however, to trace the ramifications of the scaphoid scapula in general and special pathology, but merely to indicate its relative frequency in several abnormal states and to show that it is associated with other signs of blighted growth and with pathological changes readily discernible by the ordinary clinical methods. If I have thus far accomplished this, even to a slight degree, I have, it seems to me, established its clinical importance and laid the foundation for a determination of its origin.

Having indicated its frequent association with other anomalies in development and with various pathological states, may not the one clinical fact so frequently met with in many of these lead us to the ultimate determination of the cause or causes underlying the origin of the scaphoid scapula? And this clinical fact is the occurrence before the time of vasculosclerotic changes in many of those having the scaphoid scapula and to a greater degree in them than is commonly found in average individuals. Of the various causes, any one of which may so operate as to produce arterial changes in the individual, alcohol and metallic poisons are considered preeminent; but, so far as I know, no one of these causes alone so affects the individual as to cause the transmission of even a tendency to arterial degenerations in his offspring. Furthermore, a consideration of the conditions with which the scaphoid scapula is frequently found to be associated, its occurrence in such a large percentage of our population and in all branches of society should readily exclude any one of such factors as being the underlying cause of the scaphoid scapula. There is but one disease known to me which permeates all branches of society, which causes vasculosclerotic changes in the individual and otherwise so affects his entire organism that he may transmit either the same disease or a blight to his offspring, as well as the tendency to vasculosclerotic changes—and that disease is syphilis!

Syphilis is preeminently a vascular disease. Its whole pathology centers about its vascular manifestation. Whether the *Spirochæta pallida* so affects the vessels in the growing embryo as to bring about a general blight, of which the scaphoid scapula may be but one manifestation, or whether this and other manifestations are but the result of its toxic products, I do not know; but that there is a strong connection between the occurrence of the scaphoid scapula in the offspring and syphilis in either one or both parents or in their ascendants, I shall be able to demonstrate to you to-night.

That there may be other causes, which may so operate as to affect the nutrition or the development of the growing embryo and thus bring about the scaphoid scapula and other associated anomalies in development, seems possible, but I have searched for these in vain, though my search has been brief when compared with its importance—perhaps others may be more successful. If further investigation should establish this connection, the presence of the scaphoid scapula may serve as a key to more than one medical mystery; but, before we can admit syphilis as even one of the factors in its causation, we must be able to show the connection in more ways than one. A single sign of any morbid state is practically valueless unless associated with other signs; and fortunately for us, other signs are always present if we will but search for them. With the use of modern refinements in clinical investigations, with the use of laboratory methods merely to confirm and control clinical deductions, with patient study of the individuals of families rather than the histories of individuals of families on the part of many workers, the ultimate cause or causes as well as the hereditary, clinical, and pathological significance of the scaphoid scapula may be readily determined.

Alone and unassisted by the rank and file of the medical profession the apparent and intricate problems intimately associated with the scaphoid scapula might remain long unsolved. These considerations have prompted me to lay before you the results of my mainly fragmentary studies formulated in Hypotheses III, IV, and V bearing upon these problems. In order that I may better indicate to your minds a possible connection between the scaphoid scapula and syphilis, let me call your attention to some of the known, but not always appreciated, facts which from the accumulated study of syphilis may be considered as established, and furthermore, to some personal observations bearing on this connection.

Of the very great per cent. of our population who contract syphilis, only a few suffer from lues cerebri, lues cerebrospinalis, tabes, and general paresis. Nevertheless, tabes and syphilis of the nervous system (tabes and general paralysis) is believed by many observers to be becoming more frequent in our population, the latter making up an increasing

percentage of the inmates of our hospitals for the insane.

It is a matter of common observation that the malignant forms of syphilis, particularly as affecting the skin and bones, are becoming yearly less frequent. My personal observations indicate that

Fig. 5.—Two "little old men" from St. Joseph's Orphan Asylum with sabered tibiæ, marked arteriosclerosis, palpable glands, scaphoid scapulæ, and other anomalies in development.

the malignant forms of acquired syphilis are relatively infrequent in individuals having scaphoid scapulæ, and that in those suffering from tabes, general paresis, and syphilis of the nervous system the scaphoid scapula is frequently found.

It is a matter of common observation that those who suffer from syphilis of the nervous system, tabes, and general paresis are, as a rule, free from decided evidence of a former luetic infection as pertaining to the bones, skin, and mucous surfaces; but that they almost invariably show vasculosclerotic changes beyond their years is not sufficiently recognized.

May not the infrequency of malignant syphilis indicate that our population is acquiring a relative immunity from such forms because of the general syphilization of the race; and may it not be that what we have gained in the infrequency of skin and bone syphilis, we have lost in the relative frequency of its more distal forms as affecting the other structures of the body and especially the nervous system; may not the presence of the scaphoid scapula in individuals suffering from the more distal forms of syphilis be an indication of its origin as well as of the individual's acquired relative immunity, the latter having been transmitted to him either from his parents, or through them from his more remote ancestors?

If it be accepted that the scaphoid scapula is found in a large proportion of our population, and especially in the type known as the deviate; if it is also frequently found in pathological development, in monsters, etc., etc.; if, furthermore, it is frequently present in the abiotrophies, in syphilis affecting the nervous system, tabes, and general paresis; if in these conditions one clinical fact (vasculosclerotic changes) supported by other clinical and by pathological findings can be traced in association with the scaphoid scapula even more or less completely—do not these facts, at least in some instances, point to a common origin, and in such instances to a strong connection between the scaphoid scapula and syphilis?

Thus far I have purposely avoided any direct reference to the manifestations of syphilis in the offspring of syphilitic parentage, but it is in the careful study of such individuals in connection with like study in the parents that we may hope to definitely show this connection, if it really exists. It is upon the evidence afforded by such studies that the final proof that syphilis is an etiological factor in the genetics of the scaphoid scapula must rest. This study must not only apply to the individual but it must be a comparative one with every member of his generation as well as an account of the illnesses and deaths therein, and, if abortions have occurred, the pathological and bacteriological study of the products of these. A study of his parents both clinically and by every known laboratory method which may give additional information and a comparative study of his uncles, aunts, cousins, grandparents, and as far back as his ancestry may be traced, and then his entire family as far as possible must be compared with other families having similar opportunities in life.

I have made use of the word blight in characterizing the scaphoid scapula and many individuals in whom it is found and in thinking of the various manifestations of syphilis, we may sum them up and characterize them by the one word—blight. Blighted characterizes the individual who has sustained a luetic infection. He remains thereafter a

Fig. 6.—Rear view of the two "little old men," shown in Fig. 5.

blighted individual, one of lowered resistance, a subject of slight and at times of marked degenerative changes, and under stress and strain ten, twenty, thirty, forty, and fifty years after his infection active manifestations of this insiduous enemy of the human race may appear. No one can say when an

individual is cured of his infection and it seems to me that the word blight is expressive of the early and late effects of luetic infection, and that as a rule individuals who have had such must be considered blighted individuals.

A study of such individuals and their progeny demonstrates the effects of this blight in the vast majority of cases. Blighted is the one characteristic of syphilitic progeny. "Taint" and "tainted" are words commonly used to characterize syphilitic offspring, but they are ambiguous and indefinite. I need but remind you of the "little old man" type so frequently seen among syphilitic progeny to show you why the words blight and blighted are preferable to taint and tainted in characterizing the progeny of syphilitic parentage (Figs. 5-6-7-8). The effects as well as the degree of this blight in syphilitic offspring will dpend upon the activity of the blight in the parents, and as a rule both will be more marked the nearer the occurrence of a conception to the time of the infection of the parents. If early during the greatest activity of the blight as in the first year, repeated abortions occur; if somewhat later, full term pregnancies, but the product may show active manifestations of syphilis; if still later, apparently healthy children may be born, but in many of these, and as a rule the oldest the most, the youngest the least, will show evidence of a general blight (Hypotheses III, IV, and V). Even if apparently healthy children have been born owing to an awakening of the virus from some stress or strain in the parent, premature births again occur, or a child may be born showing marked evidence of congenital lues. In their later development, children of syphilitic parentage show the blight in many ways which we need not here particularize; nor is it necessary before this audience to enter into the clinical manifestations of congenital lues, but I will merely add that those cases which we classify as congenital and hereditary show early vasculosclerotic changes, blighted physical and mental growth—at times the one, at times the other, and frequently both —resulting in retrograde types when compared with their immediate relatives and ancestors and the average members of the community.

I am well aware that some of the statements just made may seem radical, even exaggerated, and some may seem not in accord with the generally accepted views concerning the effects of syphilis in the offspring, and I freely admit that these are wholly at variance with my own former views; but I have lived long enough to see some of the end effects of syphilis in children of syphilitic parentage, the progeny of those where I had personally observed the course of the disease in the father, had treated him energetically, and finally, after three, four, or five years, consented to his marriage. In attempting to trace the ramifications of the scaphoid scapula, I have studied the wives and progeny of those fathers I had cured (?) and in no instance have I found a child equal to his forebears or failed to find some evidence of the syphilitic blight in the mother.

To him, who will continue to be blinded by the "glare of thereapeutic triumphs" in the treatment of acquired syphilis, I would say search! Search the parents and search the offspring for the subtle and blighting manifestations of syphilis and he will find ample evidence in support of the views here expressed, and I may add he will find evidence in support of Hypotheses III, IV, and V. But the blighting effects of syphilis do not cease with the first and second generations; it is often manifested in the third and fourth—the difference in the later generations being merely one of degree. Among these will be found many deviates, weaklings, distrophies, and other anomalies, and frequently the scaphoid scapula in a varying degree. In the blighted progeny of the third and fourth generations, also among those of the secend generation, whose advent into the world occurred at a time remote from the infection of the parents or when the infecting agent was dormant in the parents, will be found many of the types referred to early in this communication who pass as average individuals, yet who differ essentially from them in mental or physical endowments and frequently in both.

Time precludes my giving here the detailed clinical notes on individuals and families bearing upon the connection between syphilis and the scaphoid scapula in the second and later generations. The hypotheses set down above are based upon clinical investigations from which this connection appeared evident. I shall give illustrations of one or more of these in the presentation of patients; but what seems to me to be even more important upon this occasion is the offering of some suggestions bearing upon the recognition of the effects of a former syphilitic infection by modern methods of investigation and to indicate the assistance which may be derived from pathological, biological, and bacteriological sources in determining the connection between the scaphoid scapula and syphilis.

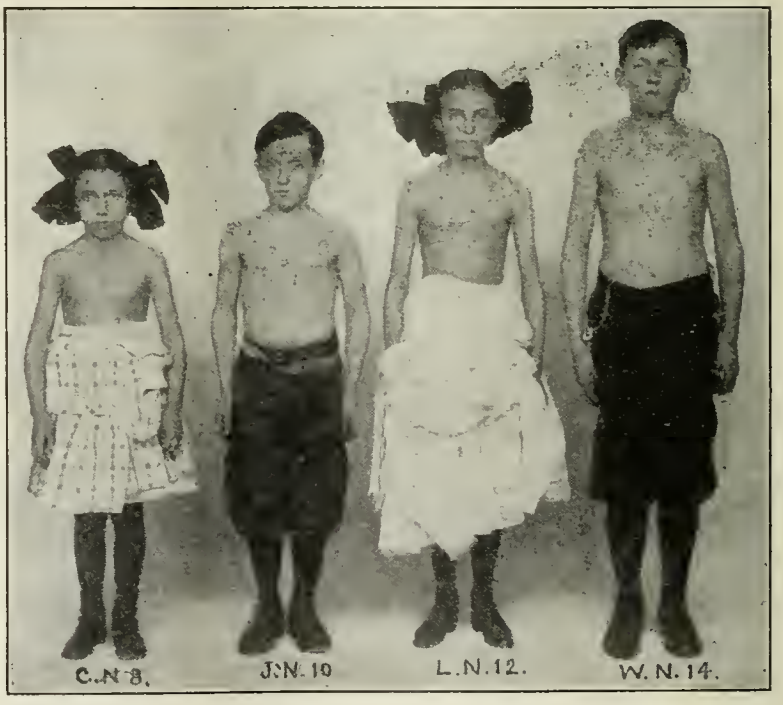

Fig. 7.—Four out of five heredosyphilitics in one family. Father now a victim of lues cerebrospinalis; mother of a distal form of lues; infection occurred in father four years before marriage; all of the children have palpable radials, enlarged glands, defective physical and mental development, and scaphoid scapulæ; both parents show convex vertebral borders.

I have, it seems to me, thus far sufficiently emphasized the blighting influence of a syphilitic infection upon the whole individual and its similar effects in the progeny of such to the second, third, and fourth generations. But it is to the recognition of the more subtle manifestations of syphilis in any one of these generations that we must now briefly direct our attention. Since we have been able to trace vasculosclerotic changes as a sort of connecting thread between the syphilitic and his progeny, our ability to recognize these is of prime importance in establishing one cause of the scaphoid scapula. So constant are these that even by the ordinary methods of clinical investigation they will rarely be missed if diligently sought for in syphilitic parents after the second or third year of infection or in their progeny after the tenth year of life.

As an aid to the usual methods in detecting these changes, let me call your attention to the Czapski binocular corneal microscope as recently modified by our own Dr. W. H. Luedde, with which we may readily see the blood coursing through the conjunctival vessels, and when present, the thickening, crinkling, and aneurysmal dilatations of their walls. He was kind enough to demonstrate this instrument to me just five days ago, and I immediately elicited his cooperation in the study of a few cases of syphilitics and their progeny in which I had by ordinary clinical methods, among other findings, been able to find evidence of vascular sclerotic changes. In order that Dr. Luedde might be wholly free from any influence in his studies, he was requested to make no further examination of these individuals than of their conjunctival vessels, and he did not until he came here to-night know anything whatever about the possible connection between syphilis and the scaphoid scapula. He will indicate his findings in connection with the cases which I shall presently present and these cases are to serve as a nucleus for our further joint study of early vascular changes in syphilitics and their progeny. The use of this instrument in the hands of the profession is destined to play an important part in determining one or more causes of the scaphoid scapula and in the determination of early vascular sclerotic changes from whatever source. Like other instruments, it is to be hoped that it will be used merely to extend our powers of observation, and not, as is so frequently done with instruments of precision, to render diagnoses easy.

FIG. 8.—Rear view of four out of five heredosyphilitics in one family, shown in Fig. 7.

Almost, if not quite, as constant as the cardiovascular manifestations of syphilis in the parents and in the offspring are such as may be detected by a careful examination of the nervous system, comprising as it does a consideration of the entire individual and particularly his mental, motor, sensory, and reflex functions. Intimate and inseparable in any examination, whether for the manifestations of syphilis or otherwise, is the search for such information as may be elicited by a thorough ocular examination. Syphilitics and their progeny will rarely pass through an examination of the nervous system, including the ocular examination, without revealing some of the more subtle and blighting manifestations of this disease. Finally, in our effort to determine one or more causes of the scaphoid scapula, we should not fail to use biological and laboratory methods to control our clinical findings and deductions. I have so used them in these studies and am greatly indebted to Dr. J. W. Marchildon for his working out in many instances, without knowing until to-night the significance of the Wassermann reaction in the blood and spinal fluid in the genetics of the scaphoid scapula. In order that his Wassermann reactions might be controlled, as well as for the purpose of getting further information, whether confirmatory or negative, of previous clinical deductions, I have made the punctures and subjected the fluid to the Nonne-Appelt test and a lymphocyte count per cubic mm. Our joint researches along this line will be continued and the findings up to the present time will be indicated later in the evening.

All known facts in pathology bearing upon the recognition of syphilis should be brought to bear in the study of those individuals coming to section having scaphoid scapulæ and especially upon the products of abortion from whatever source. Included in this will be the search for the *Spirochæta pallida* and the determination of the vertebral borders of the scapulæ in those embryos sufficiently advanced to permit of such determination, and when possible an attempt should be made to correlate the pathological and bacteriological findings with clinical data.

Realizing the value of such information in attempting to determine one possible cause of the scaphoid scapula, I recently requested Dr. Carl Fisch, without mentioning the object of my search, to permit me to examine any fetal forms in which he had beyond any question found the *Spirochæta pallida*. The study of the scapulæ in these fetuses show them to belong to the scaphoid type.

No. 13, according to the record of Dr. Fisch, was the product of a syphilitic mother presenting active secondary manifestations in December, 1907. No.

14 was turned over to him by Dr. L. C. McElwee and it was from a mother in whom he strongly suspected a syphilitic infection, though neither in the mother nor the father did he find active manifestations of the disease. Through the courtesy of Dr. McElwee, I became acquainted with the parents of No. 14 and learned that another miscarriage had occurred in about the sixth month in the year following the birth of No. 14 and that one year later the mother had given birth to an apparently healthy child.

I have made a superficial examination of this child, now six months old, and of its parents, each 35 years of age. The child has scapulæ of the scaphoid type to a much greater degree than the father, whose right scapula is concave in the upper two-thirds of its vertebral border, also in the left slightly concave just opposite its trapezial surface, but below these points the vertebral borders are generally convex. The mother has average convex scapulæ and an examination of her half-sister shows the same type. The father weighs about 175, the mother 115 lbs. Both show pupillary changes and very marked arteriosclerosis, especially the father. It was not possible to make a more complete examination of the parents and they have thus far refused to permit the Wassermann reaction and other tests. The present attending physician, Dr. M. J. Lippe, informs me that he found unmistakable evidence of lues in the baby six weeks after its birth and that he has seen the results of specific treatment not only in the child but in both parents. The child has many anomalies in development, but it is well nourished and might easily pass for an average baby.*

Mr. President and gentlemen, I must now bring this communication to a close, and in so doing deliver to you and through you to the medical profession the results of my studies, extending over a period of about three and a half years, bearing upon the ramifications of the scaphoid scapula. The statements made to you to-night, are, in every particular, based upon definite clinical and other data subject to your verification by the ordinary methods of investigation. I do not now draw definite conclusions; definite conclusions should not even be suggested by any one man in the many weighty problems which appear to be intimately associated with the scaphoid scapula. That there is a strong connection between syphilis and the scaphoid scapula I have, it seems to me, in more ways than one demonstrated beyond all question or doubt; but my findings must need be verified by others before such a connection can be considered an established fact. The verification of my findings must rest with the medical profession; and, if those of its members becoming interested in the ramifications of the scaphoid scapula will follow where it leads them, we shall, undoubtedly, in the course of time be able to definitely determine the connection between the scaphoid scapula and syphilis, if it really exists; and if so, its clinical significance, its diagnostic worth, and its bearings in both general and special pathology.

I have indicated the manner of further research—the manner thus far followed by me as far as possible in these studies, and what our joint studies may ultimately bring forth patient work and time must determine. But this we now know and appreciate: as physicians we need more light in many dark problems. We need it to-day as we did forty years ago when our own John T. Hodgen uttered these immortal words: "Should voices from the dead come to us, the cry would be—more light, more knowledge for our profession."

Metropolitan Building.

*Nine individuals were presented, representing five families, and over one hundred lantern slides shown, representing approximately 150 families, in which the scaphoid scapulæ existed in the progeny, associated with early vascular sclerotic changes, other signs, and other anomalies. Dr. Luedde's studies had been made in five of these families, comprising fourteen individuals ranging in age from three to forty years, and in each of these he had found sclerotic changes in the conjunctival vessels.

HYGIENIC PRINCIPLES OF VENTILATION.*

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I DEAL especially with the sanitary side of ventilation. Good air is the most important problem before health departments. Sewage engineering has "made good." It has saved thousands of lives and added to the sum total of human happiness. It has approached the subject in a comprehensive way, from the health standpoint, as well as the engineering and mechanical. Sewage disposal, both in and out of the house, is causing less than 400 deaths a year in Chicago, a city of two and a quarter million people.

Is this true of ventilating engineering? It is not, and it will not be so long as lung diseases are responsible for one-third the total deaths. In round figures Chicago loses 10,000 people a year from these diseases. Man consumes solid food, liquid food or water, and gaseous food—air. Ten thousand deaths a year from bad meat, or bad milk, or bad water, would produce a world-wide scandal. Yet we accept 10,000 deaths from bad air with complacency, and a landlord, a manufacturer, a storekeeper, a head of a house, will have an easy conscience if he can think that he did not kill any more than his share. Of course, that conscience should not allow him to sleep until he takes no human life by bad air through any sin of omission or commission.

This campaign for better air must take many directions. There must be open bodies of water for purposes of purifying. Trees and other vegetation must be made to keep pace in growth and spread with the growth of population, because an equilibrium between animal and vegetable life must be maintained. There must be antismoke campaigns, dust campaigns, spitting campaigns, fog campaigns, fumes campaigns. But our special subject to-day is inside air.

Ideal ventilation is that in which the body is placed in the sunlight with a moderate wind blowing directly over it. Such conditions are seldom possible in crowded cities. But under all circumstances we should approximate the ideal as much as possible. The factors which are harmful in bad air fall into two groups: (*a*) quick acting; (*b*) slow acting.

The agencies resulting in the quick-acting harmfulness of bad air I would name in the order of

*A contribution to a symposium on ventilation. The article forms one of a series, to be published as follows: 1. Outside Air, Hygienically Considered. 2. Harm of Smoke. 3. Hygienic Principles of Ventilation. 4. Mechanical Principles of Ventilation. 5. Ventilation as Applied to (*a*) Street Cars; (*b*) Factories and Workshops; (*c*) Assembly Rooms; (*d*) Offices; (*e*) Living Rooms, Bedrooms, Flats; (*f*) Kitchens and Bakeries; (*g*) Hospitals.

their importance as follows: (1) bacteria; (2) dust; (3) temperature; (4) humidity; (5) odors; (6) CO; (7) organic matters; (8) CO_2. The resulting diseases are consumption, pneumonia, bronchitis, colds, influenza, cerebrospinal meningitis, anterior poliomyelitis, smallpox, diphtheria, and scarlet fever; all of these are infections which are air borne; the gas poisonings, also air borne. Of these influenza, colds, bronchitis, cerebrospinal meningitis, anterior poliomyelitis can be carried some distance by the air; smallpox not so far, while consumption, pneumonia, diphtheria, scarlet fever, and gas poisoning extend only a few feet.

The slow-acting harmful agents I would also name in the order of their importance: (1) heat; (2) humidity; (3) organic matter; (4) CO_2; (5) odors; (6) bacteria; (7) dust; (8) CO. The diseases caused by these are anemias, headaches, drowsiness, constipation, and the slow group following in the wake of these. This group is of additional consequence in that they at times determine infections.

We will discuss the harmful agents in expired air. Bacterial content overshadows every other item, in the first group—quick-acting—and the first group overshadows the second group. All other factors, except dust, are of minor importance. The most of these are the bacteria of pneumonia, consumption, and ordinary colds. Bacteria do not follow the laws of *diffusion* or *dilution* that pertain to gases. Not being of exactly the same gravity as air they do not follow exactly the same laws of *currents* as does air. Furthermore, insofar as they cause disease, the laws of dissemination are still further confused by the incoming of the incidence of contact with a susceptible man.

Let us illustrate: Two gases of differing specific gravity will not separate if left stagnant, but they will diffuse to an even mixture. This is not true of liquids or solids. Bacteria will settle out of quiet air. The law of diffusion of gases will not apply to the bacteria suspended in that gas.

Furthermore, if you have 10 per cent. CO_2 in air and then add an equal volume of air free from CO_2, in a few minutes you have 5 per cent. CO_2 in all parts of the gas chambers. If you have a chamber of air holding 1,000 bacteria to the cubic foot and you now add an equal quantity of air holding no bacteria, you do not get a homogeneous mixture of air holding 500 bacteria to the cubic foot. The laws of dilution do not accurately apply.

Air responds very accurately and promptly to differences in density due to differences in temperature. Bacteria do not, and any bacterial movement is due to forces outside of the passive bacteria. And, finally, 1,000 tubercle bacilli where no man is breathing are far less harmful than one within the breathing zone.

A fair percentage of men who have had pneumonia harbor pneumococci in their mouths. A small percentage of men who have not had pneumonia also harbor them. We will say that such a man runs for a car. He reaches it and stands panting and maybe sputtering. Into the same breathing zone comes a susceptible man who has just overeaten or overdrunk. What there is near the ceiling or under the seat certainly has nothing to do with this case.

The same physical laws govern dust as govern bacteria. As bacterial particles are smaller than dust particles they "lift" more easily and "settle out" less easily. The physical laws governing the dissemination of dust are not the same as the laws of dilution and diffusion of gases. Another very important hygienic law in dust should not be lost sight of. Individual bacteria differ in etiological importance. Different strains differ in etiological importance, and, of course, different kinds also differ. Just so different dusts also differ, inorganic dusts being more harmful than organic; sharp-edged dusts more harmful than rounded dust; metal and stone dust more harmful than wood and coal; dust from old hats and old clothes being more harmful than that from flour.

This introduces a hygienic factor in ventilation quite apart from the laws of gas diffusion and dilution. I think that we can assume that there will be denial of the importance of room dust in determining infections. The dust originating in a room is of more importance in causing disease than the dust brought into a room from the outside, principally because bacterial life does not long persist in outside atmospheric conditions.

Temperature, aside from its relation to comfort, is of some importance in the health side of ventilation. The mechanics of temperature and ventilation can not be separated. Therefore, it will be more extensively discussed in a paper on that subject. Nor is it of the same consequence in the air-borne infections that it is in the second group. In a warm room there will be some increase in bacterial multiplication as compared with a cold room, yet this is negligible. The relation of temperature is practically, therefore, limited to its relation in determining infections, and here it is of considerable consequence. If the ambient air is so cold or so warm that the body does not adjust itself to it, then infection is liable to result. Brisk cold applied to the body as a whole stimulates compensation. If this is too long continued, there will be a partial break in compensation, or there will be an overwhipping of the forces of compensation and infection may occur. If the chilling is limited to a portion of the body there may not be stimulus to compensation and infection may result. More important, however, in causing infection is overheating. Air issuing from the mouth and nostrils at 97° is almost instantaneously cooled to 90° or below, according to temperature and wind movement. If, then, the ambient air is 80° or over, the expired air hangs around the head to be rebreathed. The bacterial flora of the breathing zone is increased by a high temperature.

As to humidity: I am of the opinion that a dry house air is not so harmful to health as has been held. The uncomfortable feeling, say of apartment air, is due to the air being too warm for comfort rather than too dry. Humidifiers and sprinklers for moistening the incoming air are, as the French say, *"inutiles."*

Odors do not exactly comply with the laws of diffusion and dilution. In so far as most of them are gaseous, they diffuse like gases. But that which counts is not the presence of an odor but its appreciation. We will say that a certain room is offensive to 100 people who enter. To dilute that air with an equal quantity of fresh air does not mean that only 50 of those people will appreciate it or that those who smell it will object one-half as much. Odors, then, do not conform to physical laws exactly as do gases.

Air which is offensive may not be harmful. For example: Analysis of the Chicago Public Library

air does not show an excessive amount of CO_2. Anemometer measurements show a good air supply. Yet there is great complaint of offensive odors. The room is used by large numbers of people, many of whom have dirty bodies and dirty clothes. Odorous air may be beneficial if it leads to better ventilation.

The other factors are negligible.

We see, then, that of the eight harmful factors in air concerned in infections, three are not governed by the physical law which is made the basis of ventilation. Two are somewhat more governed by them, and those three which do not conform closely are least important.

In the second group—the bodily conditions due to bad air (anemia, drowsiness, headache, lassitude, etc.)—we find that the responsible factors in some instances diffuse as to gases, in others they do not. The two most important, heat and humidity, do not diffuse exactly as gases do. Excretory organic gases, CO_2 and CO, being gases follow the laws of gases; odors do in part and in part do not; dust and bacteria do not.

In the conditions which follow bad ventilation long continued, the most important factor, as Pflügge and his pupils have shown, is high temperature. This temperature does not do harm in the open or anywhere where there is a free circulation of air. For example: It is not harmful in engine rooms where there is air in plenty because the fires demand it. If the temperature of the room is above 70° F. and the circulation of air is not free, harm is done because the excrementitious expired air does not rise out of the breathing zone, but hangs around the head to be breathed in again. The pause between expiration and inspiration is but a second, and in this period diffusion does not accomplish much. Add to this a failure to rise because the outside air is about as warm as the expired air; on top of this pile a system of downward ventilation, and the expired air is buttressed right in the breathing zone and the air which goes into the lungs is nearly as foul as that which came out.

Humidity is sometimes of much consequence. The high humidities of certain trades are certainly harmful. This is partially due to the relation of water content, to temperature, and partly due to other factors. The low relative humidities of overheated rooms dry mucous membranes and thus are harmful.

Gaseous organic matter and carbon dioxide are poisons slow acting, mild, and inconsequential in any dose liable to be contained in a single inspiration; yet in total quantity inspired in a 24-hour intake of air, liable to be of much harm.

Odors, except such as are due to gaseous organic matter, are scarcely of consequence.

Bacteria and dust, while of more consequence in determining infections, are also factors in subinfections, which are of varying harmfulness.

Under ordinary circumstances carbon monoxide is made in such small quantities and is so rapidly diffused that its inherent toxicity is ineffective for harm.

While discussing the chronic conditions due to bad ventilation, I want to add that no system which entirely does away with a free blowing of air at some time during the day can be followed with impunity. A blowing out with changing the air content oftener than six times an hour reduces the bacterial content. It revivifies the air in a way that cannot be explained on the basis of the known chemical ingredients of air. The individual is much better off who stays in a current of moving air. The capacity for taking colds from drafts, the cringing from the inconvenience of drafts, all of this has been acquired. It is not natural to man or any other animal.

I read in Bergey's "Hygiene" as follows: "In a hospital or other place for the sick the windows should be so placed that the air should blow across the bed. There must be perflation." In this I concur, but to it I would add that to keep well is as important as to get well, and a well man is as much entitled to protection from sewer air as is a sick man. By sewer air I do not now mean the air of street or house sewers, but the air from the breathing apparatus, the most deadly of all sewers, as shown by the death returns.

The highest regard for health demands unhousing. One of the earlier disease experiences was with typhoid, erysipelas, and sepsis, during the Civil War. It was then discovered that the percentage of recoveries in unhoused hospital cases was greater than in those seemingly more fortunate cases that got into more elaborate hospitals. This lesson was apparently forgotten, for year by year hospitals grew snugger, their walls tighter, the opening of windows less prominent, and the legend, "so many feet of air washed and tempered," came more and more to the front.

Then came the open air treatment of tuberculosis. In such a camp it was found that temperature dropped almost at once. Secretion lessened, the patient improved, but the pulse remained rapid and the lung did not improve with the same rapidity as the drop in temperature. Then it was thought that the free blowing air was good for tuberculosis but better for the sepsis entering into the case of consumption (I trust that the above sentence will not be construed as meaning that a pure tubercular process is not fever producing). Then pneumonia was found more amenable to draughty air, if you please, than tuberculosis. Nobody has yet found a disease which has a lower death rate with air washed, tempered, and ladled out than it has in the free-blowing open air.

Society does not allow of unhousing in a certain sense. It is contrary to the laws of providence, of thrift, of economic production, of economic living. It would put an end to all community life. The remedy would be more expensive than the disease. The need is for regulated housing—housing in which the prime consideration is health through good air. Such housing is much less expensive than disease. From this consideration there naturally flows a discussion of methods.

The object of this paper is to lay down certain hygienic laws as a basis for the mechanical principles of treatment. The treatment will be wrong unless the mechanical principles are right. And the mechanical principles will be wrong unless the hygienic principles are right. The present almost universally wrong ventilation installations are wrong partially because of wrong mechanical principles but mostly because of wrong hygienic principles.

The following is my estimate of the basic hygienic principles of ventilation:

1. Attention must be concentrated on the breathing zones of the habitually occupied portions of the

room. This in the average room means a space of from 4 feet above the floor level to 6½ feet above it.

2. In this zone there must be the greatest possible effort to prevent (*a*) stagnation, and, (*b*) dilution.

3. Dead zones and corner eddies must be encouraged as settling places for bacteria. In them there must be the smallest possible air movement. Such spaces must be cleaned daily with moist methods. Therefore, they must be readily accessible for cleaning purposes. Such zones must be unoccupied. If such nooks are occupied, *e. g.* a working desk is placed therein, conducting ducts with air inlets must be made to open into them. Ventilation of such crannies by dilution is a myth.

4. The breathing zone must be occupied by an even up-current of air, moving at the rate of at least 60 feet a minute from multiple floor inlets to multiple ceiling outlets. If the natural upward flow is met by a down flow of air, the expired air is buttressed right in the head zone and does its maximum harm.

5. The ventilating air in mechanical systems should never enter the room at more than 40 degrees below body temperature; 30 degrees below is better still. Where men are working hard, a high temperature, say 70°, is required on account of the chilling of perspiration. Where men are very still and sluggish, a room temperature of 68° to 70° is required. Where men are mildly active, 60° to 65° is better.

6. The air must be protected from dust—both the introduction of dust from the outside and the dissemination of dust produced inside.

7. It is of great importance that the relative humidity of the inside air should not be materially greater than that of the outside air. It is of some importance that it should not be more than 10 degrees less than the outside air.

8. The volume of air per quiet person per hour should be around 500 cubic feet, varying with the directness of removal of the polluted air.

9. The arrangement of the ventilation must be such that the windows can be opened and the room blown out at least once in each 24 hours.

10. Recirculation of air is not to be tolerated.

11. The air must be below 6 parts per 10,000 in CO_2, and low in dust and bacterial content.

THE LOCAL HOSPITAL-SANATORIUM AS ONE OF THE MOST IMPORTANT PHASES IN THE ANTITUBERCULOSIS CRUSADE.*

By S. ADOLPHUS KNOPF, M.D.,

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JUST about nine years ago I was privileged to address the Laennec Society of Johns Hopkins Hospital on "The Value of Local Sanatoria in the Combat of Tuberculosis." It was then quite a novelty to have anything done locally in the line of antituberculosis work. The majority of workers, and there were not any too many in those days, still adhered to the idea that it was necessary to have sanatoria, if not in certain States with a climatic reputation, at least in mountainous regions as far as possible removed from habitations.

The definition of a local sanatorium which I gave in the just mentioned address holds good to-day, at least for the type of institution I have in mind and which, if I am not mistaken, is also in the minds of those who are now so devoted to the work of caring for consumptives in local institutions.

Such an institution is not a sanitarium, or health resort, nor an ordinary hospital or home. Such a sanatorium is not like a general hospital, inasmuch as it treats only patients suffering from tuberculous diseases, and the equipment of the institution is particularly suited to the open-air, hygienic, and dietetic treatment of consumptives. A sanatorium for the treatment of consumptives is not a home managed by the gentle hand of a minister, Sister of Charity, or matron, but an institution where patients are treated, not kept. There the trained physician not only carries out the most approved hygienic and dietetic treatment of tuberculosis, but infection of other persons through the ignorance or carelessness of patients is made impossible by the proper training of the invalids and constant medical supervision on the part of the physician and his assistants. To make the distinction between a home and such a local sanatorium still clearer, I may say that a properly conducted sanatorium for consumptives is not a danger to the neighborhood, but a blessing. In the German villages Goerbersdorf and Falkenstein, where sanatoria for consumptives have been in operation for over thirty years, the mortality from tuberculosis has actually decreased one-third among the villagers since the establishment of the institutions. The reduction in the mortality from tuberculosis among the villagers is to be explained by their imitation, voluntary or unconscious, of the cleanliness and sanitary precautions practised in the institutions in their midst.

Since I made these statements, nine years ago, the fact concerning the benefit of local tuberculosis sanatoria to the neighborhood have been verified by experience with such institutions as were established during or shortly before that period in or near American villages or towns.

To have any tuberculosis institution removed far enough from congested districts is as good a policy to-day as it ever was, but I believe we have changed our views as to the necessity of establishing of sanatoria at long distances from large centers of population. We now know that pure air is after all the most essential requisite, and wherever we can find it constantly we are reasonably sure to obtain good results in the treatment of tuberculosis. We have also learned to realize that when the patient is treated near his home, where he can frequently be seen by his relatives and friends, the element of nostalgia, which is often such a grave hindrance to recovery, is practically done away with.

It is the Committee on the Prevention of Tuberculosis of the New York State Charities Aid Association which has realized, perhaps more than any other of the various tuberculosis activities of this country, that the care of tuberculous patients in institutions should not be limited to the early and curable cases, but should also include advanced cases, particularly when these latter are more or less destitute and living in unsanitary environments.

The criticism has been made, and I have heard it even from medical circles, that it was a waste of money to bother with the hopelessly ill; that institutional treatment should be reserved for the curable

*Prepared for reading before the antituberculosis meeting at Albany on March 19, 1910. Because of an unavoidable delay the author did not reach Albany in time to read his communication.

cases, who could again be made breadwinners and useful citizens. Those who made these criticisms are not even right from the utilitarian point of view, much less from the humanitarian aspect of the problem. One who has had any experience at all with tuberculosis as a physician or as a social worker will know that the consumptive, no matter in what stage of the disease, if he is untrained and uncared for, constitutes a great menace in his workshop and in his home. But unfortunately, even when he is trained in the prevention of the disease, particularly in the careful disposal of his sputum or bacilliferous droplets during the so-called dry cough, at night when he sleeps he will cough and expel his small drops of saliva containing the tuberculous germs. If he has his own bed, which is not by any means always the case, he has rarely his own room. More frequently several beds are closely crowded together in a small tenement house bedroom, and the tuberculous spray infection may suffice to render gradually every one of the sleepers tuberculous. These tuberculous droplets are at times even more dangerous than the dried pulverized sputum, for in the moist state the bacilli retain their virulence, while in the dried tuberculous spittle the infectiousness of the germs is comparatively lessened. It must be evident that if the patient is confined all the time to his bed, the danger of his constituting a center of infection in a crowded bedroom, often without light and air, is very great.

Such a patient, because he is not taken care of at the right time and in the right place, costs a good deal more in the end, and not infrequently additional lives are sacrificed through his condition and environments. This is my answer from the utilitarian point of view to the statement that it is a useless expenditure to take care of the seemingly hopeless cases.

And now a word as to the humane aspect of caring for the more advanced and seemingly hopeless cases. Our present knowledge of phthisiology does not in my opinion enable us as yet to definitely state which case is absolutely curable and which case is absolutely incurable, or which case can or can not be improved sufficiently to constitute at least an economic cure.*

Institutional treatment for the consumptive poor has up to this date proved the most efficacious and successful, and if it was only for humanitarian reasons we should give to all the consumptive poor, in all stages of the disease, the sanatorium-hospital treatment. I use this hyphenated word sanatorium-hospital, or hospital-sanatorium, advisedly. A somewhat extensive experience with consumptives, particularly among the poorer classes, has taught me that they have of late years learned to know the difference between the words hospital for consumptives and sanatorium for consumptives. They have themselves come to the conclusion that a hospital means a place for consumptives to die, a sanatorium a place where they get well. Let us give our consumptive poor, no longer in the incipient or early stages, the same hope and comfort which we give to the well-to-do, who are received in many private sanatoria even in the more advanced stages, as long as they are able to pay. If we must make a distinction, let us call the institutions for the consumptive poor hospital-sanatoria. Let us receive there all cases and give them the best of care. We thus add the element of hope to all the other cura-consumptive poor, in all stages of the disease; inasmuch as we can take care of all cases among the consumptive poor, in all stages of the disease; inasmuch as we can increase their chances for recovery in these hospital-sanatoria by proper scientific and humane treatment, with a view of curing the curable and rendering comfortable and even happy the incurable, insomuch will we fulfill our duties to our fellowmen and come nearer to the object of our present labors, "no more uncared-for tuberculous in New York State in 1915."

16 West Ninety-fifth Street.

*By economic cure is to be understood a condition in which the disease has been sufficiently arrested to allow the trained patient to take up some occupation whereby he can earn his livelihood without aggravating the relatively quiescent stage of his disease.

THE RECOGNITION OF DEMENTIA PRECOX.

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The attention of students of mental phenomena has been directed within very recent years to that fascinating domain of normal and abnormal psychology in which occur the peculiar variations and perversions of psychic life incidental to the developmental periods. An understanding of the physiological variations of mental activity, as well as its pathological manifestations, is of great importance to the general practitioner of medicine. He it is who is first consulted, and upon him falls the burden of early opinion. It is often upon the acuteness of his vision for recognition of the aberrant mental types that the future of the individual and his relation and obligation to society depend.

Whether or not the term dementia precox is well chosen as nomenclature is not of concern to us here, further than to remind you that not all of the cases pass to ultimate dementia; nor is the term precox to be understood as indicating the presence of the disease in very early life only. Its manifestations may occur as late as at forty years.

By the term dementia precox, as now accepted, is understood essentially the three forms of insanity peculiar to the developmental periods of life. These have been divided into the three types hebephrenia, catatonia, and dementia paranoides. While the dividing line of each is not sharply defined, and all are possessed of certain elements in common, yet each has features of distinction. Particular interest attaches itself to the juvenile insanities for the physician, the sociologist, and the pedagogue. No other form of mental illness presents such opportunity for discriminating care and prophylaxis.

The pubescent and adolescent periods, vital in the effect of subtle changes upon the developing economy, are fraught with the gravest dangers. At these transitional periods, the deeply fixed forces of heredity and the modifying influences of environment play out their active parts. We see the awakening of formerly quiescent nerve forces, and the variations in the intellectual and emotional sphere; the development of religious, moral and ethical feelings, sexual impulses, ambitions, and an awakening interest in human institutions and forms. It is the formative, the plastic period, its finality representing the basis of the personality, a form made or marred in the melting pot of the composite energies.

The variations of psychic life at this time are so kaleidoscopic, so bizarre, that we are sometimes amazed to observe how perilously near the ill-de-

fined dividing line of normal from abnormal mental life these individuals come. Indeed, the vagaries of the adolescent period, in its struggle for proper balance, are almost identical clinically with various forms of true psychosis, and the discrimination is sometimes difficult, and always important. Every family physician should be familiar with these modifications.

Since the form of dementia precox termed hebephrenia counts among its victims many young people of unusual mental endowments, and often with no strain of heredity to warn us, it behooves us to recognize at once the initial signs that mean varying degrees of intellectual dethronement or decay.

We must not forget that while the term dementia precox, as a generally accepted name, is comparatively recent, the essential features of the juvenile forms of insanity have long been recognized. Over thirty years ago the term was used by several critical observers to designate those cases which ended in partial or complete dementia, and this criterion, the tendency of the disease phases toward ultimate mental deterioration, remains to-day. You will observe I have elected to speak of the recognition rather than the diagnosis, and for the reason that for the general practitioner cognizance of the nature, rather than the quality or type of the mental disease, is essential.

The evolution of this form of psychosis particularly is often gradual, and from the initial symptoms to development may require weeks or months. The initial or premonitory stages may be almost identical with the functional neuroses, particularly neurasthenia and psychasthenia. The individuals from whose ranks the milder forms of dementia precox are recruited are of the so-called neurasthenoid type. In many instances the gradual development of the psychasthenic into a condition of absolute incapacity marks the beginning of a progressive process of mental deterioration. It is most important that such cases as *maladie de doute*—that is, the condition of mental perversion characterized by fears, inertia, and indecision should not be mistaken for dementia precox. The apparent identity is further suggested since in both there is the mental distress, internal conflict, with indecision, hesitation in ideation or thought sequence. These borderland cases suggest the true psychosis, but have a far more favorable outcome; they do not terminate in dementia. Neurasthenia and psychasthenia may be differentiated from dementia precox if one will bear in mind the cardinal stigmata of the former, headache, muscular asthenia, rachialgia, gastrointestinal disturbances, along with resulting dyspeptic symptoms, insomnia, and cerebral depression.

As now conceived, the forms of insanity of early life are classed as hebephrenic, catatonic, and paranoid types of dementia precox. The fundamental element is, as the term implies, a tendency to ultimate mental decay. The psychological feature is a disproportion between the ideation and emotional effect, and this is a true clinical distinction. The stage of absolute dementia is by no means always reached. The premonitory symptoms are much the same in all three forms, and one hardly can tell at once which type will be assumed; indeed, the characteristics of one form may be present in some degree in all.

The onset is, as a rule, gradual, and the indefinite neurasthenoid symptoms coming on at this period of life, in individuals predisposed, should awaken suspicion. I say predisposed, by which I mean that there really is a type of individual who already in early life suggests the predestined hebephrenic. He is often of the artistic temperament, shows departures from the normal in character and in affective tone and eccentricities of manner, neologisms in speech—that is, the introduction of newly-coined words, peculiarities of word-extravagance in writing, a tendency to mix and use unnecessary words—a veritable word salad—in talking. Characteristic changes in demeanor are observed in the hebephrenic "type" of individual early in life. Among these is an unfitness, an inadaptability to simple situations and experiences. There is an unreasonable reserve and unapproachability, due in large measure to defect in critical faculty and simple discernment—what might, in spite of the apparent paradox, be spoken of as defect in instinctive judgment. This implies an *original* or congenital error, and so I would consider it. It would be otherwise difficult to explain the ultimely mental crepitude sometimes seen to follow precocious intellectual attainment. Nevertheless, we rarely see in those having the mental stigmata of dementia precox real constructive faculties, qualities of true and productive science workers; they are rather of the type given to pursuits not requiring the power of outward discrimination and judgment. Naturally, one must exercise discrimination, and not thrust into the hebephrenic class those who, in the evolutionary periods, react unduly to slight or trying experiences; their upheavals may be only temporary and their poise soon regained. Among the early symptoms of onset is a gradual enfeeblement of the power of voluntary attention; apathy, mistaken at times for simple depression; neurasthenoid symptoms, headache, drowsiness, capricious moods. I have seen several cases of brain tumor, especially of the frontal lobes, in which the psychic symptoms strongly suggested dementia precox, and only the changes in the optic discs made a positive diagnosis possible. There is a lack of spontaneous animation and a rapid dissipation of the powers of attention and concentration.

A characteristic and early feature is the disparity between memory and judgment, and in the lack of emotional reaction. Memory suffers far less than the apperceptive powers. New acquisitions are with difficulty attained. I am now speaking of the hebephrenic, the simplest type. All three forms show disturbances of judgment, memory, will, affecting the powers of attention and concentration. Later we may see mutism—stubborn silence; negativism—a senseless resistance to every external influence. For instance, if these patients are told to flex the arm, or attempt by the operator is made to flex the patient's arm, the opposing muscles will become rigid and an attempt to extend the arm will be made, or *vice versa;* there is verbigeration, that is, the senseless repetition of words or phrases, fixed attitudes, and stupor and catalepsy; all of these may be found in all three forms of dementia precox, but when present in hebephrenia, deprive it of its purity of class. Any of them may be wanting, and simple mental deterioration alone may supervene, preceded by mild neurasthenic symptoms.

Of particular interest to the general practitioner are the milder forms of hebephrenia. Here we find recruits from all strata of society; its victims may be found in every social plane. Among these we meet with those who have become mild offenders against the ethical code, whose perversion is often rather intellectual defect than moral obliquity, those

presenting varying deviations from the standard of normal; again we see most flagrant departures that make removal from society imperative. In this class of precocious dements we find many so-called victims of an unkind fate or circumstance, those who have repeatedly permitted splendid opportunities to pass by unnoticed, those whose early years were full of promise, but whose energies and ambitions seem to have become suddenly blunted. In them, want of concentration, dissipation of attention, perversion of judgment and loss of emotional reaction are conspicuous. These persons fall back into very simple occupations. They often are cognizant of the cloud upon their intellects, but do not appreciate their affliction. One may often hear the complaints of family and friends who misinterpret the changes in intellect, and particularly the want of emotion or feeling reaction.

Another feature is the moral obliquity or obtuseness, in some cases followed sooner or later by an acute mental storm. Many errors in early diagnosis have been made, and injustice and unhappiness resulted from the failure to grasp the import of these initial manifestations. The period of peculiar indifference to surroundings and progressive apathy may develop into one of profound hebetude; or, again, after several periods of mental storms, these patients fall back to a certain lowered level, but continue to keep abreast of simple activities and occupations.

Characteristic of the hebephrenic type is the lack of emotional poise, a want of balance between what may be termed the affectivity and the intellect. These patients show obtuseness of moral feeling quite in contrast to their education. A more or less sudden apathy, diminishing concentrative power, mild fading of intellectual activity, all these to the keen observer point to the coming crisis. The mild types of hebephrenia never may come under the care of the alienist, and among these are many highly gifted in youth, showing unusual aptitude for music or art, who more or less suddenly cease to progress in their intellectual activities. There are none of the physical stigmata of ears, palate, facial and cranial asymmetry seen in all grades of the imbecile class.

In estimating the qualities that constitute the predisposed and the active hebephemic form of dementia precox we must not lose sight of the fact that some of the peculiarities and abnormal symptoms seen in the pubescent and adolescent periods are but the efforts toward the attainment of balance, and soon disappear as the economy develops. With these mild aberrations we are all familiar.

A more active type of this hebephrenic form is seen in cases beginning with headache, vertigo, insomnia, and mental depression, soon followed by a period of excitement. There develops immediately after acute neurasthenic symptoms a peculiar loquacity, irritability, eccentricity of dress and demeanor. From indecision and dullness of mental action these cases pass suddenly into states of maniacal outburst, soon to fall again into profound apathy. About 17 per cent. of the hebephrenic type of dementia precox partially recover after one or two mental storms, and about 75 per cent. are said to go on to terminal dementia; only about 8 per cent. recover. These figures are approximate, and opinions as to recovery vary.

The characteristic mutism, verbigeration, uncontrollable unprovoked laughter, fixed attitudes, stereotyped movements, stupor, and catalepsy occur rarely in the hebephrenic, but are common to the catatonic form. In the latter the motor phenomena mentioned, together with a peculiar stiffness and awkwardness of the muscles, catatonic stupor, or excitement, give character to this form. Here again transitory vague neurotic symptoms may precede by weeks or months the first acute outbreak. Here mild transitory delusions, based upon auditory and visual hallucinations, may end in the final dementia.

The third type is that known as dementia paranoids, and its distinguishing feature is the delusion. It is the most unfavorable as to recovery. In these cases we observe some of the most atrocious acts of violence, homicidal and suicidal, and the sudden impulsiveness of the acts often suggests the epileptic furor. The likeness is further suggested because in dementia precox we sometimes observe convulsive seizures. A large percentage of juvenile criminals belong to this class. Its forensic import has scarcely been appreciated. I recall several cases of homicidal acts, the result of auditory hallucinations, seen at the Tombs here in New York, in youthful precox cases. Examination showed the characteristic psychological disorders of attention, and emotional anesthesia. These cases differ from the systematized delusional forms of true paranoia. They do not pass through the successive stages of true paranoia, and the delusions are based upon the auditory and visual hallucinations as a rule.

The physical symptoms of dementia precox possess no special features. The reflexes are invariably exaggerated. The pupils are found uniformly dilated. Peltz speaks of the frequent occurrence of characteristic changes in the iris, irregularly in its periphery, shifting from one quadrant to another. He further says that the normal pupillary unrest is absent in precox. This I can confirm. The so-called orbicularis reaction of the pupil is far more difficult to elicit than in normal beings. Choreiform and convulsive movements, vasomotor disturbances, hyperidrosis, and cyanosis, etc., are seen in the catatonic form.

Clark and Tyson have described changes in the optic discs in dementia precox. I have seen several cases in which dilated veins and disc changes occurred and were variable in their intensity at different examinations. The clinical value of these disc changes, if they can be established, is manifestly considerable.

I would again urge the physician in the practice of general medicine to give some attention to a study of the mild forms of psychosis common to the developmental periods. Some knowledge of normal and abnormal psychology of these periods is not only of scientific interest, but of great practical advantage.

We are really but in the dawn of our understanding, though our advance has been rapid and the impulse to progress is accumulating in force. The incipient stages of the mild types cannot be entirely relegated to the care of the specialist.

34 West Eighty-seventh Street.

Tubercle Bacilli in Dust.—In order to show that spitting on the sidewalks is dangerous to health, an investigation has been made by Dr. John Robertson, Medical Health Officer of Birmingham, England, which shows that 7 per cent. of the "spits" collected in public places contained tubercle bacilli. On the other hand the dust collected from the floors of the cottages of the Adirondack Cottage Sanatorium has been found to be free of tuberculosis germs, showing that a careful consumptive is not dangerous.

A CASE OF TABES AND MUSCULAR ATROPHY.

By EDWARD LIVINGSTON HUNT, M.D.,

NEW YORK.

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The combination of tabes and muscular atrophy occurring in the same patient is of sufficiently uncommon experience to warrant the report of such a case. There have been in all, so far reported, nine cases: Wagner, 2; Collins, 2; V. Ufen, 1; Trolly, 1; Chrétien and Thomas, 2; Goldscheider, 1. These Dr. Collins has collected and reported in a monograph on the subject in the *Journal of Nervous and Mental Diseases.*

It must be borne in mind that some degree of atrophy occurs in from fifteen to twenty per cent. of all the cases of tabes, but the nature of this tabetic atrophy differs somewhat from the real muscular atrophy. As Collins says, "the clinical characteristic features are: (1) Slow progression, (2) absence of fibrillary twitchings, and (3) absence of R. D. The most common location is the peroneal region." On the other hand the clinical characteristic features of pure muscular atrophy are: (1) presence of fibrillary twitchings, (2) a diminished reaction to both faradism and galvanism, and (3) a location in the upper, rather than in the lower, extremities.

The case which I now report shows, I think, a sufficient number of the classical features of pure muscular atrophy along with the classic signs of tabes to warrant its being classed as a case of tabes and muscular atrophy. Gowers says that muscular atrophy is an occasional complication of tabes; he lays special stress upon the fact that in this combination the atrophy is to be found especially frequently in the tongue. This, however, was not found to be present in my case.

H. S., aged forty-four, married, the father of thirteen children. He was by occupation a piano-tuner and maker. As an infant he had measles, scarlet fever, and diphtheria. In infancy he suffered from a hernia. When about ten years of age he fell four stories, striking on his back, but not sufficiently hard to cause unconsciousness. At eleven he developed blood poisoning; at twelve, pneumonia. The question of a specific lesion remains somewhat obscure but the probability is that at the age of twenty-eight he did contract syphilis.

The present illness dates back about six years. After great exposure to snow, which was followed by sleeping in a cold room, he complained of pain in his left side, which was followed by numbness. Previous to this he had had for some time shooting pains in the legs. Three years later he was again drenched while working in the rain and at this time noticed that he no longer had any great control over his left foot.

Now he complains of muscular weakness in the neck and back and inability to use his arms well. The hands are numb and he has great difficulty in dressing and buttoning his clothes. He has difficulty in passing his water.

The patient is very poorly nourished and greatly emaciated. There is marked wasting of the muscles of the right hand and right shoulder. Both scapulæ are shrunken. The neck muscles are atrophied and the head hangs well forward. There is some atrophy of the left hand and arm.

In both arms and fingers there is marked ataxia; he cannot approximate the hands with any degree of accuracy. The voice is weak. The eyes show nothing except that he sees double. There is a squeezing sensation around the waist. He has the Romberg symptom. The gait is so very ataxic that he requires the use of a stick to get about. There are no sensory changes beyond slight anesthesia along both hands and the right shoulder. The knee jerks are absent. There is a constant tendency for the water to run away. From time to time he is addicted to shooting pains in the legs.

There is no nystagmus but the pupils are typical Argyll-Robertson. There is no Babinski and no ankle clonus. Fibrillary twitchings are frequent in the legs. The plantar reflex is present. The wasting of the muscles is present in the interossei of both hands, the right hypothenar eminence is wasted, and the face shows atrophy.

Here, then, is a patient who shows Argyll-Robertson pupils, loss of knee-jerks, presence of the Romberg sign, and great ataxia in all the extremities. At the same time, he shows a progressive muscular atrophy beginning in the hands and extending to the neck and scapular muscles—an atrophy which evinces fibrillary twitchings and a diminished electrical response. It is an atrophy which has advanced with considerable rapidity. Another feature of the atrophy is that it involves not the legs, but the arms, and that it has steadily progressed from the interossei of the hands to the scapular muscles and the face.

A CASE OF ALKAPTONURIA.

By CLIFFORD MITCHELL, M.D.,

CHICAGO, ILL.

While determining chlorides in a certain sample of urine by the indirect method of Volhard as modified by Luetke, the writer was struck by the indefiniteness of the end reaction which in this process is usually sharp and satisfactory. This led to closer study of the specimen, with the result that alkapton (homogentisic acid) was found in it. The patient presented the following history: C. N., age 46, born in Germany of parents probably related, but not near relatives. His mother died of typhoid fever, and an uncle died of diabetes mellitus. The family history was otherwise unimportant. At the age of 24 he had typhoid fever, at 38 a severe attack of what he termed colic, lasting 12 hours. At 44 he had another similar attack lasting nearly a week. For the last six weeks he has been constipated, without appetite, and has had some elevation of temperature (102 degrees maximum). He is subject to business worry, has been a heavy smoker, and until lately a beer drinker. Six or seven years ago his application for life insurance was not accepted, but he was told to stop beer drinking, and to try again. On second trial he was accepted. Three years afterwards he applied for more insurance and was accepted, but was told that there was something "unusual" in his urine. He himself was afraid that the condition was diabetes mellitus.

Analysis of the urine made by the writer, December 30, 1909, showed in addition to the alkapton bodies a marked indican reaction, but otherwise nothing noteworthy.

The diagnosis made was gastrointestinal toxemia from worry, faulty dietary and habits. He was told to pay no attention to the "unusual" condition of his urine, but to look after his digestion and general health. One month later he returned and reported feeling "perfectly well." Examination of the urine showed the condition of alkaptonuria to be the same as before.

The presence of the alkapton bodies (homogentisic acid and uroleucic acid) in the urine is an anomaly of metabolism rarely encountered in this country, only four cases having been reported up to 1902. The condition may be congenital and occur in the offspring of consanguineous marriages. Alkaptonuria, though it may occur in disease, is not inconsistent with health. The principal alkapton body is homogentisic acid (hydroquinonacetic acid), which is apparently derived from tyrosin. The opinion has been expressed of late that this acid is a normal intermediary product in the destruction of tyrosin and phenyl-alanin, that its formation represents an oxidation which precedes the breaking up of the benzene ring, and that its appearance in the urine is an expression of metabolic insufficiency which renders the destruction of the benzene ring impossible. A. E. Garrod has described the condition in his little volume, "Inborn Errors of Metabolism" (Oxford Medical Publications), along with albinism, cystinuria, and pentosuria.

The clinical importance of alkaptonuria is as follows: 1. The liability of the individual to be rejected for life insurance, since the alkapton bodies affect some of the sugar tests (see below). 2. The liability of the individual for this same reason to be treated for diabetes mellitus with unnecessary restriction of diet and needless worry about his condition. 3. The liability of the individual in any event to worry in case the condition be not properly identified but vaguely described to him as "unusual."

When the matter was explained to the patient in question, and he was told that he neither had diabetes mellitus nor serious urinary disease, he exclaimed, "Doctor, you have removed a heavy load of worry from my mind."

Inasmuch as the text books on urine analysis familiar to the general practitioner give but little specific information regarding alkapton urine, the writer takes this opportunity to describe with some minuteness the appearance, properties, and reaction of the urine in the case above referred to. It is possible that the condition is more common than supposed and that cases of it are not identified by us as often as they should be in the hurry of everyday practice, the assumption being that "a trace of sugar" is present.

Physical Characteristics: The urine was darker than normal even when freshly voided, but the color did not correspond closely to anything on Vogel's Color Scale. On standing exposed to the air, it gradually darkened from above downwards until finally it was almost black, looking like molasses. On addition of an alkali such as ammonia, even in small amount, the urine darkened in a few minutes.

Qualitative Tests: The tests for albumin with heat and acetic acid, heat and nitric acid, cold nitric acid (by contact) with H. Le Roy Thompson's apparatus, and acetic acid with potassium ferrocyanide, were all negative. It occurred to the writer to float Goodman and Stern's phosphotungstic acid solution upon the urine, with the result that a precipitate in the form of a whitish ring soon turning slaty-gray was obtained. A number of normal urines were similarly tested, all of which gave the whitish precipitate in form of a ring, but without the slaty-gray color on standing.

In testing for sugar much that was interesting developed as follows: Four c.c. of Haines' solution were boiled and the alkapton urine added drop by drop with boiling after each drop; as soon as the first drop of urine struck the boiling reagent, the latter immediately darkened throughout its upper third. After four or five drops had been added, the entire liquid darkened, and when the sixth drop was added, a yellowish precipitate suddenly formed, which turned somewhat reddish in a few moments. On repeating the experiment, the same precipitate formed when the sixth drop was added. Five c.c. of Fehling's solution were next boiled, and the urine added drop by drop as before. The same darkening of the fluid was noticed as in the case of Haines' solution, but it required 22 drops to produce the yellowish precipitate. Ten c.c. of the alkapton urine were next boiled several minutes with Nylander's bismuth test reagent. No change was observed, *i.e.* no darkening. Ten c.c. of the urine were then placed in an Einhorn saccharimeter with one gramme of condensed yeast and allowed to stand at room temperature for 24 hours. No perceptible evolution of gas took place. The alkapton urine was tested for acetone bodies with the nitroprussiate test as suggested by Kelly—no reaction characteristic of acetone was obtained. On standing the green reaction characteristic of creatinin was considerably modified, being darker and more opaque than usual.

The behavior with ferric chloride solutions was characteristic of homogentisic acid. When to 5 c.c. of alkapton urine a 20 per cent. solution of ferric chloride (not synthetic) was added drop by drop, a dark green color was noticed just as the drop of reagent struck the urine, which immediately disappeared and left a slaty-gray precipitate of phosphates in its place. The same happened when a 5 per cent. solution of ferric chloride was used.

When Ehrlich's diazo reaction was sought for in this alkapton urine, an interesting result was observed. Ammonia being floated upon the sulphanilic acid-nitrite-urine mixture a double ring was obtained; below, a yellowish white ring of deposited phosphates, and just above it a slender wavy dark-brown ring due to the action of the alkali upon the alkapton bodies. The slender brown ring soon disappeared. On gently shaking the mixture, the upper portion was gradually darkened by the ammonia.

In testing for indican the original method of Jaffé as modified by Stokvis gave no blue color. A whitish emulsion of chloroform and interfering substances sank to the bottom of the tube. In order to remove these interfering substances, three methods were used, viz., first, that of Daland of Philadelphia, who avoids the formation of an emulsion by pouring slowly and repeatedly from one tube to another without shaking; second, that of the writer in precipitating the interfering substances with neutral acetate of lead added in different amounts so as to avoid excess; and third, the method of Obermeyer as modified by Askenstedt of Louisville, who washes the chloroform emulsion with water. All three methods showed indican in excess. It would appear, therefore, that the alkapton bodies

do not interfere with the oxidation of indoxyl to indigo blue.

Quantitative Tests: The acidity of the specimens examined was normal and the ordinary method of titration with decinormal sodium hydroxide agreed with Folin's method in which potassium oxalate is added to the urine with shaking. Phenolphthalein is reddened by sodium hydroxide in such urine apparently as in the case of normal urines, although the end reaction is not perhaps quite so sharp as usual. Nothing of special interest was observed in the quantitative determination of urea by the Doremus instrument with the hypobromite solution nor in that of phosphoric anhydride with uranium nitrate. In the quantitative determination of uric acid by the Folin method of titration with permanganate, the usual pink color of the permanganate was affected, at first being much more brownish than in the case of normal urines. In the determination of chlorides by the Volhard-Luetke method much difficulty was encountered, and it was during this process that the writer's attention was first directed to the peculiar features of this urine. In using the Luetke method the chlorides are indirectly determined by titration of the excess of silver nitrate in the silver-urine mixture by means of a solution of ammonium sulphocyanate. The end reaction is extremely sharp, but in the alkapton urine the end reaction was faint and indefinite until what was obviously an excess of the reagent was added.

Special Test for Alkapton: The most striking way in which to demonstrate the presence of alkapton was found by the writer to be the following:

The urine in small amount (1 c.c.) was carefully floated on 5-10 c.c. of a solution of sodium hypobromite (NaBrO) the same as used for determining urea with the Doremus instrument. Brown foam appeared on the surface of the mixture, and a dense brown band of color below the foam. Normal urines give a white foam and little or no color below the foam.

Summary: Urine containing the alkapton bodies shows the following features:

1. It darkens gradually on exposure to the air from above downwards. The upper portion of a given sample may appear black as molasses while the rest of the liquid is only slightly affected. Finally the entire body of fluid turns a dark brown or black. Addition of ammonia or other alkali hastens the change. Addition of hydrochloric acid removes the dark color.

2. If carefully floated in a test tube on the alkaline hypobromite solution used for the estimation of urea, it causes a brownish or brown-streaked foam to rise and a dense brown color band is seen below the foam.

3. Added drop by drop to boiling Haines' or Fehling's solutions, darkening immediately occurs and ultimately a yellowish red precipitate, simulating the presence of glucose.

4. With the bismuth and fermentation tests results are negative.

5. It gives a dark brown ring in Ehrlich's diazo test.

6. It interferes to a certain extent with the determination of uric acid with permanganate and renders the end reaction doubtful in the Volhard-Luetke indirect method of determining chlorides in the urine.

7. It does not appear to affect the nitroprussiate test for acetone nor the usual tests for indican.

8. A characteristic test depending on the presence of homogentisic acid is the dark green color on addition of ferric chloride, which color immediately disappears.

70 State Street.

EXAMINATION OF DUODENAL JUICE OBTAINED BY THE GROSS DUODENAL TUBE.

By F. VON OEFELE, M.D.,

NEW YORK.

Some time ago, when I was working in the new Research Laboratory of the Roosevelt Hospital (Dr. Lyle), I received from Dr. M. Gross a quantity of duodenal juice for chemical examination. I hope I shall have an opportunity of continuing these examinations on a larger scale in my own laboratory, which will probably result in obtaining greater clearness in regard to the function of the duodenum in both normal and pathological conditions. The results so far obtained, however, seem important and interesting enough to warrant this short report.

All previous experiments on this subject, to which I can find any reference in the literature, differ from present results in two points: (1) the local source from which the juice was obtained, and (2) the method of obtaining it. Former investigators procured direct pancreatic juice, bile, or juice from the lower parts of the intestines; and as these juices were obtained through a fistula, involving an artificial traumatism, the condition of the individual operated on was not normal. A third point might be added, in that these juices were mostly taken from animals, and not from man. By the method introduced by Dr. M. Gross, naturally normal and naturally pathological duodenal juice of the living man can be procured without any artificial lesion, which explains that there cannot be any previous literature on this point. This is not the place, however, to describe the method in detail, especially as the same has already been published; but the present article may be regarded as supplementing the one referred to, because it shows the importance of the method, and gives rise to the hope that in time it will be more and more improved and become as important in the domain of clinical medicine as is the examination of the gastric contents at the present time.

Although, as I stated, there is no literature available on the subject in its present aspect, it will always be necessary to compare the results obtained from duodenal juice with those [redacted] pancreatic juice, bile, or juice taken from the jejunum and ileum, and to this literature I shall refer at the proper time.

First Examination.—A 1 per cent. solution of Kahlbaum's soluble starch was prepared with distilled water, and 10 c.c. of this solution were put into 5 test tubes each. To the first test tube 1 drop of duodenal juice was added, 3 drops were added to the second tube, 9 drops to the third, 27 drops to the fourth, and 81 drops to the fifth tube. The duodenal juice was freshly obtained, and filtered. The tubes were numbered and placed simultaneously in an incubator registering physiological human temperature. After 4 minutes the tubes were removed and placed in an ice box, thus interrupting any further fermentative action.

From the contents of tube No. 5, 2 c.c. were separately taken and titrated with a centinormal iodine

solution. With the addition of the first drop the iodine color disappeared, the liquid remaining colorless. With the second drop the iodine color changed to a faint pink; with the third drop the color turned slightly violet, but still was more pink than violet. With 0.4 c.c. of centinormal iodine solution the mixture of red and blue assumed a more pronounced bluish tint than would a solution of ferrichloride and carbolic acid. In 0.8 c.c. of centinormal iodine solution the color remains unchanged.

This initial titration proves that the starch was digested, and that achroodextrin, erythrodextrin, and amylodextrin were present. I wish here to recall that achroodextrin has the highest, erythrodextrin the second, amylodextrin the third, and amylum the lowest affinity for iodine. From the text books this is not quite apparent; in fact, the statements made relating thereto in any published books are distinctly wrong. The facts are as follows: If iodine is gradually added to a mixture of achroodextrin, erythrodextrin, amylodextrin, and soluble starch, the liquid remains colorless up to the time that the achroodextrin is completely saturated with iodine. After that it turns pink and remains so until all the erythrodextrin is saturated. A further excess of iodine changes the color to violet, and later, when the amylodextrin is saturated, a further excess of iodine turns the color in the presence of soluble starch to sky-blue, while in the presence of insoluble starch a blue-black powder is precipitated to the bottom.

The digestion of starch takes place in the opposite order. The first regular digestive product of starch is amylodextrin, after which will follow erythrodextrin, achroodextrin, maltose, and dextrose, in the order named. Starch, amylodextrin, erythrodextrin, and achroodextrin are no single chemical bodies, but are composed of a large number of chemical substances. For this reason it is sufficient to put maltose and dextrose together and determine in one figure of percentage their copper-reducing power. Considering that normal, pure saliva changes in one minute 24 per cent. of soaked starch to reducing sugar, the determination of made sugar should also be added as a comparative and conclusive measure of the action of duodenal juice in the first instance. In each of five dishes 5 c.c. of Fehling's alkaline and 5 c.c. of Fehling's copper solution were mixed and boiled. To the boiling mixture were added 5 c.c. of the samples, as above described, and the boiling continued for further four minutes. The precipitate of copper hemioxide was separated, purified as usual, balanced by weight, and calculated as sugar. The duodenal juice transformed in four minutes, in concentrations of: 0.5 per cent.—7.5 per cent. of the starch originally present in the sugar; 1.5 per cent—15 per cent. of the starch originally present in the sugar; 4.5 per cent.—22 per cent. of the starch originally present in the sugar; 13.5 per cent.—29.5 per cent. of the starch originally present in the sugar; 40.5 per cent.—22 per cent. of the starch originally present in the sugar.

These results show that in the lowest concentrations the saccharifying power of this duodenal juice was very quickly increased. Afterwards it increased more slowly, reached the optimum at about 13.5 per cent. and decreased in higher concentrations, so that 40.5 per cent. gave exactly the same result as 4.5 per cent. The true optimum was not exactly observed, because in this very first examination only one test was made between 4.5 and 40.5 per cent. concentrations. The optimum may thus be lower or higher than 13.5 per cent.

With the same sample of duodenal juice the fat splitting capacity was tested, and Gruetzner's emulsion of olive oil and gum arabic was employed for this purpose. In each of 5 test tubes 10 c.c. of emulsion were placed and neutralized to a violet color by the addition of a small quantity of litmus solution. Tests were made with 1, 3, 9, and 27 drops of duodenal juice, also a blind test. In the incubator with physiological temperature there was no change whatever in the first minutes and hours, while after 24 hours the solution of the blind test remained violet, and the other four samples turned an identical red color. This proves that a fat-splitting ferment was present, producing free fatty acids. But a quantitative examination of the fat-splitting forces of the different concentrations of duodenal juice was not made, and this is reserved for examinations at a later time.

Second Examination.—Four days later I received from Dr. Gross another test sample of duodenal juice taken from another person. I prepared the same solution of Kahlbaum's soluble starch, from which I made two blind samples and six others to which this juice was added. The juice, having first been pased through a Chamberlain filter, became an almost clear, strongly green liquid. To the contents of tube No. 1 was added 0.01 c.c. of juice in 10 c.c. of a 1 per cent. starch solution, 0.03 c.c. to No. 2, 0.09 c.c. to No 3, 0.27 c.c. to No. 4, 0.81 c.c. to No. 5, and 2.43 c.c. to No. 6. The eight test tubes were placed in the incubator for four minutes at a temperature of 40° C and afterwards put into the ice box for twenty-four hours.

Now 2 c. c. of each sample were separately tested by centinormal, aqueous iodine solution. The two blind samples assumed by the addition of one drop a strongly blue color, resembling methylene blue. The same color resulted in 2 c.c. of Nos. 1, 2, and 3 by the addition of one drop of this iodine solution. This would prove that in these three samples the amount of achroodextrin, erythrodextrin, and emylodextrin produced was insufficient to entirely absorb the free iodine contained in one drop of centinormal solution. But this result may partly be due to the sticky condition of the liquid and to the consequent difficulty in mixing it. After the reaction had taken place, the samples were kept in the ice box for another twenty-four hours, but a further effect of the amylolytic ferment was not obtained. But now No. 1 was blue like methylene, No. 2 very pale bluish violet, No. 3 pale and medium violet. Therefore, a small amount of achroodextrin and erythrodextrin was present in both, but a little more erythrodextrin in No. 3. In No. 4 one drop of iodine solution was immediately decolorized; with the second drop the color changed to blue like methylene. After a stay of twenty-four hours in the ice box this blue liquid was nearly completely decolorized, showing only a pale reddish violet. This proves that No. 4 contained more achroodextrin and also more erythrodextrin than No. 3, but only a very small amount of amylodextrin. The first and second drops of the iodine solution were at once decolorized by 2 c.c. of the contents of No. 5. The third drop turned the color to bluish violet, but this color disappeared after five minutes and did not return after twenty-four hours' stay in the ice box. The first three drops of iodine solution were decolorized by 2 c.c. of No. 6, and

changed with the fourth drop for a short time to a red color which disappeared after two minutes. The same result was obtained by the fifth and sixth drops. With eleven drops an intense violet color of a few minutes' duration was produced. Now these 2 c.c. were diluted to 10 c.c. by the addition of distilled water, and after five minutes the solution was nearly colorless, showing a very pale pink tint.

Now I proceeded to the determination of sugar in the same manner as in the first test. The duodenal juice transformed in four minutes, in concentrations of—

0.1 per cent.—2.0 per cent. of the starch originally present in the sugar; 0.3 per cent.—3.2 per cent. of the starch originally present in the sugar; 0.9 per cent.—7.0 per cent. of the starch originally present in the sugar; 2.7 per cent.—16.0 per cent. of the starch originally present in the sugar; 8.1 per cent.—5.6 per cent. of the starch originally present in the sugar; 24.3 per cent.—1.0 per cent. of the starch originally present in the sugar; 0.0 per cent.—0.0 per cent. of the starch originally present in the sugar.

A comparison of the determination of sugar with the tests of the various dextrines by iodine shows that the highest concentration of duodenal juice produced the highest amount of the earliest starch-splitting products of carbohydrates. The greater the splitting capacity, the sooner was the optimum reached, after which a decrease set in. The optimum at the lowest concentration attained sugar production with a little more or less than 2.7 per cent. in the second case, and with a little more or less than 13.5 per cent. in the first case.

Third Examination.—One day later I received from Dr. Gross a third sample of duodenal juice taken from a third patient. The total quantity of this sample was 18 c.c., color greenish yellow, appearance feebly opalescent and turbid. In the first and second tests the juice had been filtered, but being very anxious to make a change in this respect, I did not filter the third sample. The specific gravity was 1,009. I have noticed that Demont, Turby, Manning, H. Hamburger, Heckma, and Nagano have made examinations of human intestinal (not duodenal) juice, in which the specific gravity was stated to have been 1,007. This corresponds very well with my own figure, because from the pylorus to the valvula Bauhini the amount of water increases and therefore the specific gravity decreases.

Of this duodenal juice 6 c.c. were used to determine the total solids and ash. The total solids amounted to 1.32 per cent. and the ash to 0.73 per cent. of the fresh liquid. The ash had an intensely yellow color, and a solution of the ash by hydrochloric acid was also yellow. These findings likewise correspond with the figures of earlier investigators, but my figures very nearly reach the top of those previously reported.

I also made a third amylolytic examination with artificial limits between the different groups of dextrin. I determined sugar by reduced copper hemioxide. In three experiments, after filtration, a greenish second reduction of copper was obtained and calculated as a second group. This second reduction was produced by a very viscous matter, which with iodine turned into reddish brown; this made the other color reaction of iodine very difficult and partly impossible. In this case I also determined the amount of starch which was not changed by the amylolytic ferment.

Duod. Juice, Per Cent.	Unchang. Starch, Per Cent.	Erythrodextrin, Meas'd by Iodine Titrat, Iodine Units	Achroodextrin, Meas'd by Iodine Titrat, Iodine Units	Produced Sugar, Per Cent.	Greenish Reducing Mucilagenous Matt'r Per Cent.
0.1	70	Absent	15	1	Absent
0.3	35	10	20	3	5.5
0.9	20	25	20	10	20.4
2.7	15	25	30	13	2.9
4.0	20	50	25	13.3	Absent
6.0	20	60	25	17.6	"
8.1	20	85	30	30.4	"
24.3	25	75	80	12 5	"

These figures recapitulate more precisely those shown in the first two examinations. The strength of duodenal juice was not the same, and as the physiological and pathological conditions in these three case were different, the results are not absolutely, but only relatively alike; it would be rash, therefore, to draw too far reaching conclusions from the same. But it will be seen that there is a possibility of obtaining more exact findings in regard to the duodenal digestion in different physiological and pathological conditions; and there is also a possibility of working out a satisfactory method of examination. After a short time it should be possible, therefore, to make examinations of the duodenal contents which will admit of conclusions valuable alike to physicians and patients, such as are now possible in the examination of gastric contents.

326 East Fifty-eighth Street.

ABRAMS' METHOD IN THE TREATMENT OF ANEURYSM OF THE THORACIC AORTA.

By L. ST. JOHN HELY, M.D.,

MADERA, CAL.

Dr. Albert Abrams of San Francisco first directed attention* to a novel method of treating this intractable affection, which he has since elaborated in his recent book.† He reports fourteen cases of aneurysm of the thoracic and abdominal aorta which he has apparently cured, although he qualifies his results by stating that he has not the hardihood to regard his method as curative, for time alone is the decisive factor. A conservative estimate of the results, however, prompt him to say that, as a palliative method, it surpasses any in simplicity and rapidity of action which has yet been introduced to the profession.

Abrams claims that the subsidiary center of the vasoconstrictor nerves of the aorta is located in the spinal cord in proximity to the spinous process of the seventh cervical vertebra and that by stimulation of the center in question by concussion, the normal as well as the abnormal aorta may be brought to contraction. Ample evidence is furnished of the latter fact in his work on spondylotherapy. The method, in brief, which he suggests in the treatment of aortic aneurysm, consists in concussion of the spinous process of the seventh cervical vertebra. He deprecates the employment of the conventional vibrating apparatus. The vibratory apparatus which the physician must employ is one giving the percussion stroke. All other motions, such as oscillations, shaking, and friction interfere with results. In the

*Medical Record, July 3, 1909.

†Spondylotherapy, 1910. Philopolis Press, San Francisco.

absence of a suitable apparatus, a pleximeter (a strip of linoleum or thick rubber) and a hammer, to the end of which is fixed a piece of hard rubber, are employed. The pleximeter is applied to the seventh cervical spine and is struck a series of rapid and moderate blows by the hammer. The daily *séances,* according to results, may last from five to fifteen minutes, but during the *séance* the treatment must be interrupted from time to time to avoid irritation of the skin.

The results of Abrams' method are usually immediate, great relief following a few *séances.* When the writer first encountered the monograph of the latter on the subject, he was rather skeptical, although Abrams anticipates such criticism in his book by observing that any merit attached to his method may be obscured by its simplicity.

The writer presents the following history of a patient suffering from aneurysm of the thoracic aorta who was treated by the "concussion-method" of Abrams:

J. A., age 46 years; weight, 185 pounds; a blacksmith and a moderate drinker, had no previous history of illness beyond the diseases of childhood. On the sixth of November, 1909, the patient first noticed a small projection in the region of the first rib about the size of a dime. A peculiar burning sensation corresponding to the latter point was likewise noted but the patient gave it no serious consideration until December 19 of that year, when while assisting in lifting a wagon he experienced a choking feeling and the miniature projection attained an enormous size. The patient then sought medical counsel and the diagnosis of a thoracic aneurysm was definitely established. At this time the following subjective and objective symptoms were noted:

Pronounced cyanosis which was universal, cardiac palpitation, choking, and dyspnea upon the slightest exertion, and an almost incessant cough. At night the patient could find a modicum of relief only in one position, viz., propped at an angle of 45° on the right side, and even then the coughing and choking would awaken him every hour. I regarded his condition as absolutely hopeless and so informed his friends. Having at this time read of the method of Abrams, I employed it first on January 21, 1910. Concussion treatment of the seventh cervical vertebral spine was executed daily for fifteen minutes from the latter date until March 5, 1910, when treatment was discontinued.

The second night following the concussion the patient rested well, and after the fourth treatment there was an absolute evanescence of all symptoms. In the language of the patient, "I can now sleep in any position and like a baby; in fact, as natural as any one. I do not cough nor suffocate any more, and, aside from the tumor on the chest, I would not know that there was anything at all the matter with me."

The aneurysmal tumor when first examined projected considerably and measured about 2½ inches in diameter at the base. At the end of the first week's treatment the tumor was reduced about 25 per cent., but there was no apparent further diminution in size when treatment was discontinued. It was impossible for me to continue treatment, as the patient insisted that he was well and further treatment was unnecessary. The results in this case were, however, immediate and corresponded in the main with the results obtained in the cases reported by Dr. Abrams.

IN MEMORIAM.*

DR. ANDREW H. SMITH.

By BEVERLEY ROBINSON, M.D.,

NEW YORK.

To those members of the Climatological Association who knew Dr. Andrew H. Smith well, words of praise and high appreciation were almost needless. But even to them it may be well to say a word of hope and cheer; to the younger and aspiring ones a timely word to show a brave and loyal soul to imitate and follow were also well. My dear old friend Andrew was good, kind, conscientious, full of real religious zeal in well-doing, and that was the sort of fear of God that animated him. He worked hard and uprightly and relieved many a bed of sickness or of death of its sharp suffering and dread. In my two only severe illnesses in New York, Andrew was near me and most serviceable. He helped save my life in diphtheria; he relieved me magically, almost, by his clear insight into medicine, when I was worn out with the pain and distress of acutely inflamed tonsils, due doubtless to scarlatinal infection, not otherwise evident. Whenever Andrew spoke, or wrote on medical, or other subjects, his words were words of wisdom. He always battled most bravely and singly for conscience' sake and to those who listened and trusted he guided to better doing and higher living. Nor did the serious side of his nature prevent his sharing mirth and jollity, and many a good story he told and enjoyed. But he had no use for ribaldry, profanity, or things or thoughts of bad alloy.

To medical literature his contributions were many and of very high excellence. His acumen was keen and he was ever most suggestive. At once he was practical and also, in a sense idealistic, and by the latter word I mean there was always an undercurrent of well thought out judgments, which might seem theoretical to some, but were based upon wide knowledge of much that had been acquired by master minds in different directions.

Andrew's war record is bright and fair as that of many, thank God, of the bravest and best, who did yeoman's service in our Civil War as surgeons at the front. His life struggle in the beginning was hard and difficult, but he knew that it was meant to be so to those who strive manfully for the right. In his later years he was prosperous, but, alas, he was shadowed for a time with grave symptoms of disease.

His final few weeks of life were weeks of great suffering despite all that devoted skill and affection could do for him. It was my enviable lot to see him several times before he died, and when I say enviable it is not because I did not suffer keenly from witnessing distress which I could not relieve, but because one likes to do one's best to be useful to the good and the true of the world. The Climatological Association has lost a member and associate, who, with his unsullied record, shines brightly as an example to us all.

*Read at the annual meeting of the American Climatological Association, held in Washington, May 3, 4, and 5, 1910.

Tuberculosis in Bulgaria.—Efforts are being made in Bulgaria to abolish the numerous monasteries and convents of the Greek Catholic Church and to use their buildings and revenues for the establishment and maintenance of tuberculosis sanatoria. King Ferdinand has given 100,000 francs for the erection of a national sanatorium. The death rate from tuberculosis in Bulgaria is very high, being 31 for every 10,000 living.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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MEDICINE AS A PROFESSION.

WHEN making choice of a profession, various matters must be taken into consideration. If a youth be ambitious of material welfare or of great power, perhaps, medicine would be the last profession to choose. Politically, the medical man, as a rule, is a cipher and he seldom amasses great riches, as riches are accounted nowadays. The profession of law offers far more opportunities both for making money and for rising to political eminence than does the medical profession, while for gaining honor and glory, the army and the navy, even in these piping days of peace, hold out more hopes. However, on the whole, regarded from the standpoint of obtaining a fair livelihood, the medical profession is equal to any of the others and in some respects is superior.

In *Science*, April 22, 1910, is published a lecture delivered by Prof. Harold Williams to the students of Tufts College, in which the author emphasizes the importance and value of a college education and points out that Huxley's definition of a liberal education is supplied by good class colleges to those who are able and willing to avail themselves of the advantages offered. Further he draws attention to Gibbons' dictum on the question of education, namely, that "everyone has two educations, one which he receives from others, and one, more important, which he gives himself." Self education must not be neglected. It may be taken for granted, however, that a college education is more or less essential for those desiring to take up medicine. At least, if not essential, a liberal education is a most valuable foundation upon which to build the medical superstructure.

Prof. Williams is of the opinion that it is well to choose a profession as early as possible in a college career, for the somewhat obvious reason that an early decision will enable one to select a curriculum of study in line with the profession chosen. A warning is given against too great idealizing of the medical profession in the minds of its would-be followers. It is to be doubted whether this warning is needed. High ideals never did a person harm, albeit he may and probably will be brought to earth rather roughly. If one is fated never to reach the heights, it is better to have dreamt that one has reached them than always to have remained below. Imagination is an asset not to be despised by the clear-sighted scientific man. Still there are but few members of the medical profession who will become famous, and the great majority will belong to the rank and file and will live and die as humble practitioners. What then are the privileges attaching to this class? Are they commensurate with the time, labor, and money expended in obtaining the right to practise? There are many advantages in being a medical man and to one who is so from choice, and is not a round peg in a square hole, these more than counterbalance the drawbacks. Socially, the life is pleasant, the physician is thrown into contact with all sorts and conditions of men, and, as Prof. Williams says, "such environment is enormously stimulating to his intellectual life." Moreover, the practice of medicine has a broadening influence on a man, in a higher degree than the practice of any other profession or trade. The fact must be borne in mind that the medical profession itself has widened greatly in scope during recent years. Medicine *per se* is not adhered to as in times gone by. Nowadays, there is almost as much preventive medicine followed as curative or remedial. Public health problems absorb a considerable amount of the attention of present-day practitioners, and the research worker is in evidence, and becoming more so in all parts of the civilized and uncivilized world. Thus when a youth enters the medical profession under existing conditions, he has a wide choice as to which branch he should pursue and is not bound down, as used to be the case, by certain well defined rules as to practice. Again medicine is the most cosmopolitan of all the professions. Scientific medicine, like pure science, knows no artificial boundaries. The medical student is equally at home in the schools of Paris, Berlin, London, and New York, and the graduate in medicine, were there no local laws preventing him, would be competent to practise in any part of the world.

As to the preliminary course of training for the medical profession Prof. Williams has some well defined views. He is a stickler for biology and thinks that each collegian who contemplates entering the profession should place biology in the first rank of preparatory studies. Biology is of great use, over and above its intrinsic value, in teaching medical students methods of study, "it is like studying the map of a city before we explore the city." Next in his estimation comes physics, third chemistry, fourth Latin, fifth advanced English, sixth and seventh German and French, eighth and ninth economics and sociology, tenth and eleventh drawing and painting and shorthand writing, and lastly public speaking. The student who before he commences in earnest the study of medicine, takes the advice of the Tufts' professor as to his preliminary training will certainly not lay himself open to the charge that he has not endeavored first to prepare himself for his life work by a liberal education. A serious omission in this list of necessary studies, however, is that of Greek. No physician who is not more or less familiar with this foundation of scientific nomenclature can ever really understand the language of his profession. There is no

reason that the medical man should not be cultured, indeed the day of the blunt almost boorish physician is past, and as a college education tends to culture, the advice to store one's mind with knowledge prior to studying medicine is sound from all points of view.

A high standard of medical education is certainly to be strongly advocated and such an education to be really effective should be uniform throughout the country. By these means, the status of the entire profession will be raised, undue competition will be checked, and all concerned will be benefited. Finally, it may be said that while the medical profession does not hold out hopes of speedy or large money returns or of great power, it does give to those who love it always a good livelihood and sometimes enduring fame.

SMALLPOX IN THE UNITED STATES.

During the past ten years smallpox has been unusually prevalent in the United States. The number of cases of smallpox reported to the Surgeon-General of the Public Health and Marine-Hospital Service during the calendar year 1908, by the local and State health officers of the various States, was 35,174. In Minnesota, 7,031 cases occured, giving a case rate per 1,000,000 of population of 3,397. In Kansas there were 3,458 cases, with a case rate per 1,000,000 population of 2,096, and Montana had 732 cases and a case rate per 1,000,000 population of 2,339. However, these records are by no means accurate, owing to the difficulty of obtaining precise information. Further and more satisfactory co-operation is required between State health authorities and the Public Health and Marine-Hospital Service. In a paper on this subject read by John W. Trask of the U. S. Public Health and Marine-Hospital Service, at the meeting of the American Public Health Association in October, 1909 (*American Journal of Public Hygiene,* February, 1910), the author expressed his belief that in 1908 there were probably more than 70,000 cases of smallpox. Now, in a highly civilized and enlightened country it is something of a public scandal that there should have been in the neighborhood of 70,000 cases of smallpox in one year. The situation, too, is aggravated when it is known that the disease can be virtually eradicated if proper measures are practised. Of course, vaccination will, in time, and in not a long period either, stamp out smallpox if the method is thoroughly enforced. This has been proved. Smallpox was eradicated from the German Army by systematic vaccination. It may be said, and with a considerable degree of truth, that means possible in an army are not available in an ordinary community. But as Trask points out, smallpox has been eradicated to all intents and purpose, from some of our States.

Perhaps the most convincing argument in recent times in favor of vaccination has been supplied in the Philippines. The Director of Health of the Philippines, in his annual report for the fiscal year 1907, says: "During the year there has been unquestionably less smallpox in the Philippines than has been the case for a great many years previous. In the provinces of Cavité, Balangas, Cebu, Bataan, La Union, Rizal, and La Laguna, where heretofore there have been more than 6,000 deaths annually from this one cause alone, it is most satisfactory to report that since the completion of the vaccination in the aforesaid provinces, more than a year ago, not a single death from smallpox has been reported." En passant, reference may be made to the prevalence of smallpox in certain parts of the province of Quebec. Dr. E. Pelletier, Secretary of the Quebec Provincial Board of Health, in the annual report of the board just issued draws attention to this prevalence and also to the fact that owing to the control of vaccination being in the hands of the municipalities, vaccination in Quebec is really optional and enforcement is practically a dead letter. There is no need to multiply proofs as to the efficacy of vaccination, the question is how to render it general throughout the country and thus to stay the spread of smallpox. Trask rightly shows that in order to eradicate a disease the first essential is an accurate knowlege of its distribution and prevalence; in other words, it is necessary to be supplied with accurate morbidity statistics. Without such statistics the Public Health and Marine-Hospital Service is fatally hampered in its endeavor to stamp out a disease or to use effectual preventive measures. Therefore, the statement can be made that in order to inaugurate and wage a successful campaign against smallpox, State and local health officers must cooperate loyally and earnestly with the service by providing it with reliable morbidity statistics.

Meningitis and Meningism.

With the introduction of lumbar puncture into the medical armamentarium the diagnosis of meningitis has become a much more definite procedure than it was a few years ago, the generally accepted opinion to-day being that an absolute diagnosis of any of the various forms of this disease without the identification of the causative microorganism in the intraspinal fluid is about as justifiable as calling a case measles without seeing either rash or Koplik's spots. The necessity of the bacteriological diagnosis is especially important in the light of the studies of Dupré and others of the French school who have shown that not at all infrequently the symptoms of acute meningitis including opisthotonus, Kernig's sign, and coma may appear when no actual involvement of the meninges has occurred. This class of cases which Dupré grouped as pseudomeningitis or meningism is familiar to all who come much in contact with sick children. It is especially common in association with otitis media, where it is supposed that the toxins diffuse through a developmental fissure in the temporal bone and cause meningeal irritation by direct contact. It is, however, also a frequent accompaniment of enteritis, pneumonia, and diphtheria, and as was pointed out by Porter in the *Archives of Pediatrics* for January, 1910, in an excellent résumé of the subject, in typhoid fever, rheumatism, and the exanthemata as well. In fact, in any febrile condition in a child, and more rarely in an adult also, either the fever itself or the action of

the toxins upon the meninges or spinal nerve roots may produce all the classical symptoms of meningitis, these disappearing immediately upon the subsidence of the fever, the crisis of the pneumonia, or the rupture of the ear drum. The first duty of the physician upon seeing a patient with symptoms of meningeal irritation is by a thorough and careful physical examination, including inspection of the ear drums, to exclude every possible cause of meningism, and the second is to do a lumbar puncture, and examine the fluid so obtained for pyogenic bacteria and the tubercle bacillus. Only in the case of a positive bacteriological finding is he justified in making a diagnosis of meningitis.

The Stools of the Newborn.

In the majority of the text-books on obstetrics and pediatrics, the statement is made that for three days the stools of the healthy newborn infant are dark brown in color, consisting of meconium, and that after the fourth day they are light yellow and of a homogeneous consistency. Such statements are usually taken as invariable rules by the physician, and more frequently by the nurse and the mother, and any variations therefrom are apt to produce consternation in the newly enlarged family and may even lead to the belief that the mother's milk is not all that it should be, and be used as an argument in favor of immediate weaning. The fallacy of such a deduction is emphasized in an article by Southworth in the March number of the *Archives of Pediatrics*. The author shows that the transition from meconium to a smooth yellow stool on the fourth day is the exception rather than the rule, and that in perfectly healthy and properly nourished infants the classical text-book stool may not make its appearance until the tenth day or even later. During this period the change is gradual, the first signs thereof often being the appearance of masses of yellow stools, so well covered with intestinal mucus and bile that they appear green or even brown. In such cases smoothing out the fecal masses will usually reveal the fact that the stool itself is normal and that digestion is progressing properly. The lesson to be drawn from this paper is that during the first two weeks of an infant's life one must be especially conservative in condemning a woman's milk on the evidence of the stool alone. If the child is gaining in weight, and in other ways appears to be healthy, the color of the stool, though possibly of value as indicating some minor changes in the hygiene of the mother and the child, should not be taken too seriously, and certainly should not lead the attending physician to advocate the weaning of the baby.

Muscular Spasms in Men Exposed to High Temperatures.

Asst.-Surgeon M. E. Higgins, U. S. Navy, writes in the United States Naval Bulletin, April, 1910, on a disorder due to exposure to intense heat. The cases reported have occurred usually among men exposed to high temperatures in foundries and rolling mills and the affections, while a type of heat exhaustion, differ d materially from the condition generally understood by the term.

Higgins states that the condition is very frequently observed among men working in the firerooms of naval and merchant vessels, and records a more or less typical case. The symptoms are, as a rule, tonic muscular spasms, particularly of the flexors associated with fibrillary twitching of the affected muscles, very profuse perspiration was a concomitant feature in the case recorded, and when urine was passed, which was not until the morning following the attack, albumin and casts were voided. This is, however, not a usual occurrence, nor is profuse perspiration at the time of the seizure. The author, while admitting that high temperature is a predisposing factor, is of the opinion that the determining cause is individual susceptibility. Workers in firerooms perspire profusely, and to make up for the loss of fluids consume large quantities of water. Little or no urine is excreted and nearly all the work of elimination is thrown upon the skin. If the function of the skin is impaired or the gastrointestinal canal fails to absorb sufficient fluid to maintain a proper balance, there will probably supervene a condition not essentially different from the uremic state. Clinically, the disorder is one of motor irritation. The cramps of cholera and the convulsions of nephritis are, in a measure, analagous conditions. As to treatment, the indications are to supply fluid, secure elimination, and relieve the pain. Saline solution, either by rectum or under the skin, meets the first two, and a full dose of morphine lessens the pain. If the patient is not perspiring a hot pack or a hot bath is indicated.

News of the Week.

Measles on Shipboard.—The steamship *Carpathia* arrived at Quarantine in New York recently with 40 of the 325 children in the steerage suffering from measles.

To Purify Lake Michigan.—On May 12 the U. S. Senate passed a bill to prohibit the dumping of refuse in Lake Michigan in the vicinity of Chicago.

Smallpox in Philadelphia.—A number of cases of smallpox have been discovered in Philadelphia and in other parts of the State of Pennsylvania and several deaths have resulted. Vaccination has been undertaken on an extensive scale. One of the victims was a policeman, who contracted the disease while guarding a quarantined house.

A "Medical Mill" in Chicago.—Three physicians of Chicago were arrested by federal officers on May 13 charged with selling medical diplomas from the "Crescent Medical University" at the price of $40 each. The technical charge was using the mails for defraud.

Optician Fined.—A clerk in an optical company in New York was fined $500 recently for practising medicine without a license. The defendant had prescribed some eye drops to a man who had gotten dust in his eyes, and it was claimed that as a result the sight of the eyes was destroyed.

Arms Valued at $41,000.—In the Supreme Court at Syracuse recently a man of 22 was awarded $41,000 damages for an accident which resulted in the loss of both arms.

Jefferson Medical College of Philadelphia.—Mrs. Marie Gross Horwitz has made a gift of $60,000 for the foundation of the Samuel D. Gross Professorship of Surgery in honor of her father, who was professor of surgery in Jefferson Medical College from 1856 to 1884.

Contagious Hospital for New Haven.—According to an agreement recently reached between the New Haven Hospital and the city authorities, it is

probable that the latter will aid the former in the erection of a much needed contagious disease pavilion.

Psychiatric Institute on Ward's Island.—Governor Hughes on May 12 signed Assemblyman Ward's bill creating the Psychiatric Institute on Ward's Island to be maintained as a part of the Manhattan State Hospital.

New Hospital for Stafford Springs, Conn.—Plans are being prepared for the erection by Mr. Cyril Johnson of a hospital for Stafford Springs.

Fire in Hospital.—A fire in the chemical laboratories of the Medico-Chirurgical College at Philadelphia on May 6 did damage to the amount of $25,000 to the building and of $50,000 to equipment, apparatus, etc.

Charitable Bequests.—By the will of the late John H. Converse of Philadelphia the sum of $25,000 is bequeathed to the Presbyterian Hospital and a like sum to the Eliza Cathcart Home for Incurables at Devon.

District Nurses' Home in Brooklyn.—Mrs. Alfred T. White, a director of the Brooklyn Bureau of Charities, has presented the three-story house at 78 Schermerhorn street to the bureau on condition that it be used only for the district nursing work.

Miss Florence Nightingale, the nurse who first won fame in the Crimean War and has since been prominent as an author on army nursing, celebrated her ninetieth birthday on May 12.

The Arkansas Medical Society met at Little Rock, May 6, 1910. The election of officers was as follows: *President,* Dr. R. C. Dorr of Batesville; *Secretary,* Dr. Morgan Smith of Little Rock. The meeting in 1911 will be held at Fort Smith.

The Oklahoma Homeopathic Medical Society met in Oklahoma City, May 4, 1910. Officers were elected as follows: *Honorary President,* Dr. J. Sensley of Oklahoma City; *President,* Dr. S. C. Whitcomb of Hastings; *Vice-President,* Dr. L. S. Cunningham of Tulsa; *Secretary-Treasurer,* Dr. W. L. Bonnell.

The Connecticut River Valley Medical Association held its annual meeting at Bellows Falls, Vt., May 3 and elected the following officers: *President,* Dr. F. L. Osgood of Townshend; *Vice-President,* Dr. J. J. Osterhaut of Keene; *Secretary and Treasurer,* Dr. J. Sutcliffe Hill of Bellows Falls.

The Franklin (Mass.) District Medical Society held its annual meeting at Greenfield, May 10, and elected officers as follows: *President,* Dr. C. L. Upton of Shelburne Falls; *Vice-President,* Dr. L. A. Newton; *Secretary and Treasurer,* Dr. H. N. Howe of Greenfield.

The Claiborne Parish (La.) Medical Society held a meeting in Athens April 19, 1910. The following officers were reelected: *President,* Dr. J. W. Day of Homer; *Vice-Presidents,* Dr. P. Gibson of Homer, Dr. Lee Waller of Haynesville, and Dr. Simpson of Athens; *Secretary-Treasurer,* Dr. W. L. Stone of Homer.

The Pike County (Ill.) Medical Society has elected the following officers: *President,* Dr. G. U. McComas of New Canton; *Vice-President,* Dr. C. E. Beavers of Barry; *Secretary,* Dr. H. T. Duffield of Pittsfield.

The late Dr. Augustin H. Goelet.—At a regular meeting of the Clinical Society of the New York School of Clinical Medicine, held on May 3, 1910, the following resolutions were adopted: *Whereas:* We have learned with deep sorrow of the sudden and untimely death of our esteemed associate and colleague, Dr. Augustin H. Goelet, who for more than twenty years had given his best efforts to this institution, and *Whereas,* Professor Goelet was a man of high honors and integrity, beloved and respected by all who knew him for his geniality, his sincerity, and his many scholarly attainments, therefore be it *Resolved,* That we now record this our last sad tribute to his memory, and join in expressing to his bereaved family our sincerest sympathies, and be it further *Resolved,* That these resolutions be spread on the minutes of this society, and that a copy thereof be transmitted to his family and to the medical press as a token of our respect and as reverence to his memory. Abr. L. Wolbarst, M.D., Edward L. Kellogg, M.D., Theodorus Bailey, M.D., Committee.

Obituary Notes.—Dr. George H. Kenyon of Providence, R. I., died at his home May 7, 1910, aged 65 years. He was a graduate of Brown University in 1864 and the medical department of the University of Vermont in 1866. Dr. Kenyon was a veteran of the Civil War and for 32 years was connected with the Rhode Island militia, of which he finally became Surgeon-General with the rank of Brigadier-General. He was at one time president of the Providence Medical Society, and treasurer of the Rhode Island Medical Society, and was a member of the American Medical Association.

Dr. Robert Martin of Milwaukee, Wis., died at his home May 2, 1910, aged 69 years. He was a graduate of the Starling Medical College in 1875. He was at one time Health Commissioner of Milwaukee.

Dr. Joseph Brackbill died at Reading, Pa., on May 6 at the age of 64 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1839.

Dr. Louis G. Bauer died at Philadelphia on May 6 at the age of 64 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1872. He was a member of the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, and the American Medical Association.

Dr. George Arnold Bellows of Waterloo, N. Y., died at his home May 10, 1910, aged 54 years. He was a graduate of the Detroit Medical College in 1881. He was a member of the Seneca County Medical Society, the Medical Society of the State of New York, and the American Medical Association. Dr. Bellows has held the position of Health Officer, Coroner, County Physician, and U. S. Pension Examiner.

Dr. Tomlinson Fort Brewster of Atlanta, Ga., died in the Grady Hospital May 1, 1910. He was a graduate of the Jefferson Medical College and for fourteen years was superintendent of the Grady Hospital.

Dr. Robert T. Gwin of McKenzie, Tenn., died at his home April 29, 1910, aged 80 years. He was a graduate of the Jefferson Medical College in 1856.

Dr. Samuel T. Haffner of Frederick, Md., died at his home May 6, 1910, aged 61 years. He was a graduate of the College of Physicians and Surgeons of Baltimore in 1874. He was physician to the Montevue Hospital, at one time County Health Officer, and was a member of the Frederick County Medical Society, the Medical and Chirurgical Faculty of Maryland, and the American Medical Association.

Dr. Cynthia Maria Nordstrom of Malden, Mass., died at her home May 6, 1910, aged 77 years. She was a graduate of the Boston University School of Medicine in 1883, and was secretary of the medical board of the Malden Hospital.

Dr. Alonzo E. Robertson of Mason City, Neb., died May 3, aged 38 years. He was a graduate of the University of Michigan and of the Rush Medical College in 1893.

Dr. Marshall P. Robinson of Lexington, Ky., died May 6, 1910, aged 63 years. He was a graduate of the Eclectic Medical Institute of Cincinnati in 1876.

Dr. Charles Ward Thorpe, U. S. Army, died at his family home in Nicholasville, Mich., April 16, 1910. He was a graduate of the Gross Medical College in 1896. He entered the army in 1903.

Dr. Samuel Charles Weeks of New Orleans died April 28, aged 43 years. He was a graduate of the medical department of Tulane University in 1893.

Dr. Barton H. Potts of Philadelphia died on May 8 at the age of 41 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1890, and he was Chief of the Nose and Throat Division of the German Hospital, as well as Laryngologist to the Children's Hospital.

Dr. R. B. Wilson, formerly of Tower City, died at Ardmore, Pa., at the age of 80 years. He had been engaged in the practice of medicine for almost 50 years.

Dr. S. Beach Jones of New York died at his home May 13, 1910. He was a graduate of the College of Physicians and Surgeons of New York in 1872, and was a member of the New York Academy of Medicine, the Medical Society of the County of New York, and the Medical Society of the State of New York.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

TUBERCULOSIS WITH RESEARCH—WOMEN DOCTORS AT MANCHESTER INFIRMARY—ORTHOPEDIC HOSPITAL—DENTAL DISPENSARIES—MORTUARY FOR CITY CORONER—NURSES AND MIDWIVES: PROPOSED DIPLOMA, CONFERENCE, AND EXHIBITION—BAZAARS—WOMEN L.R.C.P.—OBITUARY.

London, April 29, 1910.

In this year's report of the Medical Officer of the Local Government Board there is an account by Professor Delépine of the important researches which he has made as to tuberculous milk. His experiments convince him that by means of subcutaneous inoculation of guinea pigs the degree of infectiveness (for those animals) can be estimated of the products of inoculation. He uses the sediment of milk as a test for tubercle bacilli. Of samples of milk from farms supplying Manchester nearly 9 per cent. contained bacilli to an extent likely to produce infection. On 75 per cent. of these farms tuberculous lesions of the udder were found on one or more of the cows, and Professor Delépine regards the diseased udder as the principal source of the bacilli. Many cows with early tuberculosis of the udder yield large quantities of milk, and if that should be mixed with the milk of the whole herd, as it usually is, the danger of infection must be enormously widespread. One part of tuberculous milk was found capable of infecting 100,000 parts of pure milk. The danger of a single diseased animal in a herd is therefore extreme, and as it is not easy to detect the disease in the early stage bacteriological examination of the milk from the suspected udder is of the greatest importance. When this discovers bacilli in a mixed milk, or when inoculation of a guinea pig indicates infectiveness, a skilled veterinary surgeon will generally be able to discover the diseased cow of the herd.

In view of these facts it is satisfactory that a milk and dairies bill has been read a first time in the House of Commons amid the cheers of all parties, being considered noncontroversial, so that there is some hope of effectual regulation being some day brought into operation.

The Manchester Royal Infirmary has refused to admit women doctors to its resident appointments. The decision led to a discussion in "another place," to wit, the local Medicoethical Society, when Sir William Sinclair presided. The case for women was stated by Dr. Margaret M. Smith, inspector of midwives in Manchester, who argued that women's college records were as good as men's—often better; that as to junior posts neither sex had any experience, but women were unfairly handicapped for senior posts; that for character and physical capacity there was no difference; as to the attendance of women on men being shocking to their modesty, the reverse argument was just as good. As women doctors had come to stay, it was only right they should have every opportunity for perfecting their education.

Dr. Margaret Smith's plea, to the surprise of many of her supporters, seemed to be generally accepted by the meeting. At any rate, no one rose to reply, and after one or two had spoken in support the president called on some members by name to state the case on the other side. They all, however, excused themselves and he himself confessed that he agreed with Dr. M. Smith. Among those who supported her one speaker had hinted that women were perhaps more neurotic than men, but another declared he had found this element just as prominent and quite as common in men. Another admitted that in slight emergencies women did not show up well, but when the greatest courage was needed they were equal to men. In the end it was agreed *nem. con.* that the claim for admittance to resident offices was not to be rejected.

The Lord Mayor, Lady Mayoress, and the Sheriffs last Friday paid a visit in state to the Royal National Orthopedic Hospital, which is now the only one of its kind in London, the three which existed having amalgamated. The new building, you may remember, was opened by the King and Queen last year and represents the latest advances in the specialty. Unfortunately, there is still a debt of about £17,000, to aid which this visit was made, and many eminent supporters were present. The Earl of Denbigh, who is the chairman of the institution, made a practical appeal to those present. Taking a little deformed boy from a nurse, he showed that he could not stand, but, thanks to surgery, he expected he would soon be able to run about like other children, as many they had cured could do. They could take in 200 at a time if the money were forthcoming, and 400 cripples were waiting for admission, but they had only enough money to fill 130 beds.

The Lord Mayor said English people gave freely to help in all foreign disasters and should not forget such institutions as this at home.

There is some stir among dentists, and even doctors, too, by an alleged promise of £200,000 offered on loan at 5 per cent. to establish a number of dental surgeries where treatment could be obtained at minimum prices by those who could only contribute small sums. Of course, only qualified dental surgeons are to be eligible for the staffs, but it seems doubtful whether many will be ready to accept the appointments at first. At present the scheme is only being talked about and definite information is not forthcoming.

The Coroner for the city reports to the Common Council that the apparatus for the preservation of bodies by formalin has proved of great service. One man was found drowned and the body was stored for four months awaiting identification and remained free from decomposition. This is the first installation set up and it is to be hoped other health authorities will follow the example. Coroners and their juries will be sure to approve and may well demand that the act authorizing such plans be put in force.

There is a bill in the House of Lords for further amendment of the Midwives Act. One clause will be satisfactory to medical men, as it provides for payment to be made in cases in which the midwives have summoned assistance, as they are required to do by the act. Hitherto no provision has been made and the doctor called in has usually found that there was no prospect of remuneration. If he had refused to go, of course he would have had abundant abuse from his neighbors.

At a meeting of graduates of the University of Wales it was proposed to form a faculty to confer a degree or a diploma for nursing. There were medical graduates present who not only professed sympathy with the proposal, but were prepared to support it, though others said the matter concerned clinical practice rather than university. We have already a multiplicity of diplomas, which is generally thought to be disadvantageous.

Another move of the nurses is an annual conference and exhibition, the third of which is being held in London. It was opened by H. R. H. Princess Christian of Schleswig-Holstein on Wednesday and closes to-morrow. The object is to make nurses and midwives acquainted with all inventions and improvements produced and further to give them the opportunity of hearing lectures and taking part in discussions of subjects affecting their work. There is a large show of surgical, chemical, and pharmaceutical preparations, patent foods, sanitary appliances, etc. In another apartment the conferences are held under the presidency of Dr. F. W. Champneys. Not a few doctors look upon these doings with disapproval, but they have allowed so many encroachments on their domain without protest that it is idle to regret the results.

Another bazaar is also being held. This is on behalf of Fairlight Sanatorium, Hastings, and was opened yesterday by Lady Troubridge, who gave a short address, declaring that since science pronounced that consumption was curable the element of hope was not excluded. The bazaar was organized by one of the small hospitals for this disease (the Margaret street one). A number of ladies are holding the stalls and musical selections are being given afternoon and evening.

Yesterday at the Royal College of Physicians 90 new licentiates were admitted, among them the first woman. The ladies' room is Dossibai Rustomje Cowasji Patell.

Dr. Charles Plowright died on Tuesday in his sixty-second year. He was Hunterian professor of comparative anatomy and physiology, 1890-1894, and was made honorary Fellow of the Royal College of Surgeons during his professorship. He was president of the British and the French Mycological Societies and correspondent of other foreign societies. He had practised at King's Lynn and was for thirty-two years Medical Officer of Health for the District Council. He was also Justice of the Peace for the county (Norfolk) and a member of the Lunacy Commission. His work on the fungi is a standard in most countries. He was also deeply interested in folk-lore and his opinions upon the subject greatly valued.

Dr. Stewart Lockie, consulting physician to the Cumberland Infirmary, has died at the age of seventy-four. While physician to the infirmary it was mainly to his influence and energy that it was greatly enlarged and its management improved. The committee on the 20th inst. passed a resolution expressing their appreciation of his eminent services extending over thirty years. He was elected vice-president in 1901, in which year he retired from practice and was presented by his friends and professional brethren with his portrait, accompanied by a cheque and piece of plate.

Lieutenant-Colonel Sparkes, late of the R. A. M. C., who has died at Aldershot, was born in 1859, became surgeon in 1885, surgeon-major 1897, lieutenant-colonel 1905. He served with the Sikkim expedition and received a medal with clasp. In the South African war he took part in the operations in the Transvaal, in the Orange River Colony, and Cape Colony, and was awarded the Queen's medal with four clasps.

Dr. Herbert Nelson Cappe, senior medical officer of the Surrey County Asylum, has died at the age of forty-four. He qualified at the two colleges in 1888.

Dr. Alfred L. Griffith has died at the age of seventy-three. He qualified in 1859-1860 and proceeded to M.D. St. Andrews in 1862. He described a successful case of intussusception treated by the inflation of air in the *Lancet*, 1885.

Care of Tuberculosis in Denmark.—Under legislation enacted in 1905 the Danish Government pays three-fourths of the expenses of all poor persons who desire to be treated in tuberculosis sanatoria. When the hospitals under construction are completed, Denmark will have one bed in tuberculosis hospitals or sanatoria for every 1,200 inhabitants, a fact which will mean that the length of treatment can be considerably extended. In the United States there is one bed for every 4,500 inhabitants.

OUR VIENNA LETTER.

(From Our Regular Correspondent.)

HEART SUTURE—ANESTHESIA OF THE LUNG—FERMENTS IN TUBERCULOUS ABSCESSES—URIC ACID METABOLISM—COXA VERA—URINARY FINDINGS IN CARCINOMA—THE INHERITANCE OF ACQUIRED CHARACTERISTICS.

VIENNA, March 15, 1910.

OSKAR FÖDERL has performed an operation for suture of the heart in a case of a bullet wound. The wound of entrance was found in the left ventricle; no wound of exit could be discovered; the pleura in the neighborhood was injured. Blood coagulum was removed from the pericardium and a liter of blood taken from the pleural cavity. All of the wounds were stitched up. The pneumothorax caused by opening the pleura was overcome by pressing the anesthetic cone tightly upon the face, so that it was air tight; the air pressure in it and also in the lungs was raised, and the air driven out of the pleural cavity. The patient is quite well, though the projectile is still in the heart in the neighborhood of the apex.

N. Chilaidit has had under observation a ten-year-old boy with the following findings: The left half of the thorax is collapsed, remains quiet during breathing, and shows a well developed venous plexus. There is dullness over the entire left lung; the normal right lung extends two fingers' breadths to the left of the midline. Auscultation of the left side shows distant, here and there high pitched, breath sounds. The apex beat is to be felt two fingers' breadths outside of the left mammary line, and besides this there is a second pulsating center in the second left intercostal space in the mammary line, where a blowing systolic murmur and a diastolic shock can be heard. Otherwise the sounds are clear. In the *x*-ray picture the whole left side of the thorax is dark, this increasing laterally. The retraction and dullness of the left side of the thorax were noted immediately following birth. The child also had the following malformations: Hypospadia, hypoplasia of the genitals, shortening and thinning of the left arm, atrophy of the left thumb, and a suggestion of scaphocephalia. The child was born with atresia ani, which was corrected by operation. The condition is apparently a fetal anesthesia of the left lung.

Dr. Schüller has addressed the Society of Physicians upon his researches in the treatment of tuberculous processes with ferments. Tuberculous pus is very poor in ferments, as it contains but few polymorphonuclear leucocytes, which are the ferment carriers. The method of treatment consists, after puncture of the abscess and withdrawal of the pus, in injecting a 1 per cent. sterile trypsin solution into the cavity. The trypsin dissolves the proteins of the pus and stimulates an invasion of leucocytes. Schüller has punctured tuberculous abscesses of the soft parts daily and injected trypsin every second day. Usually three to four injections sufficed for a cure; in a few cases only one was needed. Under the influence of the injections the pus changed its consistence, the secretion decreased, and granulations developed. In tuberculous abscesses of the soft parts the results were very good, as they were in serous inflammations, as bursitis, hydrops genu, and hydrocele. Tuberculous arthritis cannot be cured by this method.

Professor Biernacki has carried on an investigation into the relation between general and urinary metabolism—excretion of uric acid. He studied the influence of feeding of large amounts of fat and carbohydrates upon the uric acid secretion in dogs, and showed that the quantity of uric acid at times remained unchanged, at times was increased, and at times decreased. The latter occurred when the fat acted in saving the protein. The variations in the nitrogen metabolism produced by feeding fat and sugar caused a diminution in the uric acid coefficient and a relative and absolute increase in the purin bodies. Biernacki considers that a decrease in the amount of uric acid in the urine does not signify a retention of uric acid in the body, but a weakened purin metabolism. Such a theory would explain the clinical decrease of uric acid in the urine associated with a full purin diet, as meat diet. The general picture of the metabolic changes found in the uric acid diathesis resembles closely the conditions observed in his researches. Professor Biernacki believes that therapeutically an overfeeding of the patient is to be avoided; that the uric acid content of the blood cannot be studied, for a large amount of

blood (circa. 200 c.c.) is needed, and the withdrawal of even 50 c.c. of blood would greatly change the significance of the experiment, and that finally he had seen clinically not a single patient suffering from renal calculi who was not the subject of uric acid diathesis.

Professor Lorenz presented at the Society of Physicians a patient who one and a half years before had received the bloodless treatment for coxa vera. As the onset of the disease antedated the treatment by more than a year, radical treatment could not come into consideration. The reposition of the dislocated head was also ruled out. Lorenz, in this as in all similar cases, had used the procedure, the so-called inversion, for which, in the interest of all sufferers from coxa vera, he asked a greater recognition and appreciation. By inversion he understood the changing of a given habitual position of the joint into a position of the opposite kind, an overcorrection of an existing contracture by intraarticular reduction. The inversion method differed from the usual reduction, in that the hypercorrection was of a much higher grade, so that the joint was forced into a new permanent position and secured there by careful measures. The eighteen-year-old patient showed a mobility of the operated hip joint far beyond the normal physiological limits, in the case of abduction and hyperextension, while the rotation was normal. Functionally one could call the case a perfect recovery, for the patient not only walked without a limp, but had normal endurance. She could hop without effort on the affected leg and could elevate the well half of the pelvis high up. In the light of these results, Lorenz considered that treatment by resection was unjustified. The *x*-ray picture showed the head of the bone to be quite markedly dislocated. It was evident that such a dislocation, provided it was not of such an exceptionally high grade, might occur with normal function if the joint had complete mobility in respect to abduction and extension. This and earlier observations had induced him to treat systematically, that is by inversion, coxa vera from congenital ricketts and from arthritis deformans juvenilis also. The existing contracture caused a much greater interference with the functional activity of the extremity than the often insignificant deforming of the head of the femur.

Docent Hans Saloman and Paul Sax have reported a new urinary finding in carcinoma. Of 103 noncancerous patients examined, 100 cases showed an oxyproteinic acid value at the highest not over 2 per cent. of the total nitrogen. On the other hand, of 40 cases of cancer examined, 31 showed an oxyproteinic acid content of 2.5 to 3.5 per cent., 5 cases from 2.2 to 2.5 per cent. and only 4 cases with a content less than 2 per cent. of the total nitrogen. The accuracy of the diagnosis of the cancer cases was usually determined by operation or autopsy. Of the 4 cases with a low oxyproteinic acid content 2 were clinically doubtful cases of cancer. After it was demonstrated that an increase of oxyproteinic acid excretion occurred in cancer, the urine of a series of pregnant women were examined, on account of the often observed parallelism between cancer and embryonic tissue. In 15 women in late pregnancy 14 had an oxyproteinic acid excretion in the neighborhood of 3 per cent. and one of 2.3 per cent.; one woman in the second month of pregnancy excreted 2.4 per cent. of her total nitrogen in the form of oxyproteinic acid. The theoretic value of these researches was that for the first time a suggestively specific metabolic change was found in cancer. This occurred, with the exception of one case of liver disease, equally strongly in pregnancy. Practically the increase in oxyproteinic acid excretion might be considered as a symptom of cancer. If this symptom was found, a diagnosis of cancer received a powerful confirmation. Further testing of the specificity of the symptom, its value for the early diagnosis of cancer, and perhaps for pregnancy also, needed further investigation in order to establish it.

The inheritance of acquired characteristics was the subject of an address in the Royal and Imperial Society for Physicians by Dr. Paul Kammerer of the Biological Institute. It is no longer open to doubt that characteristics may be changed by associations and that the changes may be transmitted to the offspring. There is, therefore, an inheritance of acquired characteristics, and the one point upon which opinions still differ is in comparison to this great truth, almost unworthy of mention, namely: whether the influence of the outer world when it produces inherited characteristics takes the direct physical road to the germ center, or the indirect physiological way via various bodily changes to the germ. Are the organs of generation influenced immediately by the external factors, or are they changed through the mediation of stimuli transmitted from the surface of the body? This is the question to which he hopes to offer an answer. From exact observations of careful breeding various things point towards the first method of acquired characteristics acting upon the germ, and at least no sufficient reason has been produced to deny that this is the sole method. The lecturer summarized the present knowledge of the subject as follows: In one or more generations B a change is brought about which did not exist in the previous generation A or in the generation B at the beginning of the experiment. From the changed generation B the next generation C is then produced, but this is brought about without any further action of the artificially produced factors, under a reversion to the normal life of the earlier generation. If in spite of this there appears in C the acquired characteristic changes seen in B, the breeding experiments have demonstrated the congenital transmission. Proof of the inheritance of acquired characteristics which fulfill such requirements are present in the sphere of zoology, a great many of which have been established by the experiments of the speaker.

OUR CANADIAN LETTER.

(From Our Special Correspondent.)

SANITARY REFORMS IN MONTREAL—HIGH DEATH RATE FROM INFANT MORTALITY AND TUBERCULOSIS IN THE PROVINCE OF QUEBEC—ALEXANDRA HOSPITAL FOR INFECTIVE DISEASES, MONTREAL—THE COLD STORAGE OF FOOD AND PUBLIC HEALTH IN CANADA—EMPLOYMENT OF WOMEN AND CHILDREN IN FACTORIES IN THE PROVINCE OF QUEBEC—RESIGNATION OF DR. SHEARD FROM THE POSITION OF MEDICAL OFFICER OF HEALTH FOR TORONTO—BILL INTRODUCED INTO ONTARIO LEGISLATURE TO ALLOW THE STERILIZATION OF CRIMINALS, IDIOTS, AND IMBECILES—AMENDMENTS INTRODUCED INTO THE ONTARIO MEDICAL COUNCIL—OSTEOPATH BILL FOR ONTARIO—DOMINION LEGISLATION—COST TO THE STATE OF PUBLIC INSTITUTIONS IN ONTARIO—NEW BUILDING FOR TORONTO ACADEMY OF MEDICINE—NEW BUILDINGS IN CONNECTION WITH TORONTO UNIVERSITY.

MONTREAL, April 20, 1910.

A REFORM government is in power in Montreal, and the old adage that new brooms sweep clean appears as if it were about to be realized in this city. It must be said that there is room for great improvement, for in most respects Montreal is backward from a public health point of view. In the first instance, the sewage system is antiquated and insufficient for the needs of the inhabitants. There are districts in which a sewage system is nonexistent. Many of the city sewers date from 1844, and the city has spread so rapidly that many of the trunk sewers are inadequate. Further, half of the area within the city limits is over the dividing line between the rivers St. Lawrence and the river known as the Back River, so that all the drainage of this area must be carried to the Back River. The territory includes five large city wards and two-thirds of another, all of which have to be provided with drainage and sewage facilities. One large sewer has been constructed in these districts and a sewage farm of twenty acres on the filtration system has been laid out, but, of course, only a beginning has as yet been made. While the sewerage system is out of date, the water supply is open to grave suspicion. As mentioned in a former letter, the frequent outbreaks of typhoid fever which occur in Montreal are attributed by the best authorities mainly to a polluted water supply. A commission appointed by the two universities of Montreal have come recently to a similar conclusion, and have stated in emphatic terms that until measures have been taken to thoroughly safeguard the water supply, typhoid fever will be more or less prevalent. The new city government and the more intelligent of the citizens recognize the force of these statements, and steps are being taken to introduce the necessary innovations. The city has practically resolved to install a filtration plant, and the Montreal Water and Power Company, which supplies about 170,000 of the inhabitants, have drawn up plans for the installation of a mechanical filtration plant. In the meantime both the city and the private company are purifying their water supplies by the agency of common bleaching powder, with, it is said, great success. According to existing views, Montreal is to undergo a sanitary transformation, her streets are to be solidly and evenly paved, drainage and sewerage is to be rendered adequate and effective, and last, but not least, her water supply is to be freed from contamination.

These reforms when carried out should result in a very considerable decrease of sickness and death. In a previous letter comment was made on the high rate of infant mortality which prevailed in Ontario, and especially in Toronto. Recently the annual report of the Board of Health of the Province of Quebec has been published, and reveals a similar condition of affairs in this province. During the year covered by the report, from June 31, 1908, to June 31, 1909, 34,247 deaths occurred in the province. Of the number 12,842 were infants under the age of one year and 3,522 were infants from one to five years of age. Thus 16,364 deaths out of a total of 34,247 occurred in children under five years of age, that is to say, the appalling proposition of 477 deaths under five years of age in 1,000, or nearly half. Tuberculosis is a very fatal disease in Quebec. During eleven years, from 1896 to 1906, the death rate for 100,000 inhabitants of the province was as follows: For urban districts, 289.85; for rural districts, 163.07; for urban and rural districts combined, 192.0. Tuberculosis, indeed, has caused more deaths in the period mentioned than all the other contagious diseases together. The reason for this predisposition to consumption among the French-Canadians is ascribed by some as due to their habit of shutting out the air from their homes. The French-Canadian in town and country appears to have a perfect horror of fresh air in the house.

The annual meeting of the governors of the Alexandra Hospital for Infectious Diseases, Montreal, was held under the presidency of Dr. Roddick on April 14. The year's work of the hospital has been highly successful, but Dr. Roddick in his report emphasized the lack of accommodation for mixed infectious cases. The same difficulties prevail in regard to provision for patients suffering from erysipelas. Moreover, the accommodation for nurses is insufficient, and it would seem that the erection of a nurses' home is imperative.

An important decision relating to public health has just been delivered in Montreal. The cold storage question is in Canada almost as acute as in the United States. It is alleged that the large meat packers, in order to keep up the prices of foodstuffs, retain these in cold storage frequently for such a length of time that they become to a certain extent a menace to health. The Civic Law Department has handed in an opinion to the Board of Control of Montreal that the Provincial Board of Health has powers to interfere with cold storage warehouses if it is thought that these establishments are storing meat so long that it becomes unfit for human consumption. It is expected that the City of Montreal will request the Provincial Board of Health to take measures rendering it illegal to keep foodstuffs in cold storage beyond a given period.

Up to the present time the laws of the Province of Quebec relating to the employment of women and children in factories have been very lax. Last week, however, the Federal Government enacted that women and children should not be permitted to work in factories for longer than fifty-eight hours in the week.

Dr. Chas. Sheard, who has been for eighteen years medical officer of health for Toronto, has resigned. Dr. Sheard was a man of much energy, of independent character, and of original views. He was a capable medical officer of health, who held to what he thought was right with great tenacity.

During the present session of the Ontario Legislature several bills of interest to medical men have been introduced. Among these was a bill introduced by Dr. Forbes Godfrey. This bill was somewhat similar to that of Indiana for the sterilization of criminals, idiots, and imbeciles. The premier Sir James Whitney spoke very strongly against the bill, chiefly basing his arguments on the fact that it would place too great powers in the hands of medical men.

Amendments were proposed to be introduced into the Ontario Medical Council. The amendment of greatest importance proposed was that as soon as any registered practitioner is convicted in any court of Ontario of a criminal offence his name shall be automatically removed from the register. Another amendment was to the effect that the executive committee may now institute inquiry in alleged cases of infamous conduct. Formerly Council ordered investigation and nothing could be done for a year.

An osteopath bill was introduced into the Ontario Legislature with the hope of establishing a legal and professional status for this class in the province. The bill asked for power to establish a college and to provide a curriculum of studies, to set examinations, and to grant diplomas to practise osteopathy. To show the cunning methods of the framers of the bill, at the end of one section it was stated that osteopaths should not be allowed to prescribe medicine to be used externally or internally, except anesthetics, antiseptics, and antidotes. These cover a fairly large field, and exhibit plainly that the object is to get in the small end of the wedge. If the osteopaths are given a legal status they will be able to practise medicine and surgery to the fullest extent on equal terms with the regular medical profession. The matter, so far as the Province of Ontario is concerned, is laid over, to come up next session.

Dominion legislation has been shelved again. Quebec stands in the way. She wishes to raise a very high fence against outside competition, or rather against competition from any part of the Dominion. There are at the present time signs of partial reciprocity. Two or more of the provinces have agreed upon a common standard—Manitoba, Saskatchewan, Alberta, and British Columbia have settled upon a base of interprovincial reciprocity.

Public institutions for the care and treatment of the sick and injured in Ontario have received during the past year from the State $1,219,000.

The Academy of Medicine of Toronto is to have a fine new home. From $25,000 to $30,000 is to be expended on a new building on a new site in Queen's Park.

The managers of the Massey estate intend to build as a memorial to the late Hart A. Massey a magnificent series of buildings for the use and amusement of the Toronto University students.

Progress of Medical Science.

Boston Medical and Surgical Journal, May 5, 1910.

Intestinal Perforation of Unusual Etiology.—H. G. Giddings gives the history of a farmer's boy who fell on the point of a pitchfork which entered the rectum for about three inches. There was considerable pain, slight bleeding, and a moderate tenesmus when the bowels moved, but no evidences of serious injury. The accident happened in the forenoon and the boy worked through the rest of the day. Next day the symptoms grew more pronounced and by night a diagnosis of ruptured appendix was made. Operation was determined to be the only rational procedure. On opening the abdomen the operator found a quantity of turbid fecal stained matter but no perforation in the appendix, but in the posterior wall of the cecum rather toward the outer side at a point about three-quarters of an inch proximal to the attachment of the appendix, was a perforation a little larger than a slate pencil. The author's theory as to the cause of the perforation is that when the pitchfork entered the rectum it brought about, probably through a quick dilatation of the colon by the contained gases a partial rent in the gut which subsequently being so near the appendix simulated appendicitis and later, undoubtedly on the day following the injury this partial rent became complete. It was closed with a purse-string and two Lembert sutures and the belly was washed out with a saline solution, about a quart being left inside. The wound was closed after the insertion of one gauze drain down to the pelvis. The patient's condition was very unpromising but recovery was complete.

Imperforate Hymen.—F. W. Johnson says that this condition is a rare one and before the days of asepsis almost all cases operated on died. Infection undoubtedly took place through the walls deprived of their epithelial covering by long maceration in the retained fluid, of the vaginal, uterine, and tubal cavities. He then reports the case of a girl of 18 years, of a phthisical family history, who entered the hospital February, 1910. She had not only never been unwell as far as the appearance of blood externally, but she had never had any symptoms which would indicate that menstruation had been established. Her general health was excellent. On examination by the rectum, assisted by pressure on the abdomen, a soft, semi-fluctuating mass was felt occupying the position of the vagina. The uterus was pushed up into the abdominal cavity and was on top, so to speak, of this mass. With the actual cautery an opening was burned through the septum where the hymen should have been and 12 ounces of thick tarry material were excavated. The vagina was then thoroughly washed out with sterile water and a sterile T bandage was applied. Sterile douches were given twice a day as long as there was any colored discharge. The septum was one-half inch in thickness and two and a half days after the operation menstruation occurred. The flow lasted four days and was normal in every respect. On leaving the hospital the vagina easily admitted the index finger.

Exophthalmic Goiter.—W. H. Robey, Jr., has had a personal experience of sixteen cases during the last year and gives detailed histories of seven interesting ones. He says that any case which has tachycardia and extreme nervousness should arouse a suspicion of this malady. The size of the gland, however, is no guide to the course of the disease nor to the degree of toxemia. Medical treatment should precede surgery, although in Germany operation is a first resort. The physician should not allow his patient to grow worse nor stand still in a condition of invalidism without the advice of an experienced surgeon and operator. It is unsafe to allow an exophthalmic goiter with distressing symptoms to continue without improvement because the toxemia sometimes exerts a sudden and alarming influence on the heart. Patients with a well-developed case of this disease do not stand ordinary intercurrent infections which would hardly trouble a normal individual. Surgery is not all that can be desired in this affection, for besides reducing the gland we must know how to limit its secretion. It does, however, give both patient and physician a decided advantage in pursuing medical treatment by reducing the amount of thyroid secretion.

New York Medical Journal, May 7, 1910.

Significance of the Various Enlargements of the Thyroid Gland, with Special Reference to Basedow's Disease.—Carl Beck presents an elaborate paper with many photographs illustrating the various forms of goiter, describing in the text histological features of each and the varying forms of therapy. He says that experiments in regions in which goiter is endemic point to the drinking water as the carrier of thyrogenous element. Simple goiter is a prevalent attribute of the poor, while the Basedow type is found among all classes. The question of the favorable soil for development seems to be the most important therefore in practice. As to the etiology of Basedow's disease our ignorance is still greater. There are, however, many points of resemblance to simple goiter, and that predisposing moments serve as exciting moments cannot be doubted. Especially neuropathic disposition, continuous mental insults, and similar irritations of the nervous system may give the first impulse. It is significant that nearly all the author's patients afflicted with Basedow's disease were women and that all his cases of simple goitre were foreigners, most of them coming from Russia and Galicia with a few from Germany and Switzerland, while most of the Basedow cases came from the United States. The author's methods of treatment naturally vary according to the variety of the lesion, and while he offers nothing essentially new, his careful separation of his patients, according to lesions presented, is accountable for his excellent results.

Norway for Neurasthenia.—C. E. Nammack described the country from a climatological point of view and the various restful journeys which may be taken within its confines. The democratic spirit of the people and the absence of the servility so noticeable in other parts of Europe render the country particularly agreeable to the American tourists. He says they are industrious, sober, phlegmatic, religious, and contented, and a few weeks spent among them in sight of their everlasting hills would be the best tonic for a restless, sceptical, neurotic invalid. Their absolute belief in the mercies of an all-wise Creator, their absolute confidence in one another, their respect for law and order form a refreshing picture in these days of religious unbelief, social unrest, business dishonesty, and official corruption. Norway has an excellent system of district physicians and midwives for attendance upon the sick poor. Vaccination is compulsory and no child can be confirmed without producing a certificate of successful vaccination. The death rate would be very low if the drowning incident to the shipping, lumber industries, and fisheries were excluded. Acute bronchial catarrhs are among the most frequent epidemic diseases, and tuberculosis occupies the prominent place among the chronic infections. Leprosy, under the policy of segregation, is markedly decreasing, but is still so commonly seen as to excite no hysterical leprophobia.

Heredity as a Factor in the Etiology of Tuberculosis.—E. L. Shurly says that it would seem irrational to ignore the condition of hereditary tendency as playing a great part in the susceptibility or resistance of disease whether infectious or not. For it seems highly probable that certain tissues or groups of tissues, certain conditions of the internal secretions, or certain organs are stamped with either a high, a low, or a peculiar degree of activity—independently of those peculiarities termed idiosyncrasies. If this is so and if heredity is really an important factor in the production of tuberculosis and other diseases, then is it not obvious that more attention should be paid to the breeding of civilized man? Everybody should keep in mind some such homily as—that a bull pup (although a canine) cannot be produced by two setter dog parents; and hence if two individuals with tuberculous or cancerous or insane tendency, marry—it may be expected that the progeny of such union will in all probability be physically defective in some particular at least, and will have a low resisting power toward the acquirement of tuberculous, cancerous, or perhaps other diseases. The progeny of inebriates both in "high life" and "low life" are often good illustrations of altered vitality. Among the poor they die off in infancy, though partly from want of care and nutrition; while among the rich, they may sometimes be reared, at the cost of extra care and attention, to live for some years their sickly lives. Equipped with the common knowledge regarding heredity or hereditary tendencies in man and the lower animals as the medical profession is, it is surprising that so many scientific writers treat the subject so lightly. The majority of the lay and medical tuberculosis preachers deride heredity as a casual factor at all. The author has heard a lay tuberculosis preacher say to his audience: "Tuberculosis (consumption) is not hereditary in any way. Dismiss that from your mind; It is the most curable of diseases, and depends entirely upon your getting the bacillus, the germ! Kill the germ and you stamp the disease out," etc. Now, who knows how many hearers belonging to a tuberculous family, would, after this harangue, straightaway take a spouse from another tuberculous family—and breed tuberculous children?

Fibroid Tumors Complicating Pregnancy.—G. Torrance refers to the statistics of this condition and then reports the case of a primiparous colored woman of 32 years of age who had been in labor for twenty-four hours under the care of an intelligent midwife who called a physician. He found one hand presenting but could not feel the os which was high up behind the pubes. The pelvis was filled with a large, hard tumor mass and a number of nodules could be palpated in the right side of the abdomen just below the liver and were apparently attached to the uterus. Chloroform was given and an attempt was made to relieve the obstruction, failing in this the author was called in with the view of operating. The woman was sent to the hospital and under ether the child was delivered by cesarean section; the placenta was detached and there was considerable maceration of the placenta and child, and the contents of the uterus had a very foul odor. A large tumor about the size of a child's head which filled the pelvis, was shelled out without necessitating the use of a single ligature. The uterus was then removed with the attached masses above. Drains were passed out through the vagina and one in the cul-de-sac passing out through the abdominal wound. There was considerable oozing, and the patient showed that she suffered greatly from shock. The operation lasted about forty-five minutes. There had evidently been a good deal of absorption of toxic material from the macerated and septic materials found in the uterus. The patient was put in a bed with the foot elevated and was given stimulants and salines but to no avail. The tumors, including the body of the uterus, weighed five and a half pounds.

Journal of the American Medical Association, May 7, 1910.

Abuse of Hypodermic Medication During Operation.—H. G. Wetherill condemns the practice of hypodermic stimulation during and after operations, and states that anesthetists and surgeons who have had the largest experience seldom use it. The best results and the lowest mortality of the busiest surgeons of to-day are attained by the simplest methods. Careful diagnosis and accurate estimates of the ability of the patient to undergo the operation are made. He is prepared with care, the anesthetic is wisely chosen and skillfully given; he is operated on without avoidable exposure, delays, or hemorrhage, he is returned to a warm bed, placed in a favorable position, watched by a competent nurse, and let alone. If he is very restless and really suffering from shock or severe pain as he emerges from the anesthetic he may be given a moderate dose of morphine and atropin but, notwithstanding its stimulating and soothing effect, he is ordinarily better off it it can be omitted. No strychnine, no spartein, no digitalin, no nitroglycerine—no whip and spur for a tired and jaded and played out or overworked heart, if such he has—no piling up of new poisons to impose additional burdens on the organs of elimination. Let him alone. Keep him warm and very quiet. Give him all the water he can absorb by the avenue of choice; mouth, rectum, under the skin, or within the peritoneal cavity, and as few drugs as possible.

Cancer.—J. W. Vaughan critically reviews the theories of cancer, the mechanical irritation theory of Virchow, the lack of tissue tension theory of Ribbert, the trophic nerve theory, the parasitic theories, and the infection theories generally, and suggests a theory of his own. This appears to be that there is stored in each cell a reproductive zymogen which is called into action when more cells are required to be made; and that this call might depend on chemical or mechanical irritation from outside. In the case of cancer, clinical observation has shown the probability of mechanical irritation being the *a priori* factor in stimulating this activity—especially a low grade of irritation; insufficient to cause cellular death, but enough to keep the specific reproductive ferment in an abnormal activity. It has been demonstrated by modern research that chemical ratios are different in cancer individuals. Crile and others have shown that the blood of cancer patients is capable of causing hemolysis of normal blood corpuscles. The recent works of V. C. Vaughan concerning the chemistry of the bacterial cells tend to prove that in bacterial infections, especially of the lytic type, a ferment is formed which is capable of destroying the bacterial cell through the injection of a specific residue of that bacterial cell within the human body. With this in mind, the author has attempted to induce the formation of a ferment in the human body capable of destroying the cancer cell through injections of its nontoxic residue into the body from which the cancer was obtained. The formation of such a substance in the host might serve to explain the few cases of apparent self cure of cancer which have been observed. Belief in this theory and in the efficacy of the method based on it does not do away with the need of a radical operation. His attempts have been to establish the ferment which destroys the cancer cell in cases already beyond surgical relief. In such it can do no harm and no other method is available. The preparation of the residue, as described by V. C. Vaughan, is given essentially as follows: "The cancer material is dissected as freely as possible from all surrounding tissues, after which it is ground in a meat grinder. The material is next washed with water, dilute salt solution, alcohol, and lastly ether. This process removes salts, fats, wax, several protein bodies, and traces of carbohydrates. The remaining substance is then heated in a flask with a reflux condenser with from 15 to 20 times its weight of a 2 per cent. solution of sodium hydroxide in absolute alcohol, and by this means it is split into a toxic and a nontoxic group. The toxic portion is soluble in the alcohol, the non-toxic is insoluble, and it is with this portion we have to deal."

His practical work in this line has all been done since September, 1907, and the time is too short to report results, therefore only a few cases of recurrent cancer treated on this principle are reported. The results so far have been encouraging. Immediately after the first injection of cancer residue the pain ceases and, while the growth of new tissue in all cases treated has not been entirely stopped, Vaughan thinks it safe to say its rapidity has been lessened. The cases were all of superficial forms of cancer in which recurrence occurred, and were chosen so that results could be quickly and accurately estimated. Every tumor should be examined microscopically and the patient treated preferably with a residue from his own tumor cells. The treatment by this method should follow radical surgical removal as soon as possible. If the majority of surgeons who have a large amount of material of this kind would utilize this method Vaughan says some definite conclusions as to its value could soon be obtained.

Gastric Analysis in Infants.—The results of gastric analysis in 62 infants are summed up by D. H. Sherman. The technique used was to examine the gastric contents one-half hour after a meal of plain barley water, and also one-half hour after a proprietary food containing starch made up without milk. The Topfer method was used which is sufficiently accurate for clinical purposes. Free hydrochloric acid was estimated by using phloroglucin vanillin, and quantitatively by titration with decinormal sodium hydrate solution, using dimethylamido-azobenzol as an indicator. Total acidity was estimated by using phenolphthalein as an indicator and combined acidity by alizarin. The conclusions are as follows: "1. The normal infant gastric analysis, shown in degrees, after barley water, is, free hydrochloric acid. 2.1; total hydrochloric acid, 5.6; total acidity, 9. 2. It is the hyperacidity which is one of the common causal factors of the vomiting of infants. 3. Clinical experience corroborates our tests, that longer intervals of milk-feeding are less apt to be followed by sour vomiting. 4. Milk going into a hyperacid stomach forms curds more quickly, they are larger and harder, and hence may produce vomiting. 5. The analyses explain the good results following the exclusion from the dietary for a time of cow's milk, the reason for gastric rest, with or without lavage, and also the chemical antidotal effect of alkalines."

Cerebral Syphilis.—E. L. Hunt calls attention to the course and prognosis of syphilis in certain patients who may present many of the physical and mental characteristics of general paresis, and yet unlike sufferers from paresis are to a certain extent amenable to treatment. The group of symptoms which these cases present is twofold in character, physical and mental. These occur in men about 35 years of age, who have contracted the disease probably fifteen years before. The physical signs consist of changes in the reflexes, both of eyes and knees, the Romberg symptom, and the tremor of the facial muscles. The mental symptoms consist of a lack of confidence, a loss of judgment, a sense of depression, and inability to perform regular work; a certain amount of mental deterioration, degradation, and confusion. These patients do not care for their personal appearance; their clothes are not neat; their shoes are never cleaned; they do nothing, they are hypochondriacal. In treatment, Hunt says that the best results have come from large and systematic dosage of the iodide and mercury. The mercury can be given either by inunction or by hypodermic injection. The latter is the preferable plan from the point of view of both of the patient and of the physician. The dosage can be made more exact, and it enables the physician to keep a constant supervision over the patient. The iodide should be begun in doses of from 25 to 35 drops a day and steadily and rapidly increased to 300 or even 400 drops. Another important factor in the improvement of these patients is the environment. They ought to be surrounded in every way with what is agreeable and congenial. Exercise and diet should be carefully regulated. Such patients also require a great deal of rest and do better with long hours in bed.

The Lancet, April 30, 1910.

Fatal Hemoptysis in Childhood.—R. Brown's patient was a girl of three years, admitted to hospital with the signs of tuberculosis of the lungs. Percussion resonance was poor over the entire left side, the breath sounds were harsh and over the left lung almost of a tubular character. Medium râles were audible all over the chest. The apex beat was felt in the sixth space one inch outside the nipple line. There was an irregular and feeble heart action, and irregular fever. The child died on the fourth day after admission with a profuse hemoptysis. The autopsy findings are given. There was a cavity in the lower lobe of the left lung and the hemorrhage had extended to the stomach, which was occupied by clot. The most striking features of the case are undoubtedly that the immediate cause of death was a sudden profuse hemoptysis, and that this was the first and only attack thereof. This is uncommon in children of such tender age and is rarely fatal. Cavitation appears not to be unusual in children, but difficult to recognize clinically. On this account it was formerly thought to be of less frequent occurrence than is actually the case. The presence of a cavity was not diagnosed in this case. Cavities are usually small and of recent origin, while this one was, comparatively speaking, of large size.

The Pressor Bases of the Urine.—W. Bain offers the following conclusions: (1) The pressor bases which are present in the urine of normal adults can be most readily obtained by slaking the urine with Fleming's blood charcoal and subsequently extracting the charcoal with suitable reagents. (2) The urine of growing children contains these bases in minimal amount. (3) So far as the influence of diet is concerned very little can at present be stated. In the two cases investigated the substitution of a milk and biscuit diet for one rich in meat makes but little difference. Medicinal doses of antiseptics administered by the mouth do not make any appreciable difference in the amount of these products of protein putrefaction which is excreted in the urine. (4) In all cases of high blood-pressure hitherto examined the urine contains very little of the bases in question and in some cases they are altogether absent. The non-elimination of the bases probably indicates that they are retained within the body and play an important part in the production of high pressure. (5) So far as the cases of gout are concerned, the author's material has been rather scanty and conclusions must be taken with reserve. He scarcely thinks there is any relationship between gout *per se* and the retention of the pressor bases, and yet in most cases which he has examined the diminution in the excretion of the bases is not proportional to the increase of arterial pressure observed. (6) In cases in which the urine contains a deposit of uric acid there is a marked diminution of the colloid matter of that fluid. This colloid consists of or contains a sulphur com-

pound—Chondroitin sulphuric acid—which is a constituent of cartilage. The association of this condition with the frequency of urate deposit in cartilage is suggested and deserves fuller investigation.

Vicious Circles Associated with Disorders of the Nervous System.—J. B. Hurry enumerates some of the most common of these associations. Under functional disorders he mentions first, neurasthenia caused by insomnia, with mental depression and malnutrition and a mental condition set up in neurotic persons when attacked or threatened by illness. Vicious circles may also be set up by the use of alcohol and various drugs, especially morphine. There are forms of neurasthenia in which some peripheral organs are reciprocally involved with the central nervous system. The sufferer, by fixing his consciousness with morbid intentness on his organs, creates not merely unhealthy sensations, but also functional disorders as nausea, palpitation, flatulence, and polyuria. A vicious circle is frequently associated with sexual malpractices and spermatorrhea, while anemia in its secondary effects on nutrition may form a grave complication of neurasthenia. Considering other functional disorders, there are various conditions in which cause and effect bear reciprocal relations to each other. Overwork supplies a common example. Between the nervous system and the gastroenteric tract many illustrations of disordered correlations may be observed. Under the heading of organic diseases of the nervous system Hill draws attention to a vicious circle which is established when intracranial hemorrhage causes increased cerebral compression, and thus leads to a secondary increase of compression by obliteration of veins and capillaries in the affected area and a consequent congestive edema. Another form of circle may be established in cases of hydrocephalus in which the ventricles are dilated with fluid. The dilated ventricles may so displace the adjacent parts as to press on and increase the obstruction to which the accumulation of fluid was originally due. So also inflammatory conditions in which toxins dilate the blood vessels after the metabolism of the tissues and raise the osmotic pressure (by increasing the crystalloidal cell-products) are often complicated by a vicious circle. Finally vicious circles may be established by erroneous treatment in various disorders of the nervous system though such errors are less common than formerly. The abuse of potassium bromide in traumatic neurasthenia is a case in point. Another artificial circle may be established when minor uterine or ovarian disorders receive undue attention and thus provoke in the patient an unhealthy condition which exaggerates and perpetuates the trivial local disorder. Strychnine is often abused in its use for severe shock accompanying major operations. Under such circumstances there is a fall of blood pressure following dilatation of the splanchnic area and exhaustion of the nerve centers. Stimulants are useless in stemming this fall of pressure. Many fatal cases might have recovered but for the strychnine. The use of this drug still further exhausts the nerve centers. In other words, the symptoms of shock led to the administration of the drug which administration in turn increased the shock.

British Medical Journal, April 23 and 30, 1910.

A Note on Defective Nipples.—H. B. Billups comments on the varying aspects of the nipples commonly met with in obstetric practice. He finds that much damage may be done to the nipples during the age of childhood by improper manipulation, owing to various old-woman theories as to the proper preparation of the breasts for the secretion of milk in the later marriageable period. He does not believe that the old theory of defects from pressure by the corsets holds true, nor that the condition in question is a congenital one but that it is due to improper manipulation by ignorant midwives soon after birth. It is the duty of physicians and nurses to prevent the pinching of the breasts by the patient or family friends.

The Surgical Treatment of Certain Cases of Glycosuria.—A. W. Mayo Robson says that the practical outcome of his experience may be thus stated: (1) The early recognition and treatment of interstitial pancreatitis or of pancreatic catarrh by drainage of the bile ducts and thus indirectly of the pancreatic ducts and the removal of the cause whether that be gallstones, duodenal ulcer, or other conditions, may be the means of averting diabetes. (2) In certain diseases of the pancreas even after the appearance of glycosuria surgical treatment is well worth considering as in a number of cases it has led to a complete disappearance of sugar from the urine, and in others to an arrest of the disease causing glycosuria. (3) Every case of diabetes should be considered from its etiological point of view, seeing that certain cases of glycosuria of pancreatic origin are curable, and in others the progress of the disease may be arrested by suitable surgical methods that can be carried out with very small risk.

Malarial Fevers and Quinine.—J. H. Whelan speaks of the varieties of the malarial organisms and the blood state in fevers. We know that the blood cells are greatly diminished in numbers, much more so than can be accounted for by the ratio of cells infected. The hemoglobin content is much reduced, the resistance is lowered, and there is a leucopenia, but both a relative and actual increase of the large mononuclear cells. I think we may take, says the author, the lowering of the resistance of the blood disks to be Nature's method of cure. If the infected disks break down before the asexual parasites can sporulate, a permanent cure ensues unless the gametes may revert under favorable conditions to the asexual type. Quinine lowers the resistance of the blood disks and in malignant malaria we have in the tropics, blackwater fever, acute hemoglobinuria. It nearly always occurs in patients taking quinine. If quinine is cautiously given in this class of fevers it causes the gradual premature breakdown of infected cells before their guests can sporulate; in other words, quinine cures malarial fevers by destroying the homes and food of the plasmodia before they can sporulate, yet the cured patient may remain a source of infection to his neighbors because, while the patient himself may be cured, he is able to infect mosquitoes which may carry the poison to others.

The Results of Thyroid Treatment in Infantile Wasting.—J. W. Simpson has given thyroid in a diluted milk and cream mixture with sodium citrate, one or two grains to the ounce of milk. In a day or two cream was gradually added, half a teaspoonful to the feeding bottle. Out of 80 cases thus treated 72 were infants under nine months and their history was simply one of wasting. The other 8 had a wasting supervening on some acute diseases; sixty-three cases did well; five cases presented syphilitic histories in which wasting was a marked symptom. Mercury was first given and later thyroid. Three immediately gained and eventually recovered. In older children the results have also been favorable, except when tuberculosis was present. In children under nine months' the author began with one-third grain of dried thyroid once daily. Larger doses often seemed to induce a diarrhea. In the giving of thyroid it is advisable to test the stools frequently to see whether they are acid or alkaline. In case acidity is found the bicarbonate of soda may be given three times daily, and when the natural alkalinity of the stools is restored the thyroid will begin to exert its beneficial results. No grave symptoms followed the thyroid therapy. In six cases a punctiform rash appeared, confined in two cases to the front of the chest. It was evanescent and disappeared without treatment in the course of 12 to 24 hours. In only one case was it necessary to stop the thyroid (3 days) in order to cause the rash to disappear. Cases treated at home did better than those treated in hospital. It seems probable, says the author, that the amount of nursing and general "mothering" that is possible at home but not in hospital, is very beneficial in such cases and conduces to a more rapid recovery.

Treatment of Depression of the Skull in a Newborn Infant.—The child under the care of W. R. Cossham was, when born, found to have a depression in the left frontoparietal region about one and one-half or two inches in diameter. It was born after a tedious first labor. As it was hoped that recovery might occur spontaneously, and the child seemed in no way affected by the condition, nothing beyond a fruitless manipulation was done till the tenth day. The child was then taken into our cottage hospital where, with all needed help, operation was done under an anesthetic as follows: The surgeon provided himself with an awl made from a large-sized knitting needle and an elevator made of stout wire with bowed handle and a point, somewhat flattened, bent to a right angle, so as to be about one-eighth inch in length. "I dissected back a small tongue of scalp, including the pericranium, over the center of the depression, and cautiously bored through the skull. Inserting his elevator he then easily drew the part into position. A suture and dressing were applied, and the child was sent home in a few hours. Healing took place in the course of a week without the smallest complication.

Hospital Infection of Tuberculosis.—J. E. Squire presents in a statistical form the report of one of the English hospitals for a period of fifteen years, and also comparisons with other institutions. From Table I it appears that out of 1,730 medical resident officers, dispensers,

nurses, female servants and porters, 38 became affected with the disease. Table II gives the statistics of 26 cases which contracted the disease in the special hospital referred to in the 15 years. Of 33 past resident medical officers to whom he has written and of whom he has positive knowledge, one was dead, 27 replied, and of the 27 all but four were able to state that they had never suffered from tubercle, either before, during, or since their stay in hospital. Of the four exceptions two had suffered before entering the hospital, the disease having been arrested. Both are well and continuing at work. The other two had some local manifestations on the skin, but both recovered. Regarding hospital positions in general the author says that the risk of infection is no greater to the workers in any well-ordered hospital than among the general mass of town dwellers of similar social position. Infection does occasionally result in nurses, but probably not oftener in a hospital for consumptives than among the general body of nurses. The risk of tuberculous infection even in a hospital for consumptives appears to constitute a very small danger. The author publishes a list of cases, one of which illustrates unsuspected tuberculosis detected by examination on entry, occurring in a ward maid, and several cases of apparent infection during residence. He calls attention to the difficulties in securing absolute accuracy in the preparation of an article of this kind, stating, however, that it is undesirable that those who have tuberculous family histories should take work as nurses or maids in a special hospital for consumptives.

An Immunizing Subinfection in Scarlatina.—A. E. Edwards says that our continued experience with scarlatina convinces us that the predominant factor in spreading the disease is personal contact. He refers to the lower grade of infection in the disease, saying that, because it varies so greatly in its characteristics so as to produce all grades of rash from the brilliant and vivid eruptions, hemorrhagic and accompanied by miliary vesicles to a slight erythema of low punctiform character which is hardly visible, it is not illogical to expect that the rash-producing properties of the infection may be traced to the vanishing point. Some patients present the strawberry tongue, but no other sign. It is not irrational to suppose that these children may have had so low a degree of infection that, while it was too feeble to produce the typical lesions, it could produce an effect on the delicate tissues of the tongue, and, further, that the attenuated infection by which they had been attacked had immunized them against the more marked disease. The infection of persons therefore during the prevalence of scarlet fever may be classed as follows: (1) The well-developed cases, (2) the mild ones, in which the infection has caused sore throat and a slight evanescent rash, with subsequent peeling, and (3) the cases where there is still milder infection, not sufficiently concentrated to cause a rash, but which produces a sore throat and possibly exfoliation of the tongue. From the standpoint of public health these cases may be disadvantageous to the community, for the infection which will have produced only a protective and immunizing effect on one person may, when transferred to other persons of low resistance, result in graver pathological conditions. If these subcases of the disease are infectious, it would appear that usually their infectivity is of low degree. The infection is not likely to produce otorrhea or rhinorrhea, but if these discharges are coincident, then the infection is likely to be spread. This leads to the conclusion that every effort should be made to cure such discharges, especially in school children who come into close contact with others, and herein, as in so many other directions, there is hope of much benefit from the institution of routine school medical inspection.

Berliner klinische Wochenschrift, April 11, 1910.

Chlamydozoa in Trachoma and Blennorrhea.—Halberstaedter and Prowazek refer to their previous paper in which they reported the finding of the so-called trachoma bodies in cases of nongonorrheal blennorrhea neonatorum and in the vaginal secretion from the mothers of some of these cases. They state that to prove that these organisms found were trachoma bodies, it was necessary to produce a conjunctivitis by injecting into the eye of a monkey, and then to find the same cell inclusions in the secretion from the infected animal. This is an especially valuable proof as the monkey's conjunctiva is immune to gonococcus infection. The chlamydozoa have also been found by Lindner in the male urethra in cases of nongonorrheal urethritis. The authors have confirmed this finding. While it is shown that the chlamydozoa blennorrhea is due to infection from the genital tract of the mother, there is no reason why infection with other organisms, especially the gonococcus, may not take place at the same time producing a mixed infection. The present status of the question is as follows: In fresh trachoma one finds the characteristic bodies which the authors have called chlamydozoa. These are also found in a definite form of ophthalmia neonatorum, in the genitals of the mothers of the diseased children, and in the urethra in nongonorrheal urethritis in males. It is possible to infect the conjunctivæ of monkeys with the secretion of trachoma, with the pus from chlamydozoa blennorrhea, with material from the genitals of the mothers of such children, and with the urethral secretion in men, in a similar manner, and then to find typical chlamydozoa in the epithelium of the monkeys' conjunctivæ. These infected conjunctivæ in the monkeys later show the typical clinical picture of human trachoma.

Münchener medizinische Wochenschrift, April 5, 1910.

The Production of Atypical Epithelial Growth by Injection of Scarlet Red and Amidoazotoluol Oil.—H. Stoeber refers to the action of scarlet red in stimulating epithelial growth, both on the surface in man, as in case of ulcers, and in the subcutaneous tissues of the ear of the rabbit. He says that he has been anxious to try deep injections in the normal skin of a man, and recently has had the opportunity in the case of a man eighty years of age, who was to have an amputation of the leg for an ununited fracture. The operation was postponed for two weeks, and with the patient's consent subcutaneous injections of scarlet red, amidoazotoluol, and *a*-naphthylamin were made. After amputation, two weeks later, distinct epithelial proliferation was found at the site of injection of the scarlet red and the amidoazotoluol.

Dosage of Bier's Hyperemia.—M. zur Verth discusses the production of hyperemia by means of the elastic bandage, and says that the maximum hyperemia occurs in association with the minimal arterial pressure, and may be obtained by producing a pressure somewhat below the minimal arterial pressure obtained by the auscultatory method. Researches have shown the highest blood pressure in the hyperemic area is obtained by producing a pressure just equal to the diastolic blood pressure. The acoustic phenomenon heard between maximal and minimal arterial pressure is the indicator which prevents too vigorous an application of the bandage.

A Method of Differentiating Serologically Between the Blood of Different Men.—v. Dungern and Hirschfeld have investigated the serological reactions between the sera of monkeys and the blood corpuscles of men, and find that there are very marked individual differences, some men giving marked hemolysis and others none. They have carried the work further by using the sera of chimpanzees, oxen, goats, horses, pigs, rabbits, cats, dogs, and chickens. With all of these they find similar individual variations with different men. The authors offer this multiple test, that is, trying the hemolytic reactions of the various sera with any given blood as a proof of the identity of any blood specimen. They are now studying the question of the heredity of the individual hemolytic characteristics according to Mendel's laws. If the characteristics are uniformally inherited the test may be of value as a proof of legitimacy.

Relation Between Tone, Acid Production, and Position of the Stomach.—H. Bräuning has studied a series of patients in regard to the chemical analysis of the gastric contents, the tone, and the position of the lower border of the stomach as shown by the *x*-rays. From a study of twenty-two cases, he finds that where a hyperchlorhydria exists, there is a diminished tonicity of the fundus, and that in cases where there is a diminished tonicity, the lower border of the stomach lies lower down than in cases with a normal tonicity. He does not say that the hypotonicity is the cause of the hyperchlorhydria, or *vice versa*, but that probably both are the result as an asthenic constitution.

The Newfoundland Society for the Prevention of Tuberculosis is carrying on a vigorous and necessary campaign this year in the island. The death rate from the disease in Newfoundland is very large. About one in every five of the total population dies of it, and, what is worse, in the last six years the death rate, which is stationary or decreasing elsewhere, has increased about 50 per cent. This is due largely to the native horror of fresh air in the house.

Book Reviews.

Vital Economy, or How to Conserve Your Strength. By John H. Clarke, M.D. New York: A. Wessels, 1910.

Dr. Clarke has written an interesting little monograph, which tells rather how to conserve one's strength than how to get strong. The stream of popular health books seems to be increasing in volume, and there is really little need for another book on this hackneyed subject. For an Englishman, Dr. Clarke holds peculiar views on baths and bathing. Bathing, he says, is not essential to cleanliness, and cold baths do not always protect the person using them from colds. He says that it is perfectly possible to wash away so much of the epidermis as to leave the skin quite sensitive and subject to even slight changes of temperature. Coffee he considers more of a food than tea, and not nearly so trying to the digestion, even helping this function in some cases, rather than hindering it. There are chapters on exercise, stimulants, fresh air, the extravagance of worry, and an appendix in which are published abstracts from various reviews and personal letters concerning the English edition.

Health in the Home. A Practical Work on the Promotion and Preservation of Health. With illustrations and descriptions of Swedish gymnastic exercises for home and club practice. By E. Marguerite Lindley, Lecturer on Health Culture. New and Revised Edition. Passaic: The Health Culture Company, 1910.

The writer says that this book was written at the request of many patrons of her lecture courses on home gymnastics, and that a flattering list of subscribers awaits the issue of this second edition, thus proving the growing interest in the work as well as the reliability of the book. Doubtless this little confidential statement will help in the sale of this as well as other editions. Certainly one cannot wish Miss Lindley any other fortune. Twelve chapters are devoted to prescriptions for the use of Swedish exercises in home practice, with especial reference to those exercises best suited to children. The chapters on fatigue and rest, emergency work and first aid to the injured, and home nursing are not devoid of interest to the medical man, and will doubtless be of service to the lay reader, for whom they were written.

Anleitung zur Diagnostik der Abdominaltumoren, unter Zugrundelegung der Palpation. Eine klinische Erläuterung zur Palpation des Abdomens. Von Prof. Dr. G. L. Sacconaghi, Dozent für innere Medizin an der kgl. Universität zu Pavia. Nach der italienischen, vom Autor verbesserten Ausgabe. Uebersetzt von Dr. V. Plitek in Triest, mit einem Vorwort von Prof. Dr. C. von Noorden in Wein. Berlin: Verlag von S. Karger, 1910.

This interesting work presents in a concise but carefully elaborated manner a most important chapter in diagnostic methods. Although fully recognizing and noting the value of other procedures, Prof. Sacconaghi places the main reliance on palpation in making the diagnoses of abdominal lesions. The author claims that only in a limited number of conditions involving the abdominal organs will the trained hand be unable to detect the sources of the trouble, and as the result of a long continued period of study and observation he has worked out a suitable schematic method for the desired purpose. His conception of the word "abdominal tumor" is not synonomous with "neoplasm," and is made to include every abnormal circumscribed projection as well as every complete or partially enlarged, distended, indurated, or displaced organ, which affords a sense of resistance during the act of palpating the abdomen. On this basis the author takes up in great detail the diagnosis by palpation of all the abdominal contents, which results in the production of the most complete work on the subject which has come to our notice. The book is encyclopedic in character, and as worthy of translation into English as it was into German.

Travaux d'Obstetrique. Par le Docteur Samuel Gache. Professeur Argégé à la Faculté de Médecine de Buenos-Aires; Directeur de la Maternité de l'Hôpital Rawson; Lauréat de l'Institut de France et de la Faculté de Médecine de Paris; President de la Ligue Argentine Contre la Tuberculose, etc. Paris: G. Steinheil, 1910.

The introduction to this volume is written by Dr. Sobre-Casas, of Brazil, whose excellent monograph on cancer was noticed in these columns some months since. Modern ideas on the subject of obstetrics are expressed in this book with much clearness, and if there is not as much system in the statement of facts as might be desired, such facts as are stated are of clinical value. The author is evidently a man of experience, who knows how to state his ideas in a clear and concise fashion. Among the therapeutic remedies employed to increase uterine contractions, he considers sulphate of quinine and ammonium succinate as possessing much merit. Ergot he thinks should not be used, and objects to lactose because it provokes vomiting. Manual dilatation of the uterus is his method of choice, but in case it is not readily accomplished, instrumental dilatation of the neck may be begun with the Tarnier balloon, followed by the Champetier de Ribes bag. The Bossi dilator, he says, is easy to use and gives certain results. In urgent cases it is superior to all other procedures, for one can secure complete dilatation with it in fifteen minutes. This work has some value as a book of reference, but its value would have been greatly increased by the use of illustrations—so essential in these days in the teaching of practical obstetrics.

Pulmonary Tuberculosis and Sanatorium Treatment. A record of ten years' observation and work in Open-Air Sanatoria. By C. Muthu, M.D., M.R.C.S., L.R.C.P; Associate of King's College, London; Physician, Mendip Hills Sanatorium, Wells, Somerset; Late Physician Inglewood Sanatorium, Isle of Wight: author of "Some Results of Sanatorium Treatment of Phthisis," "The Inhalation of Formic Aldehyde in the Treatment of Pulmonary Tuberculosis," "The Diagnostic Value of Tubercle Bacilli in the Treatment of Phthisis," "A Short Account of the Aryan System of Medicine," etc. London: Baillière, Tindall & Cox, 1910.

Although not so stated in the preface, the author doubtless intended this little volume more as a handbook for the lay patient than as a treatise on the subject for the professional man, and as such, while there are numerous shortcomings, and while it must be acknowledged that the work contains many statements which, when the lay reader is considered, are of doubtful expediency, nevertheless, it possesses many points of unique and practical value. The author considers his subject under three principal headings: Part 1 consists of a brief general discussion of the etiology, communicability, symptomatology, and prognosis of pulmonary tuberculosis. It is in this part particularly that the author's views are at greatest variance with those generally accepted to-day. For instance, it is rather shocking to be told that the tubercle bacillus is merely a predisposing factor in the causation of tuberculosis and is no more to be considered the determining factor than is poverty, etc. (page 33). One familiar with the modern views as to the etiology and communicability of tuberculosis can follow the author's argument and soon discover that his views are not so radical as at first appears, but the expediency of entering such a discussion in a handbook evidently intended for the laity is, to say the least, questionable. This first part of the work abounds in metaphor and a rather vague nomenclature in which "vital energy," "resistance," "personality," etc., appear in somewhat confusing figures of speech. Part 2, devoted to the subject of sanatorium treatment, is much better. The author has done well to limit his discussion of this subject to his personal experience in his own sanatorium, and in this section he has brought home some very important truths regarding sanatorium treatment—truths too often lost sight of in the popular discussions of the subject. Part 3 is devoted to the social and economic factors of tuberculosis, and presents the author's views as to the ideal method of solving some of the great social problems, of which he considers tuberculosis a phase. On the whole, the book is interesting, of convenient size, well illustrated, and perhaps safer for popular distribution than many another written for the purpose.

Transactions of the 31st Annual Meeting of the American Laryngological Association, held at Boston, Mass., May 31, June 1 and 2, 1909. New York. Published by the Association, 1909.

This volume is a fitting successor to those which have been published in previous years, and shows well how rapidly the kindred sciences dealing with the nose, throat, and ear are advancing. There are several papers upon the influence of disease of the nasopharynx upon diseases of the ear. There is a symposium also upon the surgery of the esophagus. Two helpful papers are those on the use of calcium lactate in hemorrhage and the report of a fatal case from injection of cocaine-adrenalin solution in tonsillectomy.

Society Reports.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting Held in Washington, May 3, 4 and 5, 1910.

RUDOLPH MATAS, M.D., OF NEW ORLEANS, PRESIDENT.

Tuesday, May 3—First Day.

(Special Report for the MEDICAL RECORD.)

Concerning Operation on the Hypophysis.—Prof. A. VON EISELSBERG of Vienna, Austria, read this paper, reporting six cases in which he had operated. The operation had been done in each instance by a low frontal incision making an incision through both eyebrows and down the side of the nose, turning the nose soft parts to one side, and opening frontal sinuses and nasal fossæ, removing superior turbinate bones, nasal septum, vomer, scooping out the sphenoidal cells and opening the posterior lamella of the body of the sphenoid exactly in the median line. All unnecessary bone destruction was avoided. This frontal approach was easier than the temporal, but gave greater chance of infection. It should be done after a preliminary tracheotomy with packing off of the nasal cavities to avoid pulmonary complications. A chronic nasal catarrh was a common accompaniment of acromegaly. Of the six cases operated on by him two were carcinoma, two sarcoma, one a mixed tumor and one a simple cyst. Two of the patients had acromegaly and both had died; a third had had no acromegaly but after the operation the size of the bony framework of the body had markedly decreased in size. A hat that was formerly worn now dropped down over the ears and the trousers were too large round the waist and too long. Two of the cases had been of the juvenile type and two of degeneration of the hypophysis with the Froelich syndrome. In most of the cases there had been an improvement in the headache and the vision. The first case had an uneventful recovery and after two years was at work again as a clerk. The second case was improving in vision though the field of vision was still very limited. The third case, a cyst with removal of two ounces of chocolate-colored fluid, did well for several weeks, then developed meningitis and a lumbar puncture showed pure pus. This cleared up on antistreptococcus antitoxin and two years later the patient's general condition was good, though the vision was limited. The fourth and fifth cases were of acromegaly, the fourth a sarcoma and he died within forty-eight hours of the operation. He was hopeless before operation. The sixth case was the most difficult of all with an abscess in the hypophysis. Since the operation he had shown a decrease in his bony framework in spite of the fact that there had been no acromegaly before the operation. During his visit to America Prof. von Eiselsberg had seen the remarkable surgery of the Americans and felt that it was now time for the European surgeon to visit America as well as for the American to visit Europe and that the mutual interchange of ideas would be of benefit to both.

Operation for Removal of Tumor of the Hypophysis.—Dr. ALBERT E. HALSTEAD of Chicago sent this paper and reported two cases. After discussing the advantages and disadvantages of the several routes of approach to the hypophysis he described a case in a man 37 years of age whose eyesight had gradually failed and bitemporal hemianopsia had developed; he was married, but had no children and had diminished sexual tendencies. His field of vision was diminished in every radius and not over ten degrees on the temporal sides. The operation was done through a low nasal exposure. The incision was through the mucous membrane between the gum and lip, the nose being retracted upward after a preliminary tracheotomy. The turbinates were removed with the nasal septum, and the sphenoidal cells curretted out and then the sella turcica opened and the cystic tumor curetted away. For the first forty-eight hours the temperature was 100 to 102 and the pulse not above 120. The cavity was repacked and promptly the temperature rose to 105° and the patient became somnolent. The packing was taken out and the wound redressed. The pulse fell to normal and the temperature also; and there continued steady improvement in all ways until he resumed work as driver of a wagon. This patient was presented to the Association for examination. The second case was a woman of 22 years with eye symptoms. Under operation she did well except for one time when she stopped breathing from obstruction of the tracheotomy canula. After the operation her temperature remained near 102° for two days, then rose antemortem to 107°, and the patient died with the symptoms of toxemia, tremor, and stupor.

Dr. MIXTER of Boston reported a case that he had operated on in December. A boy of 17 years with symptoms of the juvenile type and hemianopsia. At the operation two or three ounces of cholesterin containing fluid were removed. The boy had made steady improvement.

Dr. CUSHING of Baltimore thought the nasal route the more useful, but that radical removal of the tumor was rarely possible. These tumors, like many of the long-standing tumors, as in the thyroid gland, frequently were malignant, and rarely a pure cyst. The neighborhood symptoms of the optic nerve might be relieved by simple splitting of the capsule which also relieved the headaches. In the cases of hyposecretion partial removal was followed by improvement after relief of the pressure. In one of his cases the menses had returned after several years of amenorrhea simply from relief of the pressure on the anterior lobe of the pituitary body.

Dr. KANAVEL of Chicago had been responsible for the technique in the case presented by Dr. Halstead, and had assisted at that operation. The operation had been quickly done and had given a good exposure of the bulging of the sella. In the second case of Dr. Halstead's the tumor and sella could not be seen so well, and the same trouble had occurred in Dr. Kanavel's own case. Hence he had made a series of measurements on fifty normal skulls and had found a number of important facts. In two of the fifty there had been no sphenoidal cells. In twenty-one there had been no bulging of the sella into the sinus. In ten the distance from the sella to the medulla oblongata had been but three millimeters or less, so that puncture of the medulla would be very easy. In seven the cribriform plate was so low that an extradural superior frontal operation would have been very difficult.

Dr. E. L. LEWIS of Chicago considered that the cases giving the Froelich syndrome were usually cystic tumors of the infundibulum. The tumors of the anterior lobe were of a type simulating carcinoma. Three cases had been reported of cysts of the pars intermedia.

Giant Cell Sarcoma of Bone; A Clinical and Pathological Study in the Conservative Treatment of Bone Tumors.—Dr. J. C. BLOODGOOD of Baltimore spoke of bone cysts, giant cell sarcoma, and bone aneurysm as three types of bone tumor often mistaken for each other and for malignant growths, but none of them were malignant. In the bone cysts there was a medulary lesion in which simple incision with evacuation of the cyst contents cured. In the giant cell sarcoma cure followed local removal. The bone aneurysm did form metastases, but as a rule its local removal cured. The bone cysts were subdivided into three classes, first, the medullary type with no lining membrane; the contents were not hemorrhagic and did not include any large blood clots. The second type was lined by a connective tissue membrane; the cyst cavity was of small size and the medullary cavity of the bone filled with fibrous tissue giving the name ostitis fibrosa. The third type was one of multiple cysts. He had seen eighty-nine cases operated on conservatively, and only one of them was dead

and that death was from tuberculosis. An *x*-ray picture taken six years after the operation of the first case showed a restoration of normal bone. The differential diagnosis between these types of bone cyst was of course made by incision determining whether the contents of the cyst were fluid, or fibrous. The giant cell sarcoma was cured by curetting, repeated if necessary. The bone aneurysms had cavities filled with large blood clots. Before operation it was always wise to examine the blood for the Bence-Jones bodies of multiple myeloma. The bone cysts occasionally underwent spontaneous cure.

Dr. Brewer of New York asked if the presence of blood in the bone cysts was to be taken as an indication of malignancy.

Dr. Carstens of Detroit emphasized the change in ideas that formerly any bone tumor meant a high amputation, but such was not now the idea. One case of a boy of eighteen he had operated on removing a giant cell sarcoma. The boy was well. Two years later a swelling of the humerus appeared, and again a partial resection of the humerus was done leaving only a shell of bone. The cavity was filled with an emulsion containing over two ounces of iodoform and the boy developed an iodoform poisoning. He now preferred to fill the bone cavity with a bismuth paste.

Dr. Ferguson of Chicago called attention to the fact that sixteen years ago Halstead had said that in one bone in the body, the jaw bone, sarcomata were benign.

Dr. Halstead of Chicago noted the implantation of the bone tumors at times into the soft tissues and suggested the application of strong disinfectants to the bone cavity after curretting out the tumor mass.

Dr. von Eiselsberg of Vienna said that he poured boiling water into the bone cavity, after the curettage. He found that filling the cavity with water was just as efficacious as filling it with emulsions or pastes.

Dr. Bloodgood in closing said that he too believed in disinfecting the wound after curettage with either phenol or heat. He had not found blood in any large quantities in any of the bone cysts upon which he had operated. In sarcoma of the jaw cauterization of the bone and tissues with phenol saved the teeth and destroyed the growth.

Removal of a Tack from the Left Bronchus.—Dr. Carson of St. Louis reported this case. The tack had been shown head down in the trachea in an *x*-ray photograph. Attempt at removal with the esophagoscope had pushed the tack further down into the left bronchus. On the next day edema of the mucous membrane shut off the left bronchus, and a later *x*-ray picture showed the tack at the base of the lung. Operation at that time was refused, but several weeks later consented to, when an abscess of the back had formed and discharged an ounce or more of pus. A rib was resected and the tack found behind the artery and the bronchus in a cavity containing a dram or more of pus. The operation was followed by favorable progress except for a cerebral embolus with partial paralysis. Then on the eighth day the boy suddenly started to bleed from the nose and mouth and died in a few hours. The tack had ulcerated into the artery.

The Surgical Treatment of Esophageal Diverticula.—Dr. Charles H. Mayo of Rochester, Minnesota, said that while these diverticula were rare, they were very serious. The two types of diverticula were pressure sacs from lodgment of food above a stricture, and traction sacs from adhesions due to inflammation around the esophagus usually in the neighborhood of the left bronchus. The traction sacs did not so often give symptoms. The pressure sacs occurred most frequently at the site of the laryngoesophageal juncture, and were found almost always in adults. Cardiospasm gave the same symptoms, but a tube would pass the cardiospasm into the stomach. Stricture gave the same symptoms, but the diagnosis could be made with sounds. Large diverticula appeared as tumors in the neck when dilated. Sounds passed entered either the stomach or the sac. Esophagoscopy was helpful in making the diagnosis. One sure method of diagnosis was to fill the sac with a bismuth paste and then take an *x*-ray picture. The chain and shot-filled-tube pictures were not as satisfactory. Frequently the diagnosis of cancer of the esophagus was made and gastrostomy done for its relief and then when the patient failed to die in due time from the expected cancer a new diagnosis was sought. Plummer's test was a very valuable one. The patient was given three yards of thread to swallow and the upper end of the thread fastened in the mouth. Later another three yards of thread were swallowed and then a probe was passed on the thread. The probe went into the diverticulum and then on tightening the thread, the probe was lifted out of the sac and passed on down into the stomach. The condition was to be relieved only by operation. The incision was made along the anterior border of the sternomastoid and that muscle pulled away from the median line while the other neck muscles were pulled toward the median line, exposing the esophagus. The sac was opened, amputated, closed by a mattress suture, and the wound closed. Primary union was essential. At times it was desirable to empty the sac before operation to avoid infection of the wound. In cases of fistula following the operation a thread was passed through the mouth and out of the fistula and then the fistula closed at its outer end and tied to that thread. The tract was then dissected free and the fistulous tract inverted by the thread in the mouth, and the wound closed, leaving the fistulous tract hanging in the esophagus to atrophy. He had had eight cases operated on without mortality and two not operated on, but the diagnosis confirmed by *x*-ray pictures.

Some Observations Regarding Thoracic Surgery on Human Beings.—Dr. Willy Meyer of New York said the keynote to this intrathoracic surgery lay in the differential pressure apparatus for continuing respiration after the pleural cavity had been opened. In the ordinary empyema operations immediately after emptying the pleura of the pus it was always a great help to fill the lung with air by this apparatus, then closing the opening by a rubber band for several days, although it might have to be opened again for drainage, yet the convalescence from the empyema was markedly shortened. He had had two cases of bronchiectatic abscess with foul pus expectoration for years. After a careful examination both cases had been operated on and the cavity extirpated. Both cases were lost soon after the operations. In the future he would do less extensive operations and repeat if necessary to cure. In his second case with resection of the lower lobe of the lung all went well until the last ligature was to be applied on the bronchus. Artery and vein had been tied off without trouble. Then in tying off the bronchus the patient suddenly collapsed. Apparently the pneumogastric nerve had been caught. In a case of carcinoma of the esophagus he had operated following the technique used in dogs in which he had pulled both ends of the esophagus out of the wound, resected, and done a gastrostomy with good result. In men the scapula was in the way so that an incision similar to that used in the Schedé thoracoplasty was made following the spinal border of the scapula down to the tenth rib and then forward along the rib and up in the mammary line to the second rib. The scapula, latissimus dorsi, and pectoralis major were pulled upwards with the arm. He had incised first in the sixth interspace for about ten inches, pushed the lung back, and held the ribs apart with a special rib separator. This however gave insufficient exposure at the upper end of the growth and so after partly freeing the growth in its lower portion through this incision, a second intercostal incision of similar length was made in the third interspace. This gave a beautiful exposure of the apex of

the lung, arch of the aorta, and all the growth. To enucleate the growth an incision then had to be made an inch and a half long behind the carotid artery and this portion of the esophagus was enucleated and pulled down into the thorax. It was found then that the pneumogastric nerve was involved in the growth and it had to be cut following which the patient suddenly collapsed and died. For anesthesia, nitrous oxide and oxygen were given, there was no hemorrhage and so the only cause of death was shock. He would, however, propose to operate in every case of carcinoma of the esophagus, and if the vagus nerves were involved would cut one and see whether the second could not be cut later without fatal effect. Cocaine injected into the nerves might reduce the shock. Stimulation of no kind helped in vagus injury, but respiration by the differential pressure apparatus might help.

Dr. Halstead of Chicago said that he had operated on three cases of diverticuli of the esophagus, but that he did not consider operation essential in all cases. Passing a bougie at times allowed dilatation of the stricture and displacement of the spur between the diverticulum and the esophageal channel so as to allow passage of food. Some patients were able to pass their own bougies and probangs. Operation on the spur itself through an esophagoscope might some time supplant external operation as cutting of the spur was all that was necessary to the cure of the condition. He had found that the spur in many of the cases consisted simply of a fold of mucosa with no essential structures in it, and in such cases a simple cutting of the spur would be safe. But he had not yet found the case in which he was prepared to do this operation.

Dr. Crile of Cleveland said that he had seen the Plummer test for diverticula work perfectly satisfactory. He had operated on two cases of diverticulum with recovery.

Dr. Murphy of Chicago said that as primary union of the skin wound was essential in the cure of diverticula he had not opened the sac but folded it up and sewed it to the esophagus, thus avoiding the risk of infection from the alimentary canal. The result had been perfectly satisfactory. He reported a case of supposed foreign body in the bronchus of some twenty months' duration in which he had been unable to make a corroborative diagnosis and had refused to operate. Then a throat specialist had had the case operated on and the child had died under operation. No foreign body was found, but the thymus was found very much enlarged and compressing the softened trachea.

Dr. Brewer of New York noted the great distress caused by diverticula and the special characteristic symptom rarely mentioned of the collection of thick mucus in the sac and the persistent vomiting of this mucus. He had seen three cases and operated on one of them. The sudden onset of dyspnea in the cases of large thymus not infrequently led to the supposition of a foreign body in the bronchus.

Dr. Jacobson of Syracuse reported a case of the lodgment of a bean in a bronchus, the bean swelling up from absorption of mucus. The diagnosis was made and the bean removed by bronchoscopic examination. He had seen one case with the sudden onset of dyspnea that gave rise to the suspicion of a foreign body in the air passages and tracheotomy had shown a marked thickening of the trachea obstructing its lumen due in this case to syphilis.

Dr. Vanderveer of Albany thought that the bronchoscope should be used only after tracheotomy and the attempted removal of the body with alligator forceps.

Dr. Ransohoff of Cincinnati approved of the inversion of the esophageal end of the fistula in the cases of esophageal diverticula. He had seen cerebral embolism in one case of foreign body in the air passages after coughing up of the foreign body from its abscess cavity. In one case of his own there had been dyspnea from some unknown cause sufficient to indicate a tracheotomy which he had done and a few days later the tube was removed. Not long after the child coughed up a foreign body which had not been even suspected.

Wednesday, May 4—Second Day.

Postoperative Intestinal Obstruction was considered by Dr. Woolsey of New York City. He said that the most common cause of obstruction following peritonitis was an angulation and valvular closure of the intestine, there being an adhesion of the intestine to the parietes of the abdomen or less often to other loops of intestine with a subsequent kinking of the gut, most often the small intestine. Only the firm adhesions remained holding the intestines in some abnormal positions usually above the pelvis. Pressure of the contents of the loop increased the kinking and the obstruction. At times there were adhesions to the abscess wall and then evacuation of the abscess might cure the obstruction. In three cases he had considered the Trendelenburg position a contributory cause to the obstruction. In the cases of septic peritonitis there was paralysis of the gut from reflex inhibition, or possibly from overdistention. In two cases he had seen overdistention of the intestine with obstruction following an extraperitoneal kidney operation. Obstruction was most common in the cases of acute appendicitis. The cause of death in these cases was usually autointoxication from absorption of the decomposed intestinal products. In some cases there was a distention of the splanchnic area with blood causing a subsequent lowering of blood pressure sufficient to produce symptoms. In those cases enterostomy relieved the blood pressure and might reestablish the balance of circulation. In the cases of strangulation there was intense abdominal pain. In obturation there was less pain. The location of the obstruction could be determined roughly by the time of onset of vomiting and the degree of obstruction at onset. When peritonitis was present and spreading, after the patient became toxic, rigidity of the abdominal wall might be wanting. Then absolute constipation was expected. Acute dilatation of the stomach was associated with the same factors. The condition could be prevented by avoiding sepsis, and operating in all cases as early as possible. Physostigmin was helpful in the treatment of postoperative atony with early distention, associated with the use of stupes and the lavage of stomach and colon. Adhesions could be prevented by early, careful operation, avoiding denuding of the intestines.

Experimental Surgery of the Heart and of the Thoracic Aorta.—Dr. Carrel of New York read this paper. During all of his work on dogs at the Rockefeller Institute artificial respiration was carried on through a laryngeal tube. He found that in doing blood vessel surgery it was perfectly feasible to substitute for one portion of the functioning vessel a section of another artery or vein or a tube of peritoneum, and that in 80 per cent. of the cases blood vessels that had been preserved in cold storage were perfectly satisfactory. The main difficulty in operation upon the aorta lay in the impossibility of stopping the circulation through that vessel long enough to do the operation. In fourteen or fifteen minutes paralysis of the hind legs occurred. And if the circulation were cut off in the ascending aorta, then paralysis of the brain followed. So that in those cases he had introduced a short cut for the blood, leading it from the apex of the ventricle to the descending aorta. In operating on the descending aorta he did a temporary intubation of the aorta, a glass tube being inserted and held in place by rubber bands until the operation of resection was done and then the normal circulation restored and the glass tube removed after the main operation was finished. In the ascending aorta more difficulty was found and a lateral diversion of blood current was found less efficacious than the formation of a

new channel for the blood. He had inserted a bit of vein in the apex of the heart anastomosing the other end into the side of the descending aorta, and then clamped the ascending aorta just above the heart valves. This made the blood supply the main portion of the body after going in the usual direction, but the blood to the brachiocephalic arteries went through the aorta in the reverse direction. These operations were intended as the pathfinders for the treatment of aneurysm of the thoracic aorta in its various locations, but also opened the possibility of curetting off vegetations of the heart valves and dilating aortic or auriculoventricular stenosis, and possibly of anastomosis of the coronary arteries. It was feasible to stop the heart action completely for one minute. That stopped respiration also and produced a temporary death, but so long as no cellular death followed it was perfectly feasible to start up the functions of the heart and lungs again. There was no true death without elemental death, and organic death could continue for five minutes without any psychological trouble due to brain destruction. He showed pictures of dogs living five months and more after resection of the aorta. Dr. Carrel said that his work had not been done on human beings and that he was merely looking for operative principles which would lead to later treatment of disease.

Dr. Keen of Philadelphia had seen the marvelous work of Dr. Carrel in an operation on the aorta with both pleuræ open, the lungs and the heart exposed, the aorta clamped, cut, and reunited. Anesthesia was carried on by the Meltzer method which was very safe. There had been no respiratory movements of the chest walls during the hour and a half of this operation. In this case there had been a subsequent paralysis of the back legs of the dog from clamping of the aorta, but these paralyses do at times recover. He would have the members of this association go abroad as missionaries for the Rockefeller Institute against the antivivisectionists, who threatened to do such harm in blocking the path of this wonderful surgery as well as medicine.

The Surgery of the Vascular System.—Dr. Rudolph Matas of New Orleans then delivered the presidential address on this subject. He showed the need of testing the efficiency of collateral circulation before tying off any of the large vessels called terminal vessels of the leg and neck. The tying of a large vessel was safe only in the cases where the anastomotic circulation was assured. And if that was not sure then the only safe operation was one which would not deprive the existing vessel of its vascular function. The child with the elastic arteries was much safer to operate on and in whom to produce sudden changes in blood pressure, than the older persons with sclerotic arteries, and diseased heart. And yet it was these latter that were the usual patients with aneurysm. In every peripheral aneurysm attempt should be made to retain the parent trunk of the artery, but that was not always feasible, and then heroic or even adventurous surgery might be resorted to. Aneurorrhaphy was safer than occlusion of the artery. In 145 cases he had had necrosis or gangrene in only five, and in one of the last sixty. In the early cases there was in each case an injury to the vein. All five of these cases had had an obliterative operation. The function of the collateral circulation should be known in every case before an obliterative operation was done. This was essential in the extremities and in the neck. The fitness of the collateral circulation was to be tested by applying compression to the artery proximal to the aneurysm. Then to put on an elastic bandage from the tip of the extremity up to the compression point and squeeze all of the blood out of the part up to the top of the aneurysm. After five or ten minutes the elastic bandage should be taken off leaving the compression on, and the flush of the return circulation noted. The hyperemic blush should continue to the tip of the extremity. This was Moschcowitz's test for the line of demarcation and amputation in gangrene, but the physiology of Moschowitz seemed wrong as the blush went on to the tip of the extremity. In the test of the collateral circulation if the blush did not go to the tip of the extremity in five or six minutes, hot water was to be applied to the toes to encourage the wave and if the hyperemia could not be gotten in the toes, then the collateral circulation was not efficient and an obliterative operation was contraindicated. The popliteal, aneuroraphy was followed by good function of the knee and increasing flexion. In the carotid aneurysms a temporary clamp was applied to the cervical vessels, and such was of advantage in operations on brain tumors instead of ligation of the artery. Dr. Matas applied a metal band of aluminum the width of the artery that could be compressed easily between the fingers. This was compressed until the distal pulse ceased. These aluminum band clips did no injury to the endothelium if left on for a period up to seventy-two hours. Ninety-six hours was not safe as in some instances there was an injury to the endothelium.

Dr. Halsted of Baltimore said that in one case of popliteal aneurysm he had done a vein transplantation, but that the vein had later thrombosed. No symptoms were developed, however, as evidently the collateral circulation was adequate. If he had tried the Moschowitz-Matas test he would have saved the venous transplantation. He considered the rolled band preferable to the flat band in the temporary compression of the artery and did not find it more difficult, if the appropriate instruments were at hand. He had seen no trouble after six months of closure by the rolled band.

Dr. Charles Mayo of Rochester, Minn., reported one case in which he had operated on a patient who had previously had one common carotid tied. He had applied a compression band of block tin to the remaining common carotid and at first the patient had complained of blindness as the compression was being applied. The operation was done under cocaine. He loosened the compression and the eyesight returned promptly. Six months later the patient was still well and the eyesight satisfactory.

Dr. Ransohoff said that in tumors of the jaw it was often desirable to tie the common carotid and that if the circulation was normal above the point of ligature the common carotid could be tied with impunity.

Dr. Oliver of Cincinnati said that in one case he had tied first one common carotid and after an interval of eight months the other common carotid without ill effect on the circulation.

Dr. Matas in closing said that while Dr. Halsted's rolled bands for temporary compression of an artery might be better, the flat clip applied with the finger was much easier of manipulation.

A Device for Performing Aseptically End-to-End and Lateral Anastomosis of the Intestine.—Dr. Halsted of Baltimore read this paper. He suggested the clamp and cautery division of the intestine in two places. Then the coats of the intestine were cut through down to the mucosa and the intact wall beyond the line of incision gathered down on a grooved stick of licorice. Over that stick of licorice then, in place of over a hammer head, the ends of the intestine were united. The stick of licorice dissolved in a few moments and left the lumen of the intestine clear except for the two layers of mucous membrane which perforated later, as the mucous membrane was held together only by the juxtaposition following the cauterization.

Dr. MacDonald of Albany said that keratin would probably be a better substance to use than licorice.

Dr. Ochsner of Chicago said that intestinal obstruction had practically disappeared in his clinic since the introduction of the standing order that gastric lavage should always be used in cases of nausea or distention. To this he had added the proctoclysis of Murphy which supplied the

patient with fluid, and helped remove the secretion, which, according to Maury, was the cause of the postoperative toxemia. In the cases of obstruction occurring months and years after operation a second operation might be needed. In the cases where there has been no catharsis before operation he had no mortality from postoperative obstruction. In the cases of obstruction where catharsis was useful, it was not needed; and in the cases where it was useless, it could only do harm, so that he would say that in no case where obstruction was expected should cathartics be given. During operation for obstruction, after doing an enterotomy, the gut was threaded on a large glass tube, thus evacuating the intestine. Then the intestine was irrigated through the tube and the clammy toxic condition was followed by a marked reaction.

Dr. Andrews of Chicago spoke of the several types of aseptic anastomosis of the type of the McGraw ligature. He did not, however, consider aseptic anastomosis as essential as the free lumen in the intestine.

Dr. Ferguson of Chicago to prevent adhesions powdered the raw surfaces with subgallate of bismuth on all stumps and raw surfaces and stitch holes. He had applied it over several feet of bowel and mopped of the excess with salt solution, and found it harmless.

Dr. Gerster of New York City called attention to the number of cases of intestinal adhesions after operation in which no symptoms were found, and the other cases where only a few adhesions caused grave symptoms. Even after operations done under ideal conditions adhesion formed. No cause had yet been given to account for this difference and he laid it to a difference in blood condition and in assimilative processes.

Dr. Woolsey in closing also objected to catharsis as a delay to operation.

(To be continued.)

Philadelphia Neurological Society.

At a stated meeting held April 22 Dr. Edward Mercur Williams reported "A Case of Family Spastic Paraplegia," and he demonstrated the patient. The latter was a colored boy, 17 years old, who began to walk at the age of four, and presented wasting, weakness and spasticity in the lower extremities, with exaggerated reflexes, and preserved mental powers and motor power in the upper extremities. A maternal uncle was said to suffer from a similar disorder. Dr. Andrew H. Woods reported "A Case of True Muscular Hypertrophy, with Diminished Power," and he demonstrated the patient, a colored man, about thirty-five years old, who had for many years been engaged in fairly arduous laboring work. He presented apparently excellent general muscular development, although there was wasting of a portion of one trapezius. Nevertheless there was marked weakness and want of endurance in muscular effort. For a time there had been some drooping forward of the head upon the neck, but this had disappeared under treatment. Reflexes were increased and sensibility was preserved, while the sphincter of the bladder was enfeebled. Electric reactions were essentially unchanged. Microscopic examination of an excised bit of muscle disclosed a condition of true hypertrophy of the fibers. The affection was considered an independent malady. Dr. William G. Spiller presented a communication entitled "Gradually Developing Hemiplegia as Indicative of Brain-Tumor," and he exhibited a specimen of subcortical tumor in which the symptom mentioned led to a correct diagnosis and operative intervention. In addition there was sensory aphasia and paraphasia. The tumor, however, was not discovered, and, moreover, it was infiltrating and, accordingly, not operable. Dr. Spiller dwelt upon the diagnostic significance of gradually developing hemiplegia in the recognition of tumor of the brain, and pointed out that cerebral thrombosis may give rise to a similar train of symptoms, with the difference, however, that the symptoms are likely to present some suddenness in evolution at one stage of another. Dr. George E. Price presented a communication entitled "Myxosarcoma of the Right Frontal Lobe; Extensive Degeneration in the Cord." The patient was a man who presented symptoms of focal epilepsy, for the relief of which operation was undertaken. A disc of bone was removed from the right parietal region, but the cause of the disturbance was not discovered, and death followed in three days. Autopsy, however, disclosed the presence of a new growth in the motor region on the right side, that could have been removed, and this on histologic study proved to be a myxosarcoma. In addition a rather diffuse degeneration was found in the spinal cord resembling that observed in connection with pernicious anemia. Dr. William B. Cadwalader read a communication entitled "Apoplectiform Onset of Paralysis in Pott's Disease and Its Pathology." The condition arises from sudden giving way of the softened vertebræ, with resulting destructive inflammation of the cord. Drs. George P. Muller and T. H. Weisenburg read a paper entitled "Circumscribed Spinal Serous Meningitis; Operation; Recovery," and he demonstrated the patient, a girl, 17 years old, who had complained of weakness with sensory disturbances in one lower extremity following a fall and in quick succession similar phenomena on the opposite side of the body. In the belief that the underlying condition was a tumor of the spinal cord laminectomy was performed, but an accumulation of serous fluid was found and evacuated and the patient made a complete and permanent recovery. Dr. John N. W. Rhein presented a communication entitled "Paralysis in Wild Animals," detailing the results of histologic study of the nervous system of a number of animals that had died in the Zoological Gardens. The lesions found consisted in degenerative changes in the ganglion cells of the anterior horns of the cord and of the cerebral cortex with cellular multiplication and vascular hyperemia. Dr. Alfred Gordon reported "A Case with Symptoms of Polyneuritis; Death in Ten Days; Exhibition of the Brain." The patient was a man of 20 who developed pain and weakness in the lower extremities of indeterminate origin. After death softening was found in the internal capsule on each side, without noteworthy vascular changes.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Connecticut State Medical Examining Board.

March 8 and 9, 1910.

ANATOMY.

1. Give (*a*) the number of bones in the human body; (*b*) classify them by regions of body; (*c*) classify by variety and give examples of each. Give briefly the macroscopical and the microscopical structure of bone.

2. Describe the bony relationship and landmarks of the elbow joint.

3. Describe (*a*) the anatomical relations and the structure of the mammary gland; (*b*) its nerve supply, and (*c*) its lymphatic drainage.

4. Of what does the sympathetic nervous system consist? What does the cerebrospinal system comprise?

5. State the origin and mention three branches of the ophthalmic nerve. To which system does this nerve belong, and what is its function?

6. Give the surface topography of (*a*) the appendix vermiformis; (*b*) the apex of the heart; (*c*) the apices of the lungs; (*d*) the two kidneys posteriorly.

7. What vessels unite to form (*a*) the basilar artery? (*b*) What its course.

8. Define epigastric region and tell what organs or parts of organs are found in the same. Diagram.

9. What is (*a*) the stomach? (*b*) Give its gross anatomy. (*c*) Give the minute anatomy of its mucosa.

10. Write briefly on (*a*) the decidual teeth; (*b*) the permanent teeth.

PHYSIOLOGY.

1. What is the relation of the red and white corpuscles as to (*a*) size, (*b*) numbers, (*c*) function? What causes the variation in the color of the blood?

2. State the source and describe the function of the saliva. Explain the importance of thorough mastication as related to digestion.

3. Describe the muscular movements of the large intestine and explain their function.

4. Give a physiological explanation of the rapid respiration of pneumonitis.

5. Give the localization in the cerebral cortex of the motor function of (*a*) the left side of the face; (*b*) the right arm; (*c*) the left leg. Also illustrate the external cranial topography of the same.

6. Describe the physical and nervous mechanism in normal urine evacuation.

7. How is the cornea nourished?

8. Define secretion and excretion. What organs of the body are purely excretory?

9. What part of the retina is most sensitive to visual impressions? Explain this.

10. Explain the condition causing muscle fatigue.

CHEMISTRY AND HYGIENE.

1. (*a*) How dangerous is impure air? (*b*) How tested? And what would be index of impurity? (*c*) What hygienic measures should be observed in our public schools?

2. Give chemical name and formula for the following: (*a*) blue vitriol; (*b*) common salt; (*c*) plaster of paris; (*d*) paris green; (*e*) sugar of lead; (*f*) corrosive sublimate.

3. (*a*) What are peptones? (*b*) How evolved? (*c*) What are proteoses? (*d*) What are ptomaines?

4. (*a*) What is urea? (*b*) What is the pathological significance of urea in the urine? (*c*) How estimated?

5. (*a*) Given a neutral or faintly acid urine, and on heating it a precipitate forms. What is this precipitate, and how do you determine it? (*b*) Given an alkaline urine, and on heating no precipitate is seen; is albumen present?

6. (*a*) What are ferments? (*b*) Classify them. (*c*) Name three.

7. Name the chief constituents of the bile.

8. (*a*) Discuss the influence of alcohol on the race. Is it food or poison?

9. Is sanatorium treatment of tuberculosis worth while?

10. What are the symptoms of (*a*) acute poisoning of phosphorus? (*b*) Treatment and antidote. (*c*) Test.

MATERIA MEDICA AND THERAPEUTICS.

1. What is the physiological action and therapeutics of phenacetin?

2. What are the secondary effects of alcohol upon (*a*) stomach; (*b*) liver; (*c*) vasomotor system; (*d*) nervous system?

3. What are emetics? In what way do they act? When indicated? When contraindicated?

4. What changes take place in the blood when illuminating gas is inhaled? Give treatment.

5. What is the action and dose of pilocarpine? Of apomorphine?

6. What is the physiological action and what are the uses of potassium acetate?

7. Name three heart depressants and tell how they act.

8. How and upon what portion of the alimentary tract do the following drugs act: cascara, phosphate of soda, aloes, jalap and calomel?

9. Write a prescription in Latin, unabbreviated, for acute bronchitis, containing four ingredients, and give the action of each.

10. Treat a case of infantile convulsions.

PRACTICE, PATHOLOGY AND DIAGNOSIS.

1. Describe the varieties of stomatitis: (*a*) simple, (*b*) aphthous, (*c*) mycotic, (*d*) ulcerative. Give the causes and treatment.

2. Give the etiology of congestion of the liver, active and passive.

3. Differentiate cardiac asthma from bronchial or spasmodic asthma—symptomatically and pathologically.

4. What are the causes of albuminuria, renal and extrarenal?

5. Describe a case of acute inflammatory rheumatism: state its complications and sequels.

6. What are the varieties of influenza? Give the prominent symptoms of each variety.

7. Diagnosis of scarlet fever, smallpox, measles, and chickenpox; (*a*) period of incubation; (*b*) eruption; (*c*) course of each disease.

8. Differentiate between cerebrospinal fever and tubercular meningitis, pathologically.

9. Give the symptoms and treatment of chorea.

10. When is the eye ametropic, and what are the forms of ametropia?

OBSTETRICS AND GYNECOLOGY.

1. (*a*) Describe the relation between ovulation and menstruation; (*b*) what is the present belief as regards migration of the ovum?

2. (*a*) State the cause of the premature detachment of the placenta; (*b*) what are the dangers? (*c*) Treatment.

3. (*a*) Give all the causes of prolonged first stage labor; (*b*) the dangers; (*c*) management.

4. (*a*) What are the indications for the use of forceps? (*b*) What condition necessitates version rather than forceps? (*c*) What cesarean section rather than version?

5. (*a*) What are the changes that occur in the uterus during pregnancy? (*b*) After delivery?

6. Differentiate an ovarian cyst from (*a*) ascites; (*b*) hydramnios; (*c*) fibroid tumor; (*d*) distended bladder; (*e*) hematometra.

7. (*a*) What is sapremia? (*b*) How does it differ from septicemia? (*c*) Should treatment differ?

8. (*a*) What pathological conditions require curettage? (*b*) Give the operative technique.

9. (*a*) Give three causes for post-partum hemorrhage. (*b*) Your treatment for each.

10. What are the operative procedures in the treatment of prolapsus uteri? Give indications for each.

SURGERY.

1. Aneurysm: (*a*) causation; (*b*) varieties; (*c*) diagnosis.

2. Carbuncle: (*a*) defined; (*b*) predisposing causes; (*c*) diagnosis; (*d*) treatment.

3. Local anesthesia. Technique of its application in hernia, removal of appendix, or thyroidectomy?

4. Practical demonstration of the use of Janeway's manometer.

5. State your views as to the scope and value of blood pressure determinations in operative surgery under general anesthesia.

6. Describe or depict the arrangement of the synovial sheaths of the palm and fingers.

7. Give the differential diagnosis between a fracture and dislocation at the hip.

8. Diagnosis and treatment of fractured clavicle.

9. What do you consider the best operation for internal hemorrhoids? Describe your technique.

10. Carcinoma: (*a*) varieties; (*b*) location in order of frequency; (*c*) metastasis; (*d*) differentiation?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

CONNECTICUT STATE MEDICAL EXAMINING BOARD.

March 8 and 9, 1910.

ANATOMY.

1. (*a*) There are 206 named bones in the human body. (*b*) *By regions:* The spine, with sacrum and coccyx; cranium, and face, with ossicles of the ear; hyoid, sternum, and ribs; upper extremities; and lower extremities. (*c*) *By variety:* Long bones, as femur and humerus; short bones, as carpal and tarsal; flat bones, as parietal and scapula; irregular bones, as vertebræ and sphenoid.

For *structure*, see Cunningham's "Anatomy" (1909), pages 71 and 72; or, Gray's "Anatomy" (1908), pages 34 to 40.

2. There are three bony points: The external condyle of the humerus, the internal condyle of the humerus, and the olecranon process of the ulna. When the forearm is extended these three points are in a straight line; when the forearm is flexed, the olecranon is a little below the line joining the two condyles. The head of the radius can be felt from behind, nearly one inch below the external condyle. The internal condyle is more prominent than the external condyle; the olecranon is nearer to the inner than to the outer condyle.

3. See Cunningham's "Anatomy" (1909), pages 1207 and 923; or, Gray's "Anatomy" (1908), pages 1516 and 810.

4. "*The sympathetic nervous system consists of* (1) a series of ganglia connected together by a great ganglionic cord, the gangliated cord, extending from the base of the skull to the coccyx, one gangliated cord on each side of

the middle line of the body, partly in front and partly on each side of the vertebral column; (2) of three great gangliated plexuses or aggregations of nerves and ganglia, situated in front of the spine in the thoracic, abdominal, and pelvic cavities respectively; (3) of smaller or terminal ganglia, situated in relation with the abdominal viscera; and (4) of numerous fibers."

The cerebrospinal system comprises the central nervous axis (brain and spinal cord) and the peripheral nerves (cranial and spinal).

5. The ophthalmic nerve is a branch of the trigeminal (fifth cranial) nerve. Its three branches are the Lacrymal, Frontal, and Nasal. It is a sensory nerve belonging to the cerebrospinal system. Its function is to supply sensation to the anterior half of the scalp, conjunctiva and skin of upper eyelid, cornea, skin of nose, mucous membrane of nose, and lacrymal gland.

6. See Gray's "Anatomy" (1908), (*a*) page 1331; (*b*) page 580; (*c*) page 1405; (*d*) page 1434.

7. (*a*) The two vertebral arteries. (*b*) It is situated in the center of a groove on the under surface or front of the pons, extending from the posterior to the anterior border. It lies between the sixth pair of cranial nerves.

8. See Cunningham's "Anatomy" (1909), pages 1046 and 1047; or, Gray's "Anatomy" (1908), pages 1243, 1244, and 1246.

9. See Cunningham's "Anatomy" (1909), pages 1050 to 1060; or, Gray's "Anatomy" (1908), pages 1277 to 1285.

10. See Cunningham's "Anatomy" (1909), pages 1016 and 1022; or, Gray's "Anatomy" (1908), page 1206.

PHYSIOLOGY.

1. (*a*) Red corpuscles are about 1/3200 of an inch in diameter; white corpuscles are about 1/2500 of an inch in diameter.

(*b*) There are about 4,500,000 to 5,000,000 red corpuscles in each cubic millimeter of blood, and about 7,000 to 10,000 or 12,000 white corpuscles in each cubic millimeter of blood.

(*c*) The function of the red corpuscles is to carry oxygen from the lungs to the tissues. Function of the white corpuscles: (1) To serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma. The variation in the color of the blood is due to the presence of oxygen in combination with hemoglobin, giving to arterial blood its red color, and the presence of carbon dioxide (with lessened oxygen), giving to venous blood its bluish color.

2. *Source of saliva:* The parotid, submaxillary, and sublingual glands (and the small mucous and serous glands of the mouth).

The functions of the saliva are: (1) To moisten the mouth, (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste; (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition, and (6) to change starches into dextrin and sugar. Thorough mastication prepares the solid and fibrous foods for the more ready and speedy action of the various digestive juices; it enables these foods to present also a larger surface to the action of these juices. Food that is imperfectly masticated may cause suffocation; it is also a well-known cause of indigestion.

3. The muscular movements of the large intestine are chiefly of the peristaltic or vermicular kind. This is a wave-like motion, characterized by a contraction of the circular fibers behind a bolus and a relaxation of the fibers in advance of it. The result is a movement forward of the bolus, and as it moves it is followed by a ring of constriction and preceded by a ring of relaxation or inhibition. Under the influence of this peristaltic movement the contents of the large intestine (food residues and excrementitious matter) are gradually carried downward toward the sigmoid flexure, where they accumulate prior to their extrusion from the body. The effects of the peristaltic waves are to some extent interfered with by antiperistaltic waves, which, beginning in the transverse colon, run toward and to the cecum. The intestinal contents are thereby driven back toward the cecum. The effect is a still further admixture with the secretions and exposure to the absorbing mucosa. There is some evidence also that the antiperistaltic wave may force some of the liquefied contents through the ileocolic opening into the small intestine because of the relaxation of the sphincter muscle. (From Brubaker's *Physiology.*)

4. The rapid respiration in pneumonia is due to: (1) Toxemia, which affects the respiratory center; (2) the amount of lung involved; (3) the limited air space left for use; (4) pain.

5. See Cunningham's "Anatomy" (1909), pages 1224 and 1227; or, Gray's "Anatomy" (1908), pages 966 and 970.

6. "The urine trickles drop by drop down the ureters, into the bladder, where it collects and gradually distends it. The exit from the bladder is opposed by the sphincter vesicæ, or, as some believe, by the elastic and muscular fibers of the urethra. The urine is expelled by the contraction of the walls of the bladder, more especially by the detrusor vesicæ, and is assisted when much distended by the contraction of the abdominal walls. Micturition is a reflex act, but one which (with the exception of infants) is under the influence, if not under the control of the will. The mechanism appears to consist of an automatic center in the lumbar part of the cord, maintaining the constant contraction of the sphincter, a second center, which, when stimulated, excites contraction in the detrusor. These centers are antagonistic, so that an afferent impulse from the bladder excites the detrusor center, at the same time inhibiting the sphincter center. These centers are normally under the control of the will, so that, although an afferent impulse may ascend from the bladder to the centers of the cord and up to the sensorium, yet by an effort of will the sphincter center may be assisted and the detrusor inhibited, or *vice versa.* Thus when the bladder becomes distended an afferent impulse from the bladder reaches both lumbar center and the brain; if the opportunity is favorable for micturition the controlling influence of the will is removed, the reflex contraction of the detrusor taking place, assisted perhaps by the voluntary abdominal muscles." (Ashby's *Physiology.*)

7. The cornea is nourished chiefly by the lymph in the corneal spaces or lacunæ and canaliculi. At its border, for a very short distance, there are also capillary loops from the sclera and conjunctiva.

8. *Secretion* is the process by which certain organs (glands and membranes) separate from the blood certain constituents which are further elaborated and serve some further office in the economy.

Excretion is a similar process by which there are removed from the blood waste materials, and products of no further use to the body, and which, if retained, would be injurious.

The purely excretory organs are: Kidneys and skin.

9. The fovea centralis in the macula lutea is the part of the retina most sensitive to visual impressions. Here the end organs of the optic nerve are most highly developed; the cones are here increased both in number and in size.

10. *Causes of fatigue in muscle:* Presence of sarcolactic acid and acid potassium phosphate in the muscle; using up of the material from which the energy is obtained; and accumulation of carbon dioxide and other waste products.

CHEMISTRY AND HYGIENE.

1. (*a*) The danger of impure air depends upon: (1) The amount of oxygen present; (2) the amount and nature of impurities present (the chief being carbon dioxide, organic matters, crowd poison, disease germs, combustion products, emanations from sewers or marshes, contaminations from trade and manufacturing processes, and decomposition products).

(*b*) *Pettenkofer's method of determining the percentage of carbon dioxide in the air:* A large cylindrical container of known capacity, say, 15 liters, is filled with the air to be examined; a known volume of barium hydroxide is then added and shaken up with the air. The carbon dioxide combines with the barium hydroxide to form a barium carbonate, which is insoluble, and also incapable of acting upon an indicator. The barium hydroxide employed is of known strength, *e.g.* it may be of such strength that 1 c.c. of the solution neutralizes 1 c.c. of carbon dioxide at normal temperature and pressure. If then we find that 10 c.c. of the barium hydroxide has been neutralized by the carbon dioxide present in the air, we know that 10 c.c. of carbon dioxide is present in 15 liters or 15,000 c.c. of the air examined.

2.

	CHEMICAL NAME.	FORMULA
(a) Blue vitriol.	Cupric sulphate.	$CuSO_4$.
(b) Common salt.	Sodium chloride.	NaCl.
(c) Plaster of Paris.	Calcium sulphate.	$CaSO_4$.
(d) Paris green.	Cupric aceto-metarsenite.	$Cu(C_2H_3O_2)_2 + 3CuAs_2O_4$.
(e) Sugar of lead.	Lead acetate.	$Pb(C_2H_3O_2)_2$.
(f) Corrosive sublimate.	Mercuric chloride.	$HgCl_2$.

3. (*a*) *Peptones* are the final products of the action of proteolytic ferments on proteids.

(*b*) By the action of proteolytic ferment (pepsin and trypsin) on proteids.

(*c*) *Proteoses* are the intermediate products in the conversion of proteids into peptones.

(*d*) *Ptomaines* are basic, nitrogenous compounds, produced from protein material by the bacteria which cause putrefaction.

4. (*a*) *Urea* is the end product of the proteid metabolism of the body. It is a crystalline solid, soluble in water, colorless, odorless, with a slightly bitter taste; it is neutral in reaction, but basic in character; dilute aqueous solutions are not decomposed by boiling, but by prolonged boiling urea is hydrolized to ammonia and carbon dioxide; urea forms compounds with acids and also with certain salts and oxides. Formula is CON_2H_4.

(*b*) Urea is always present in the urine, a healthy man excreting about 500 grains of urea daily. Pathologically, the amount of urea excreted may be diminished or increased, as follows:

A *diminution* may be due to some condition interfering with the normal transformation of proteins in the body, as in certain chronic diseases. More frequently, however, a diminished proportion of urea in the urine is not due to a diminution in the production, but to the fact that the urea formed has not been separated by the kidneys as in uremia, and in diseases attended with dropsical effusions. Pathologically it is *increased* in the early stages of all acute febrile diseases, except when these are attended by the formation of dropsical deposits or by diarrhea; during reabsorption of dropsical fluids; in both forms of diabetes, and in chronic interstitial nephritis.

(*c*) "The specific gravity of the urine is carefully determined, as well as that of the liquor sodæ chlorinatæ. One volume of the urine is then mixed with exactly seven volumes of the liquor sodæ chlorinatæ, and, after the first violence of the reaction has subsided, the mixture is shaken from time to time during an hour, when the decomposition is complete; the specific gravity of the mixture is then determined. As the reaction begins instantaneously when the urine and reagent are mixed, the specific gravity of the mixture must be calculated by adding together once the specific gravity of the urine and seven times the specific gravity of the liquor sodæ chlorinatæ, and dividing the sum by eight. From the quotient so obtained the specific gravity of the mixture after decomposition is subtracted; every degree of loss in specific gravity indicates 0.7791 gram of urea in 100 c.c. of urine. The specific gravity determinations must all be made at the same temperature, and that of the mixture only when the evolution of gas has ceased entirely." (Witthaus' *Manual of Chemistry.*)

5. (*a*) Albumin or phosphates. Add HNO_3; this will dissolve the phosphates, but not the albumin.

(*b*) Albumin may or may not be present.

6. *Ferments* are certain microorganisms (bacteria, mould and yeast fungi) which, by their growth, cause definite chemical changes in certain substances contained in the media in which they develop. They are *classified* as: (1) Proteolytic, *e.g.* trypsin; (2) amylolytic, *e.g.* ptyalin; (3) steatolytic, *e.g.* steapsin; (4) inverting, *e.g.* invertin; (5) coagulating, *e.g.* milk curdling ferment.

7. Water, sodium glycocholate, sodium taurocholate, bilirubin, biliverdin, fats, soaps, cholesterin, lecithin, urea, sodium chloride.

8. The influence of alcohol on the race cannot be discussed in the space at our disposal. Most of what is written on the subject has absolutely no scientific value, being characterized by prejudices and diatribes rather than by logic and science. Probably most races would benefit if some of the individuals of these races consumed less alcohol. That alcohol is abused or misused is true; so are money and many other things, and the abuse of a thing is no argument against its legitimate use. As to whether alcohol is a food or a poison, there is also much difference of opinion. Taken in excess, it may be a poison; but many scientists believe that it has also a food value. Much depends on the conditions under which it is used and the quantity in which it is taken. The student (and examiner) will easily find any quantity of "literature" which will favor his own particular views or prejudices in the matter, but very little of it is of scientific value.

9. See French's "Practice of Medicine" (1907), page 394; or, Osler's "Practice of Medicine" (1909), page 354.

10. (*a*) Eructation of gas having the odor of garlic. The mouth, when observed in the dark, is frequently faintly luminous (phosphorescent). After several hours, pain in the throat, a sense of heat in the epigastrium, nausea, and vomiting. The vomited matters are sometimes bloody, and frequently luminous when agitated in the dark. The abdomen is tender, and there are diarrhea and colicky pains. After one or two days these symptoms cease, there remaining only pain in the back and limbs and a feeble pulse. Death sometimes occurs suddenly in from two to four days. Usually about the fourth day the patient becomes jaundiced, suffers from headache, insomnia, and retention of urine, rapidly becomes delirious and comatose, and dies.

(*b*) The unabsorbed portion is to be removed as speedily as possible by an emetic of copper sulphate or apomorphin. No chemical antidote is known. French oil of turpentine (the older the better) should be given as a physiological antidote. The food should be free from oils and fats.

(*c*) The matters supposed to contain phosphorus are rendered fluid by dilution with water and acidulated with sulphuric acid. They are placed in a flask upon a sand bath and the flask connected with a Liebig's condenser, which is placed in absolute darkness. Upon heating the flask any phosphorus present is volatilized, and, condensing in the tube, forms a luminous ring. This reaction is very delicate, and the appearance of the ring is proof positive of the presence of unoxidized phosphorus. (From Witthaus' *Essentials of Chemistry and Toxicology.*)

MATERIA MEDICA AND THERAPEUTICS.

1. PHENACETIN. *Physiological Action:* Lowers body temperature, and is an analgesic; it is also a cardiac depressant. *Therapeutics:* In fevers, as an antipyretic, and to relieve pain; also used in epilepsy.

2. The stomach is overstimulated and congested, the gastric glands are similarly affected, gastric catarrh ensues, digestion is impaired, and morning vomiting may occur. The liver and hepatic cells suffer in a similar way. Degenerative changes may follow. It is a vasodilator, and lowers arterial tension. The nervous system is specially affected, and eventually paralysis or epilepsy may result from the long continued use of alcohol.

3. *Emetics* are agents which produce vomiting. They *act:* (1) By irritating the nerves of the stomach, esophagus, or pharynx; (2) through the circulation; (3) by irritation of the vomiting center in the medulla. *Indications:* To produce vomiting or nausea; in catarrhal conditions of the respiratory tract; to remove poisons or foreign bodies from stomach, esophagus, etc.; to empty the stomach. *Contraindications:* Severe cardiac lesions and aortic aneurysm; atheroma; when the patient is so weak that there is danger of collapse; in poisoning by caustics; in hernia or peritonitis, or in cases of high arterial tension.

4. When illuminating gas is inhaled, the color of the blood is a very bright red, much brighter than normal; the cells are not altered in *appearance,* but the red corpuscles are incapable of carrying oxygen to the tissues, as the carbon monoxide forms with the hemoglobin a compound which is very much more stable than oxyhemoglobin. The spectroscope shows, also, a characteristic absorption spectrum. *Treatment:* Stimulants, fresh air, bleeding, and hypodermocleisis, or infusion of normal salt solution.

5. PILOCARPINE: *Dose,* gr. 1/5. *Action:* Stimulant of secretory nerves and of involuntary muscles, myotic, nervous depressant, sudorific.

APOMORPHINE HYDROCHLORIDE. *Dose:* As an emetic, gr. 1/10 subcutaneously; as an expectorant, gr. 1/30. *Physiological action:* It acts on the vomiting center in the medulla, hence is emetic; it increases pulse, blood pressure, and rate of respiration; it is also an expectorant.

6. POTASSIUM ACETATE. *Physiological action:* Antacid, increases alkalinity of the blood and of the urine, is a diuretic, and a diaphonetic. *Uses:* In rheumatism, gout, fevers, dropsy, nephritis, cystitis, and irritation of the urinary tract.

7. *Three cardiac depressants:* (1) Antimony, which depresses the motor ganglia; (2) pilocarpine, which stimulates the inhibitory ganglia and depresses the heart muscle and also the motor ganglia; (3) hydrocyanic acid, which is a direct cardiac poison, depressing the heart muscle and the motor ganglia.

8. *Cascara* is a stomachic and laxative, and acts on the stomach and small intestine. *Phosphate of sodium* is a saline, hepatic stimulant, and cholagogue; it acts on liver and colon. *Aloes* is a purgative, hepatic stimulant, and cholagogue, and acts on the large intestine (chiefly descending colon and rectum) and liver. *Jalap* is a drastic purgative, and acts on the small intestine. *Calomel* is a simple purgative, and acts on the small intestine.

9. ℞. Ammonii carbonatis, ʒj.
Spiritus chloroformi, ʒj.
Syrupi pruni virginianæ, ʒj.
Misturæ glycyrrhizæ compositæ, q.s. ad. ʒviij.
Misce.
Signa: One tablespoonful every three hours.

The ammonium carbonate is a respiratory stimulant and a stimulating expectorant. The chloroform disguises the taste of the ammonium. The prunus virginiana is a sedative and expectorant. The glycyrrhiza is an expectorant.

10. See French's "Practice of Medicine" (1907), page 1124; or Osler's "Practice of Medicine" (1909), page 1058.

PRACTICE, PATHOLOGY, AND DIAGNOSIS.

1. See French's "Practice of Medicine" (1907), pages 707 to 710; or Osler's "Practice" (1909), pages 434 to 437.

2. See French's "Practice of Medicine" (1907), page 817; or Osler's "Practice of Medicine" (1909), page 541.

3. See French's "Practice of Medicine" (1907), page 659; and Osler's "Practice of Medicine" (1909), page 610.

4. *Albuminuria* is found: "(1) In fevers, as typhoid and pneumonia. (2) In valvular heart lesions, degeneration of the heart muscles, diseases of the coronary arteries, impeded pulmonary circulation, in pregnancy by pressure upon the renal veins, in intestinal catarrh, and in Asiatic cholera. (3) In purpura, scurvy, leukemia, pernicious anemia, jaundice, diabetes, and syphilis. (4) After taking lead, mercury, iodine, phosphorus, arsenic, antimony, chloroform, cantharides, oxalic, carbolic, salicylic, or the mineral acids, turpentine and nitrates. (5) In large amounts in acute nephritis and chronic parenchymatous nephritis; in small amounts in chronic interstitial nephritis, and amyloid kidney."—(Witthaus' *Essentials of Chemistry.*)

5. See French's "Practice of Medicine" (1907), pages 222 to 230; or Osler's "Practice of Medicine" (1909), pages 219 to 226.

6. See French's "Practice of Medicine" (1907), pages 132 to 136; or Osler's "Practice of Medicine" (1909), pages 153 and 154.

7. *Scarlet fever:* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent. *Smallpox:* The eruption usually appears first on the forehead and wrists, and on the third or fourth day; it is first mascular, then papular, then vesicular, and finally pustular; it does not appear in successive crops; the spots are multilocular, and do not collapse on being punctured; the papule is hard and shotty, and does not disappear on stretching the skin. Period of incubation is from eight to fourteen days. *Measles:* Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small, dark red papules with crescentic borders, beginning on face and rapidly spreading over the entire body; desquamation is brauny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present. *Chickenpox:* The eruption usually appears first on the trunk, is evident on the first day, comes in successive crops, is not shotty, and disappears on stretching the skin; the spots are unilocular, and collapse on being punctured. The period of incubation is from four to fourteen days.

8. See Osler's "Practice of Medicine" (1909), pages 159 and 301.

9. See French's "Practice of Medicine" (1907), pages 1118 and 1120; or Osler's "Practice of Medicine" (1909), pages 1048 and 1052.

10. The eye is *amctropic* when, in a condition of rest, parallel rays of light are focussed either behind or in front of the retina, and not on it. The forms of ametropia are: Hyperopia, myopia, and astigmatism.

OBSTETRICS AND GYNECOLOGY.

1. See Williams' "Obstetrics" (1909), pages 83 and 85; or Hirst's "Obstetrics" (1909), pages 65 and 62.

2. See Williams' "Obstetrics" (1909), pages 805, 808, and 810; or Hirst's "Obstetrics" (1909), pages 583 and 585.

3. See Williams' "Obstetrics" (1909), pages 658 to 663; or Hirst's "Obstetrics" (1909), pages 439 to 444.

4. (*a*) *Indications for the use of forceps* are: "1. *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. 2. *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. 3. *Passenger at fault:* A.—Dystocia due to (*a*) occipitoposterior, (*b*) mentoanterior face, (*c*) breech arrested in cavity. B.—Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). 4. *Accidental complications:* Hemorrhage; prolapsus funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both." (*b*) *Indications for version* are: (1) In transverse presentations: (2) in placenta prævia; (3) in malpresentations of the head; (4) in simple flattened pelvis, and in minor degrees of pelvic contraction; (5) in prolapsed funis; (6) in sudden death of the mother, and (7) in any case where speedy delivery is imperative. (*c*) *Indications for cesarean section* are: Extreme pelvic contraction or deformity in which delivery by forceps or version or symphyseotomy is impossible, and in which craniotomy is either impossible or would be more dangerous to the mother; the presence of extreme atresia of the vagina; rupture of the uterus; sudden maternal death.

5. See Williams' "Obstetrics" (1909), pages 165 to 169, 185, and 332 to 334; or Hirst's "Obstetrics" (1909), pages 182 and 348 to 353.

6.

ASCITES.	OVARIAN CYST.
1. Previous history of visceral disease.	1. No such history.
2. Enlargement comparatively sudden.	2. Gradual.
3. Face puffy; color waxy; early anemia.	3. Facies ovariana. Anemia absent, or later.
4. Patient on back, enlargement symmetrical; flat in front.	4. Asymmetrical until tumor is quite large; prominent in front.
5. Sitting up, abdomen bulges below.	5. No appreciable change.
6. Navel prominent and thinned.	6. Navel usually unchanged.
7. Fluctuation decidedly clear, diffuse throughout abdomen, but avoids highest parts in all positions, and always has a hydrostatic level.	7. Less clear; limited to cyst; not modified by change of position. No hydrostatic level.
8. Intestines float on top of fluid; hence percussion gives clear tympanitic note over the highest parts of abdominal cavity, and dullness in lowest parts for all positions, *i.e.* areas of resonance and dullness change with position.	8. No change in areas of dullness and resonance with change of position. Dullness over cyst. Clear resonant note in all parts beyond cyst limits, *i.e.* in flanks and toward the diaphragm.
9. Vaginal touch detects fluctuation, bulging into vagina.	9. Vaginal fluctuation less clear or absent.
10. Uterus in prolapsed location, but position unchanged. Size and mobility unchanged.	10. Uterus displaced forward or backward, or laterally by pressure of cyst.
11. Hydragogues and diuretics temporarily remove the fluid.	11. Medicines have no effect.
12. Fluid light straw color and thin. Coagulates spontaneously.	12. Fluid light or dark and of varying consistency; albuminous, but does not coagulate spontaneously; may contain colloid matter.

HYDRAMNIOS.	OVARIAN CYST.
1. Evidence of pregnancy.	1. Not usual.
2. Rapid development.	2. Less rapid.
3. Ballottement.	3. Absent.
4. Distention symmetrical.	4. Distention more on one side.

FIBROID TUMOR.	OVARIAN CYST.
1. Slow growth.	1. Usually more rapid growth.
2. Facial expression unchanged. Face may be full and flushed; later pale from hemorrhage.	2. Facies ovariana.
3. General health usually unimpaired except from loss of blood, if submucous or mural; may be painful.	3. General health early impaired from emaciation. Not painful.
4. Abdomen usually very asymmetrical from irregular shape of tumor.	4. Abdomen more symmetrical, especially when tumor is large.
5. Abdominal veins not usually enlarged.	5. Usually enlarged, especially in large polycysts.

FIBROID TUMOR.	OVARIAN CYST.
6. Action of kidneys normal.	6. Kidneys less active.
7. Usual menorrhagia.	7. Menstruation unchanged or diminished.
8. Elasticity, not fluctuation. No percussion wave.	8. Fluctuation marked. Percussion wave marked.
9. Surface firm and usually lobulated.	9. Surface yielding; in monocysts, regular; in polycysts, irregular.
10. Vaginal touch and conjoined examination show tumor dense and firm, and, unless pedunculated, continuous with uterus. Uterus large and heavy.	10. Uterus normal, except displacement from pressure. Tumor compressible, fluctuating, detached from uterus.
11. Uterine cavity much elongated.	11. Not materially elongated. (This is a most important diagnostic point.)
12. Uterus moves with tumor.	12. Does not move with tumor.

Distended bladder: The use of a catheter will absolutely settle the diagnosis.

Hematometra: The enlargement is perfectly symmetrical, and external os or cervix will be found completely closed.—(Tables from Dudley's *Gynecology.*)

7. See Williams' "Obstetrics" (1909), pages 852 and 856; or Hirst's "Obstetrics" (1909), page 764.

8. CURETTAGE. *Pathological Indications:* To remove pieces of retained placenta or decidua, endometritis, mucous polypi, hemorrhage, dysmenorrhea, endocervicitis. *Dangers:* Sepsis, perforation of uterus, hemorrhage, abortion, inflammation of uterus, or adnexa. *Procedure:* All antiseptic and aseptic precautions are necessary, the patient should be in the dorsal position, the vagina is to be disinfected, and the cervical canal dilated; a speculum is introduced into the vagina and the cervix is drawn down with volsella; the uterine cavity is irrigated with creolin or lysol; a curette is inserted to the fundus and moved down to the internal os; the operator should begin at one cornu and go in the same direction all around till he reaches the starting point, and if necessary repeat till no more spongy or hyperplastic tissue appears; the fundus should be scraped separately by moving the curette along it from side to side; in going towards the fundus no scraping should be done, and care must be taken not to perforate the uterus; should this happen no fluid must be injected; otherwise the uterus and vagina are again irrigated, and one or more strips of iodoform gauze are inserted into the cavity to act either as a hemostatic plug or as a drain, which is diminished with two days' interval and withdrawn on the sixth day. A hemostatic tampon should be placed in the vagina and withdrawn the following day. If any fever arises, the tampon is at once removed and the vagina douched with antiseptic fluid every three hours. If not, the vagina is only swabbed with the same every day, and packed loosely with iodoform gauze. After the final removal of the gauze the antiseptic douche is given twice a day until there is no more discharge. The patient should remain in bed for a week.

9. See Williams' "Obstetrics" (1909), pages 818 and 821; or Hirst's "Obstetrics" (1909), pages 585 and 587.

10. "A prolapsed uterus must first be placed in proper position, or a procidentia reduced. In many cases the introduction of a rubber ring pessary will then suffice to prevent recurrence. But it will often be found necessary to repair a torn perineum, removing at the same time redundant portions of the vaginal walls, before the ring will remain in the vagina. When such an operation is contraindicated, and the vaginal orifice is so wide that a ring cannot be kept in, some form of pessary with a vaginal stem and perineal bands will be required. In cases of procidentia, where the exposed surface is much ulcerated, the patient should be kept in bed, emollient applications made to the ulcers, and vaginal douches given. When the ulcers have healed, a pessary may be introduced. Procidentia due to supravaginal elongation of the cervix must be differently dealt with. Amputation of a portion of the cervix must therefore form the first step in the treatment, and it may be required also when the hyperplasia is secondary to descent. Cases of prolapse and procidentia which resist milder measures require further operative procedures, such as ventrofixation of the uterus or the shortening of the round ligaments. It is in cases of this kind that hysteropexy has often given satisfactory results. Total extirpation of the uterus has been advised and practised for the treatment of procidentia."—(Sutton and Giles' *Diseases of Women.*)

SURGERY.

1. See Rose and Carless' "Surgery" (1908), pages 307, 308, 310, and 311; or Da Costa's "Surgery" (1908), pages 359, 356, and 361.

2. See Rose and Carless' "Surgery" (1908), pages 399 and 400; or Da Costa's "Surgery" (1908), page 1057.

3. See Rose and Carless' "Surgery" (1908), page 1318; or Da Costa's "Surgery" (1908), page 1047.

4. "The portable instrument of Janeway is accurate and practical because of its broad arm piece, which excludes the errors (high readings) inherent in the narrow compression bands when applied to unusually fat or muscular arms, and because of its accurate regulation of pressure by a stopcock. *Technique:* The hollow armlet applied midway between shoulder and elbow is inflated by the hand bulb until the radial pulse is lost, then by the outlet thumbscrew the pressure is lowered until the pulse return is just perceptible. As the pressure is equal in all parts of the closed system, the height of the mercury column in the manometer tube is an exact index, and the reading represents the 'maximum' or 'systolic' pressure. 'Diastolic' or 'minimum' pressure is determined by noting for ten or twelve pulsations the increasing amplitude of the pulse wave registered by the mercury column as the pressure is reduced in 5-mm. series. The point causing maximum excursion is the index of diastolic pressure. Below that is a limited pressure area of equal amplitudes. The 'mean' pressure represents the average of systolic and diastolic readings. Diastolic readings run about 25 to 40 below systolic, and in low tension vary 50 to 80, and in regurgitation up to 100 mm. A loose band or a rapid or excessively small pulse makes diastolic pressure determination impossible, and in every case the arm band should be closely adjusted, the arm supported at the heart level and the same position taken for a series of tests. The limit of error in calcareous arteries is but 5 to 10 mm., and is negligible or easily estimated. The same figures represent the difference between females and <males and the standing> and sitting posture. In normal pressure four factors are concerned, viz., the initial heart energy, peripheral resistance, blood volume, and the elasticity of the vessels. The normal readings, according to Janeway, are: For young adults, 100 to 130; older adults, 100 to 145; children, 90 to 110; infants under two years, 75 to 90. Excitement may cause a rise of 40 mm., and concentrated physical effort a slight increase."—(Greene's *Diagnosis.*)

5. The blood pressure is an indication of the degree of shock; in severe operations it is generally lowered below 100 mm.; and below 80 mm. is supposed to be indicative of danger. It is not in general use but is (theoretically) of value.

6. See Gray's "Anatomy" (1908), page 494; or Rose and Carless' "Surgery" (1908), page 247.

7. In fracture of the neck of the femur, the head of the femur will be found in the acetabulum; in dislocation, the acetabulum will be empty, and the head of the femur will be found elsewhere, *e.g.* on the dorsum of the ilium. In the fracture, crepitus may be elicited; in the dislocation, never. In the dislocation there is inversion and a fixed position of the limb, both of which are absent in fracture.

8. See Rose and Carless' "Surgery" (1908), pages 494 and 495; or Da Costa's "Surgery" (1908), page 482.

9. See Rose and Carless' "Surgery" (1908), pages 1152 and 1153; or Da Costa's "Surgery" (1908), page 1015.

10. (*a*) *Varieties of carcinoma:* (1) Glandular or spheroid carcinoma. (2) Squamous carcinoma. Synonyms, epithelioma; squamous epithelioma. (3) Rodent cancer or rodent ulcer. (4) Columnar carcinoma. Synonyms, columnar epithelioma; adenoid cancer. (5) Thyroid carcinoma (resembling in structure the thyroid gland).—(From Gould and Pyle's *Cyclopedia.*) (*c*) By the lymphatics. For (*b*) and (*d*), see Rose and Carless' "Surgery" (1908), pages 209 to 217; or Da Costa's "Surgery" (1908), pages 333 to 336.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION
Alabama*	W. H. Sanders, Montgomery	Montgomery....July 12
Arizona*	Ancil Martin, Phoenix	Phoenix.....July 4
Arkansas	F. T. Murphy, Brinkley	Little Rock.....July 12
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco... Aug. 2
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver.....July 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven.....July 12
Delaware	J. H. Wilson, Dover	Dover.....June 21
Dist. of Col'bia	Geo. C. Ober, Washington	Washington.....July 12
Florida*	I. D. Fernandez, Jacksonville	Palatka.....Nov. 9
Georgia	E. R. Anthony, Griffin	Atlanta.....Oct. 11
Idaho*	W. F. Howard, Pocatello	Oct. 4
Illinois	J. A. Egan, Springfield	Chicago..... June 9
Indiana	W. T. Gott, Crawfordsville	Indianapolis.....July 12
Iowa	Louis A. Thomas, Des Moines.	Des Moines. ....

Kansas	F. P. Hatfield, Olathe	Topeka	June	14
Kentucky	J. N. McCormack, Bowling Green	Louisville	July	—
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans		
Maine	F. W. Searle, Portland	Portland	July	19
Maryland	J. McP. Scott, Hagerstown	Baltimore	June	21
Massachusetts*	E. B. Harvey, State House, Boston	Boston	July	12
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June	14
Minnesota	W. S. Fullerton, St. Paul	St. Paul	June	14
Mississippi	S. H. McLean, Jackson	Jackson	Oct.	11
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	June	13
Montana*	Wm. C. Riddell, Helena	Helena	Oct.	4
Nebraska	C. A. Carr, Lincoln	Lincoln	May	23
Nevada	S. L. Lee, Carson City	Carson City	Nov.	2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	July	6
New Jersey	H. G. Norton, Trenton	Trenton	June	21
New Mexico	J. A. Massie, Santa Fe	Santa Fe	July	11
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	May	24
N. Carolina	B. K. Hays, Oxford	Wrightsville	June	15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	July	5
Ohio	Geo. H. Matson, Columbus	Columbus	June	13
Oklahoma*	F. P. Davis, Enid	Guthrie	July	12
Oregon	B. E. Miller, Portland	Portland	July	5
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg	June	21
Rhode Island*	G. T. Swarts, Providence	Providence	July	7
S. Carolina	H. H. Wyman, Aiken	Columbia	June	14
S. Dakota	H. E. McNutt, Aberdeen	Watertown	July	13
Tennessee	C. A. Abernathy, Pulaski	Memphis / Nashville / Knoxville	May	—
Texas	M. E. Daniel, Honey Grove	Austin	June	28
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	July	4
Vermont	W. Scott Nay, Underhill	Burlington	July	12
Virginia	R. S. Martin, Stuart	Richmond	June	22
Washington*	T. C. McFadden, Seattle	Spokane	July	5
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	July	11
Wisconsin	J. M. Beffel, Milwaukee	Madison	July	12
Wyoming	S. B. Miller, Laramie	Laramie	June	22

*No reciprocity recognized by these States.
†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Connecticut.—From and after January 12, 1914, no person will be permitted to take the examinations, unless his preliminary education included satisfactory courses in chemistry, physics, and general biology.

Indiana.—At a recent meeting of the State Board of Medical Registration and Examination, the board increased the medical college entrance requirements to one year of collegiate work, beginning January 1, 1910, and two years of collegiate work, beginning January 1, 1911.

Virginia.—This State now reciprocates with Vermont.

California.—At the December meeting of the board a resolution was passed, requiring those who failed in an examination, but who received 80 per cent. in one or more branches, to be reexamined only in those branches in which they had received under 80 per cent., if they came up for reexamination within one year. An opinion has been rendered by the attorney of the board that that resolution was contrary to law and therefore void.

State Board Statistics for 1908.—Statistics based on the examinations by State licensing boards show that 7,770 candidates, representing 137 medical colleges, were examined during 1908, with 21.7 per cent. of failures. There were 6,477 candidates who graduated during the last five years, of which number 17.3 per cent. failed. Of the 796 who graduated previous to 1903 31.5 per cent. failed. Non-graduates were examined in seven States, the total being 494, with 56.8 per cent. of failures. Of the 4,741 candidates who graduated in 1908 about 65 per cent. took examinations in the States in which their colleges were located, showing that any State allowing low-grade colleges to exist is itself the chief recipient of the poorly trained output. The colleges of Illinois furnished 843 candidates, with 12.9 per cent. of failures. Pennsylvania furnished 700 candidates, with 6.9 per cent. of failures. The failure percentage for New York colleges was 3.2; for Maryland colleges, 24.2; for Tennessee colleges, 35.7, while for the Mississippi colleges it was 77.8 per cent. All States, except New Mexico, require an examination of every applicant unless the candidate already holds a license from some other State. In the classification of colleges only 48 have failure percentages of less than 10 per cent., 29 have between 10 and 20 per cent., 46 colleges have over 20 per cent. of failures, and 15 are unclassified. During 1908 altogether 7,360 physicians received licenses; 6,084 by examination, 184 under exemption clauses, and 1,092 through reciprocity. Of those licensed under the reciprocity provision 225, or over 20 per cent., received their original licenses in Illinois, the two next highest figures being 100 in New York and 94 in Iowa.—*Journal of the American Medical Association.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of May 14, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	620	168
Diptheria	467	45
Measles	1,306	29
Scarlet Fever	608	26
Smallpox	—	—
Varicella	131	—
Typhoid Fever	38	3
Whooping Cough	33	6
Cerebrospinal Meningitis	10	14
Malarial Fever	—	—
Totals	3,213	291

Strangulated Ovarian Tumor in a Child.—Swainson reports the case of a child of two years of age, admitted to the hospital for acute abdominal symptoms, of four days' duration. A tumor was felt in the right iliac fossa. On laparotomy a strangulated ovarian tumor the size of a tangerine orange was removed.—*Proceedings of the Royal Society of Medicine.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 13, 1910.

CHOLERA				
India, Madras	Mar. 26–Apr. 1		..	2
Java, Soerabaya	Mar. 1–31		80	70
Philippine Islands—Provinces:				
Bulacan	Mar. 13–19		1	..
Cavite	Mar. 13–19		1	1
Pampanga	Mar. 13–19		9	7
Pangasinan	Mar. 13–19		1	1
Siam, Bangkok	Mar. 1–18		2	2
YELLOW FEVER				
Brazil, Manaos	April 3–9		..	5
Para	April 10–23		28	21
Nicaragua, Managua	Jan. 14–20		..	1
Portugal, Lisbon	April 3		..	..
Eight cases and 4 deaths on S. S. *Rugia* from Manaos and Para, 4 cases placed in quarantine.				
PLAGUE				
Brazil, Bahia	Mar. 12–18		3	3
Para	April 10–23		2	2
Chile, Antofagasta	April 2		4	..
		In the lazaretto.		
Iquique	April 3		..	..
		Endemic.		
India, Bombay	Mar. 30–April 5		..	168
Kurrachee	Mar. 27–April 2		72	67
Rangoon	Mar. 20–26		..	25
Japan, Kobe	April 3–9		1	1
Osaka	Jan. 1–31		2	..
Persia, Bouchir	Mar. 25–April 2		2	1
Peru, Mollendo	April 4		..	..
		Five cases in the lazaretto.		
Siam, Bangkok	Mar. 1–28		44	42
SMALLPOX				
Abyssinia, Adis Ababa	Mar. 27–Apr. 2		Present	..
Austria, Galicia	Apr. 10–16		1	..
Silesia	Apr. 10–16		1	..
Brazil, Bahia	Mar. 12–25		54	37
Canada, Halifax	April 1–30		3	..
China, Canton	Mar. 20–26		5	..
Hankow	Mar. 20–26		1	..
Shanghai	Mar. 28–April 3		1	12
		Deaths among natives.		
Egypt, Cairo	Mar. 26–April 15		10	3
Port Said	April 9–15		1	..
France, Paris	April 9–16		6	..
Germany, general	April 10–16		21	..
Great Britain, Nottingham	April 10–16		1	..
India, Bombay	Mar. 30–April 5		..	86
Kurrachee	Mar. 27–April 2		2	1
Madras	Mar. 26–April 1		..	6
Rangoon	Mar. 20–26		..	48
Italy, general	April 11–17		40	..
Naples	April 11–17		26	1
Mexico, Aguascalientes	April 19–23		2	..
Mexico	Mar. 20–April 2		..	3
Rincon Viejo	Mar. 1–31		Present	..
Santo Domingo	Mar. 1–31		Present	..
Persia, Bender Gez	Feb. 20–Mar. 13		Present	..
Philippine Islands, Manila	Mar. 13–19		8	..
Portugal, Lisbon	April 10–16		47	..
Russia, Libau	April 10–16		8	2
Moscow	Mar. 27–April 2		36	2
Riga	April 3–16		6	..
St. Petersburg	April 3–9		43	17
Warsaw	Feb. 6–26		..	49
Spain, Almeria	Mar. 1–31		..	6
Valencia	April 9–16		1	..
Siam, Bangkok	Mar. 1–28		2	2
Straits Settlements, Singapore	Mar. 20–26		..	2
Uruguay, Montevideo	Feb. 1–28		99	30

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Original Articles.

ACUTE, SUBACUTE, AND CHRONIC INFECTION OF THE KIDNEYS AND OF OTHER ORGANS BY THE BACILLUS COLI.*

BY W. HANNA THOMSON, M.D.,

NEW YORK.

IN a paper published in the MEDICAL RECORD, March 21, 1908, entitled "Acute Invasion of the Kidneys by the Bacillus Coli," I related a number of instances of this serious, but usually manageable disorder, which I had met in my consultation practice. My subsequent experience confirms me in the opinion that such occurrences are by no means uncommon, and that it is important that their nature should be at once recognized, as the following case illustrates.

On the 6th of October last Dr. Robt. Abbe operated at St. Luke's Hospital on a lady who was a patient of Dr. J. L. Barton of this city, for the removal of a pelvic tumor, which proved to be an extrauterine pregnancy. After the operation the patient seemed to be doing very well, when suddenly on the 5th day she began to complain of cramps and pain in the abdomen, extending to the rectum, accompanied by nausea and frequent vomiting, followed by a rapid rise of temperature to 104.3°. She then grew drowsy and apathetic, with some muscular twitchings in the face and upper extremities. This was her first attack of the kind, and naturally suggested some general infective process from the wound of the operation. Nothing of the kind, however, could be discovered, the wound proceeding to heal as if by first intention. After this she gradually improved, and on the 21st day after the operation she spent two and one-half hours going about in a wheel chair. The next afternoon, however, she had slight chills, lasting twenty minutes, accompanied by rise of temperature to 103.5°, and the same constitutional symptoms developed as on the previous occasion, with the pulse rapid, small, and irregular, while the vomiting became much more frequent.

As she seemed to be very ill, I was then called in consultation, and I had no hesitation in pronouncing it a case of acute invasion of the kidneys by the *Bacillus coli*, on account of the symptoms appearing to me to be well nigh pathognomic, namely, sudden onset in a adult, with early cerebral symptoms, these soon passing with some into coma, but not convulsions, along with rapid rise of temperature and uncontrollable vomiting, a group of symptoms occurring in such sequence in no other renal derangement except those caused by invasion of the kidneys by some septic organism of which the colon bacillus is the most common. Along with these symptoms the next day, the urine which had been clear, became loaded with pus, blood, and numerous casts. I requested, therefore, that the urine be examined for *Bacillus coli*, but meanwhile to lose no time to administer 10 grains of sodium benzoate with 10 of urotropin every three hours, per rectum, as she could retain nothing on her stomach. I may say that these two drugs should always be combined in equal proportions in such cases, as the results are so promptly favorable compared with the administration of either of them singly. Thus urotropin sometimes causes irritation of the urinary passages like strangury, but never in my experience if conjoined with the benzoate. Some writers mention giving urotropin without producing any effect on this bacilluria, but it is quite otherwise in my experience if given with the benzoate. As often before in my experience, the relief of the serious constitutional conditions in this patient was rapid, the temperature the next day dropped to 99°, the vomiting ceased, and the cerebral symptoms disappeared.

The marked pyuria in this patient was undoubtedly due to the rupture of numerous small abscesses in the kidneys. The subsequent history of this patient was interesting. From the time of the operation, October 6, to my first visit on the 21st, the daily measure of urine was from sixteen to twenty-six ounces, and her physician, Dr. Barton, thought that she had oligouria for some time before. I, therefore, ordered enteroclysis with two gallons of normal saline at 120° F., night and morning, administered through Kemp's rectal irrigator. The effect was immediate, the kidneys then seeming to make up for lost time with 60, 80, 100, and finally 112 ounces in 24 hours. Meantime the urine became colorless, but continued acid and the specific gravity averaged 1008. But the chief feature was that though there were neither pus, blood, nor mucus and no ammoniacal odor, yet the urine showed a diffused white cloud which is very characteristic, and is mentioned by several writers. It was caused, as the daily examination in the laboratory showed, by immense numbers of colon bacilli in suspension. I was then puzzled to know where they came from so persistently, until on the 28th day she developed plain symptoms of subacute appendicitis. Dr. Abbe then operated with local anesthesia and removed an extensively diseased appendix with several hemorrhagic points in its lumen and a large ulcer at its base in the cecum. She recovered rapidly from this second operation and left the hospital on December 5 in better condition than she had been for months and with entire disappearance of the bacilli from the urine.

It is possible that the marked diuresis above mentioned may not have been wholly due to the

*Paper read at the New York Academy of Medicine, March 31, 1910.

rectal irrigation, because two weeks before she left the hospital it was deemed advisable to lessen the quantity of the urotropin and benzoate by administration once in six hours instead of once in three, the irrigations being continued the same. The very next day, however, the urine fell off one-half, from eighty ounces to forty, and she had headache. On renewing the former time doses the amount passed rose again to former figures.

As might be expected, invasion of the kidneys by the *Bacillus coli* is not an uncommon and sometimes a fatal complication of typhoid fever in its later stages when the intestine is extensively ulcerated. Its supervention should be suspected when markedly increased albuminuria is detected along with access of delirium, which, till then, may not have developed. One symptom is an almost certain sign, namely, the occurrence of sudden severe rigors late in the disease. During these attacks the patient seems on the verge of dissolution, and yet they are not necessarily fatal, particularly in young subjects. Free dosing with spirit of chloroform cuts the rigors short. In older patients the prognosis is worse, and in one case, that of a lady about fifty who soon died, the bacteriologist reported that he had never seen such a vast collection of the colon bacilli as there was in her urine. One patient with typhoid, a middle-aged physician, whom I saw in consultation, became actively delirious in the fourth week of the fever, and the urine was found heavily loaded with albumin and casts. The urotropin and benzoate soon caused a disappearance of both albumin and casts and entire cessation of the delirium, so that for a week he appeared convalescent, only to die afterwards from the sudden supervention of pulmonary edema.

Of subacute forms of this infection Case III detailed in my former article is a good example and in brief was as follows:

A physician of large family practice who had consulted me before for chronic ulcerative colitis, underwent an operation for excision of an ulcer high up in the rectum. In a very short time afterwards he became so delirious, though with only a moderate temperature, that he had to be watched constantly for four weeks. Meantime his urine was examined daily by a well-known expert, who closed his reports uniformly with the words, "acute parenchymatous nephritis with blood, albumin, and many casts." I was then called in consultation, and on examination of the patient, said that I did not agree with this laboratory diagnosis, that in my opinion he had no parenchymatous nephritis at all, for he had no edema anywhere, his pulse was soft, and moreover, prolonged active delirium was not common in parenchymatous nephritis, but that I wished his urine examined for *Bacillus coli*. Meantime I gave a favorable prognosis, which I would not have done if I thought that the laboratory diagnosis was correct, while I ordered the urotropin and benzoate every three hours. The first report from the laboratory was *Bacillus coli* in abundance, but two days afterward the remarks were, "astonishing improvement; no blood, albumin, nor casts." Six months afterwards this physician came to my office and reported that he was doing sixteen hours professional work a day!

In looking up the literature I have found several interesting papers dealing with different aspects of this subject, and all of recent date. The last is a paper in the London *Lancet* of October 30, 1909, by Dr. F. Charlton Briscoe, Physician to Kings College Hospital, London, in which he relates several instances of a matting together of the pelvic viscera by an exudate showing caseous changes which led to mistaken diagnoses of their tuberculous nature, but which proved on microscopical examination to be caused by the *Bacillus coli*. In each case colon bacilli were found abundantly in the urine. One patient was a woman with chronic hemorrhoids and rectal ulcer, who continued to decline in health for a year, losing weight, with a daily hectic fever and constant pain in her right flank. Upon laparotomy the pelvic organs were found matted together, the uterus being bound up with the posterior wall of the bladder along with a coil of the small intestine. Under treatment by vaccines she fully recovered. Another case in King's College Hospital was that of a young girl in whom on operation a large mass of caseous material was found attached to the small intestine, great omentum, left ovary, and tube. This was thought to be surely tuberculous, but on examination no tubercle bacilli were found, but instead a structureless material from which pure cultures of colon bacilli were obtained. In a third case the infection gave rise to a large tumor which was suspected to be malignant, in an Italian woman aged fifty-two. This tumor on laparotomy was found attached to the wall of the bladder and extended from the pubes to the umbilicus, of a dark red color, and covered by peritoneum with many large vessels coursing over the surface. On the supposition that it was malignant and inoperable, it was let alone. For three days after she showed a hectic condition, the temperature rising daily to 103° F., and then falling back to normal, until on the fourth day she passed a considerable quantity of pus with large flakes of lymph in the urine. The tumor was found to have disappeared, but from time to time it reformed and emptied itself, eventually disappearing entirely. From the urine a pure culture of *Bacillus coli* was obtained.

Dr. Briscoe refers to an interesting group of cases which have attacks of intermittent fever, the fever coinciding with the appearance of colon bacilli in the urine and the intermissions with their disappearance, and advises that the urine be examined for the colon bacillus in all cases of febrile attacks of obscure origin. It is worthy of note, also, how often ulcers in the rectum occur in his experience previous to the invasion of the kidneys and other organs. Along with other writers, he comments on the pale color of the urine, its milky haze, its acid reaction and relatively high specific gravity, along with the chronic persistence of the baccilli when once they appear in the urine, which also never decomposes with an ammoniacal odor. His treatment is mainly that of making the urine alkaline, giving frequent mercurial purges and when the symptoms persist, administering vaccines made from the baccilli of the patient himself, the initial dose being 50,000,000 of the dead organisms, according to the method of Sir A. Wright, and repeated every seven to eight days. This procedure he has found very effective.

Dr. Charles R. Box of St. Thomas Hospital, London, in an article in the *Lancet*, January 11, 1908, makes this important observation, that "it is a remarkable fact that in many cases when the kidneys are involved in typhoid fever, scarlet fever, measles, and diphtheria the organism found in the urine is the colon bacillus."

This observation is important because if the frequent affection of the kidneys in both scarlatina

and diphtheria is not due to the specific agents of those diseases, but to the colon bacillus, the treatment of their renal complications becomes comparatively easy, as a case reported by Dr. A. Seibert, of this city, well illustrates. Dr. Seibert, when first called to the patient, a girl, aged eleven years, in the sixth week of her illness, found universal edema, most marked in the face, some ascites, pulse forty-eight, intermitting every third beat; she was semi-conscious, with total blindness which had persisted for five days, nausea and incessant vomiting which had lasted for ten days, necessitating rectal feeding. The previous day she had had two severe uremic convulsions. Only four or five ounces of urine had been passed in the previous twenty-four hours, and this contained but a moderate amount of albumin. Five grains of urotropin were then administered, dissolved in an ounce of cold water with fifteen drops of dilute hydrochloric acid. This was not vomited and this dose of urotropin was repeated every three hours. As a result the headache disappeared first, and then marked diuresis set in so that 110 ounces was passed in the next twenty-four hours, and all edema disappeared within forty-eight hours. The amaurosis diminished in two days and finally disappeared in a week, after which she made an uninterrupted recovery.

Dr. L. C. Dudgeon, Bacterial Pathologist of St. Thomas' Hospital, in his Erasmus Wilson Lecture on Acute and Chronic Infections of the Urinary Tract (*Lancet,* February 29, 1908) says in the acute forms the onset may be very sudden with the temperature reaching 105°, kidneys tender, urine highly acid and loaded with colon bacilli, with, in some cases, pus and blood (a clinical picture which I myself have often met). These attacks sometimes occur with appendicitis. Finding the subsequent presence of the colon bacilli very persistent and prone to relapses, he recommends treatment with vaccines.

Finally, Dr. H. Batty Shaw, Physician to the University College Hospital, London, in an article in the *Clinical Journal,* February 12, 1908, gives a full bibliography of articles on this and cognate infections in Continental journals, all, however, of late years. Dr. Shaw gives the particulars of seven cases of his own and says that clinically such patients may be supposed to be sufferers from malaria, tuberculosis, mucous colitis, recurrent cystitis from unknown cause, dyspepsia, acute suppression, typhoid fever or pernicious anemia, and he recommends that every case of a chronic febrile affection of obscure origin should have the urine examined for *Bacillus coli.*

One hardly knows what the colon bacillus will not do when once it starts on its travels in the circulation. Dr. Robt. T. Morris, the eminent surgeon of this city, reports in the *New York Medical Journal,* January 1, 1910, the case of a patient, an elderly clergyman referred to him by Dr. John S. Kirchendall of Ithaca, N. Y., as a sufferer from choroiditis, which threatened to end in total blindness. In his letter to Dr. Morris, Dr. Kirchendall says that Dr. Stockton of Buffalo has asserted for years that the colon bacillus was the cause of most cases of choroiditis. Dr. Morris found that this patient had been suffering for years from intestinal troubles ascribable to a fibroid degeneration of the appendix, and on Dr. Morris' removing it the patient recovered, not only from his intestinal dyspepsia, but also from his choroiditis.

The *Bacillus coli,* however, is not the only micro-organism which can set up an acute inflammation of the kidneys. Both the *Staphylococcus aureus* and virulent forms of streptococci can do so with accompanying conditions very similar to those caused by the *Bacillus coli.* Thus, Dr. Geo. Emerson Brewer, Surgeon of the Roosevelt Hospital of this City, published an important paper (*Surgery, Gynecology, and Obstetrics,* Vol. II, No. 5) upon Acute Unilateral Septic Infarcts of the Kidney, in which, though the lesions were only in one kidney, yet caused very serious, and in some of the cases, fatal results, with symptoms of sudden onset and rapid rise of temperature from 105° to 106°. At autopsy the affected kidney was found riddled with small abscesses, the pus from which showed in some instances pure cultures of *Staphylococcus pyogenes aureus,* in others cultures of streptococci. In one of his cases the pyogenic organism was the *Bacillus coli.* Dr. Brewer cites a number of authors who describe such unilateral invasions of the kidney by different organisms, of which the *Bacillus coli* is mentioned as the most frequent form. Preceding lesions, such as the virtually traumatic irritation of a renal calculus, readily explain why the infection can be unilateral, according to the principle illustrated by the classic experiments of Dr. S. J. Meltzer who, by causing minute lesions by long needles in the liver, kidneys, and other organs, and even in the limbs, and then injecting a virulent culture in a vein of the ear, had abscesses begin in the body of the animal only at the seats of the traumatisms caused by the needle.

Some writers suggest that the origin of colon bacilluria is due to the introduction of these organisms from without, as by catheterization. Dr. Box, above quoted, inclines to this view mainly because among children he has found it much more frequent with girls than with boys, which he explains by the much shorter length of the female urethra. He says that there is no more common cause for enuresis among children than the presence of this bacillus. While there can be no doubt that these organisms may enter the bladder through the urethra instead of by descending from the infected kidneys, yet it is difficult to account for the persistent and enormous multiplication of these bacilli in the urine, when, unlike all urines decomposed by other bacteria, in colon bacillus cases it remains strongly acid and not alkaline and gives off no ammoniacal odor. Of course, in all the many cases which we have mentioned of organs other than those of the urinary tract being infected, the bacilli must have come through the blood.

As regards chronic infection by the *Bacillus coli,* an important paper was published in the *Journal of Medical Research* (Vol. VIII, No. 2), November, 1902, by Dr. A. Charlton, from the pathological laboratories of the McGill University, with the title, "On the Anemia Produced by Repeated Injections of Cultures of a Colon Bacillus of Low Virulence." Rabbits were used for experiments with the colon bacillus derived from their own intestines, the cultures therefrom being injected intraperitoneally or into a vein of the ear. The doses were always small and the period of experimentation extended over many weeks. The most striking results followed the intravenous injections and in brief were as follows: A very remarkable state of advanced anemia, in some respects strikingly like the conditions found in pernicious anemia, namely, great diminution in the number of red cells, marked poikilocytosis and the appearance of pear-shaped cells, crescents,

macrocytes, microcytes, and lastly nucleated red cells. On suspending the injections for some weeks, even when the fall in the erythrocytes was from five and a half millions to only one and a half millions, spontaneous recovery took place. Then when the injection of the bacilli was resumed, the injurious results were even more rapid and marked than on the first trial. But in addition to the effects on the blood very striking and progressive changes were produced in the spinal cord, consisting of diffuse degeneration in the columns of Goll, and in the antero lateral columns of the cord, closely resembling the conditions occurring in the spinal cord in certain cases of pernicious anemia.

The other bodily conditions were extreme emaciation, although the animals fed well and suffered from no gastrointestinal disturbances such as diarrhea, the animals in fact dying apparently from pure asthenia.

The whole paper is well worth study on account of its many suggestive analogies to numerous cases of human morbid conditions often of obscure origin, such as progressive anemia with emaciation and nervous weaknesses often grouped under that vague term, neurasthenia. In fact any such conditions if accompanied with febrile symptoms are doubtless ascribable to chronic infections. We also know that no visible lesion is necessary in the intestinal wall for bacteria to pass through into the circulation. Chronic constipation alone may suffice to allow the occurrence of chronic colon infection.

Finally, from my own experience I would regard chronic interstitial nephritis as most frequently caused primarily by slow infection of the kidneys by the *Bacillus coli.* Sudden terminations of cases of chronic interstitial nephritis characterized by great diminution or suppression of urine are nearly always preceded by acute indigestion of one form or another. I always dread an attack of so-called cholera morbus in an elderly patient and direct that the state of the kidneys be forthwith looked into. These cases are frequently attributed to an acute exacerbation of the chronic kidney disease, whereas I believe that I have saved a number of such cases by immediate recourse to urotropin and sodium benzoate, administered per rectum when the patients were comatose. It is suggestive how soon in the course of chronic interstitial nephritis symptoms of increased kidney affection develop after errors of diet.

Some writers are prone to minimize the role of the *Bacillus coli* in the causation of internal derangements, on account of its being naturally what they suppose to be a harmless denizen of the intestine. They might as well call the various virulent forms of staphylococci and of streptococci which constantly cover the surface of the skin as harmless, because while there they certainly are equally harmless so long as they stay there. The truth is that all these organisms are our mortal enemies, and will quickly prove themselves to be so if once they can penetrate through the thin barrier of the basement membrane, which membrane constitutes the external skin, or the internal mucous membrane, according to the different layers of epithelium which cover it. It is this basement membrane which is our chief protection, not only from the invisible foes of the external skin, but also against the large family of the colon group in the intestine.

In conclusion I would say that the advance of modern medicine is especially marked by the progressive elimination of the word idiopathic from our etiology. Whole classes of serious diseases which but lately we were content to regard as of unknown causation, we now know better than many of our most familiar old affections, with the further comforting assurance that the more we learn of their origin and nature the better we can treat them.

THE LIMITATIONS OF THE CALORIC METHOD OF INFANT FEEDING.

By HENRY DWIGHT CHAPIN, M.D.,

NEW YORK.

WITHIN the last few years attempts have been made to feed infants by the caloric method, and much is being written on this subject that is perhaps calculated to give a somewhat exaggerated idea of its place and value.

A calorie is the quantity of heat required to raise the temperature of one liter of water one degree Centigrade. The source of this heat is immaterial. It may result from the burning of coal, gas, wood, cereals, sugars, meats, or other food stuffs; or it may be obtained from electricity, chemical action, by friction, or from the rays of the sun.

It has been assumed that because all animals and human beings produce and give off heat that their food requirements can be determined by the quantity of heat they excrete. No animal or person could live more than a few hours unless the heat liberated as the result of the chemical activities of the body or metabolism was excreted. It is a waste product to a great extent, and in summer time there is more heat produced than is needed to maintain proper temperature of the body, and getting rid of it then is often such a serious problem that temporary abstinence from all food is sometimes necessary to reduce the production of heat as much as possible.

If an animal or person excreted enough heat to raise the temperature of one thousand liters of water one degree Centigrade in twenty-four hours, it might be assumed that food was needed which, when burned, would yield an equal amount of heat or one thousand calories. In cold weather, when all of this heat is needed to help maintain body temperature, and clothing is also required to prevent too rapid diffusion of heat, such an amount of food could be safely given. But in hot weather, when the heat produced is more than is needed to keep up the temperature of the body, the number of calories excreted is not an indication of the food requirements from the standpoint of heat value. Less heat is desired, and if it was practical to employ it, continual starving would be the ideal method of handling all cases in hot weather; and, in the tropics, no food at all would be needed if heating value was the sole factor that made food necessary.

From the heat producing standpoint, coal, gas, wood, meat, fat, sugar, and cereals are equally valuable, as all will burn and produce heat, but that the heat they are capable of producing is an indication of their food value, or that they are interchangeable according to heat values is at once seen to be absurd.

In selecting food a number of factors must be considered. First of all, is the food digestible by the *particular individual?* Food for a cow is entirely unsuitable for a dog, and the food of an adult will kill an infant. Yet such foods are nutritious and digestible in their proper spheres.

Fats, sugars, starches, meats, and other forms of protein will all produce heat, and all are digestible. If the heat or caloric value was all infants or adults

needed food for, it would be immaterial what article of diet was employed. But foods that are of equal heat producing value, and which are also digestible, are not interchangeable for different individuals, and growth and tissue repair do not depend upon the storage of heat, but upon the assimilation of protein. In infant feeding, particularly, where growth or the storage of protein is the chief phenomenon of nutrition, the main point to be considered is not, will the food supply heat, but, is it capable of causing growth?

TABLE OF CALORIC FOOD VALUES.

1 oz. Protein	yields	123 calories
1 oz. Carbohydrates	"	123 "
1 oz. Fat	"	288 "

KEY TO CALORIC VALUES OF PERCENTAGE MIXTURES.

1 oz. Food containing 1% Protein	yields	1.23 calories
1 oz. " " 1% Carbohydrates	"	1.23 "
1 oz. " " 1% Fat	"	2.88 "

EXAMPLE OF USE OF KEY.

What is the caloric value of 32 oz. of breast milk whose composition is protein 2 per cent., carbohydrates 7 per cent., fat 4 per cent?

32 oz. × 2% Protein	× 1.23 cal.	= 78.72 cal.	from Protein.
32 oz. × 7% Carbohydrates	× 1.23 "	= 275.52 "	" Carbohydrates.
32 oz. × 4% Fat	× 2.88 "	= 358.4 "	" Fat.
		712.64 cal.	

APPROXIMATE COMPOSITION AND CALORIC VALUE OF FOODS.

	Water %	Protein %	Fat %	Carbo-h'd't's %	Calories to 1 oz.
Human milk	87.0	2.0	4.0	7.0	22
Cow's milk:					
Ordinary milk	89.0	3.0	3.0	5.0	18.5
Good milk	87.0	3.3	4.0	5.0	21.0
Jersey milk	86.5	3.5	5.5	5.0	26.0
Cream	74.0	2.5	18.5	4.5	62.0
Top milk 16% fat	77.0	2.5	16.0	4.5	55.0
" " 12% "	80.0	3.0	12.0	5.0	44.0
" " 10% "	83.5	3.2	10.0	5.0	39.0
" " 7% "	84.8	3.2	7.0	5.0	30.0
Skim milk	90.5	3.4	0.3	5.1	11.0
Buttermilk	91.0	3.0	0.5	4.8	10.0
Koumyss	89.3	2.8	2.1	5.4	15.0
Condensed milk (sweetened)	26.9	8.8	8.3	54.1	95.0
Evaporated milk	68.2	9.6	9.3	11.2	48.0
Whey	93.0	1.0	0.3	5.0	8.0
Cereals for Gruels:					
Wheat flour	12.0	11.4	1.0	75.1	104
Entire wheat flour	11.4	13.8	1.9	71.9	105
Robinson's patent barley	9.4	7.4	.....	81.5	109
Cereo Co.'s barley	7.0	14.0	.....	77.0	110
" " oat flour	7.3	16.0	7.2	67.5	120
" " legume flour	6.5	25.0	.....	67.0	113
" " soy bean flour	5.0	44.0	19.0	10.0	120
Rice, flaked	9.5	7.9	0.4	81.9	105
Bread and Crackers:					
Wheat bread	35.0	9.1	1.6	53.3	76
Entire wheat bread	38.4	9.7	0.9	49.7	71
Graham bread	35.7	8.9	1.8	52.1	75
Zwieback	5.8	9.8	9.9	73.5	123
Cream crackers	6.8	9.7	12.1	69.7	124
Oatmeal crackers	6.3	11.8	11.1	69.0	124
Graham crackers	5.4	10.0	9.4	73.8	122
Saltine crackers	5.6	10.6	12.7	68.5	125
Butter	11.0	1.0	85.0	.....	225
Eggs (cooked)	65.0	11.7	10.7	.....	42
Round of beef (raw)	70.0	21.3	7.9	.....	45
Roast beef (cooked)	48.2	22.3	28.6	.....	100
Steak (cooked)	63.0	27.6	7.7	.....	52
Fish (cooked)	68.2	25.9	4.5	.....	42
Poultry (cooked)	53.6	21.2	10.3	.....	55
Vegetables:					
Potatoes (mashed and creamed)	75.1	2.6	3.0	17.8	32
Asparagus (cooked)	91.6	2.1	3.3	2.2	13
Baked beans (cooked)	68.9	6.9	2.5	19.6	37
Spinach	89.8	2.1	4.1	2.6	17

Again, heat or calories are not retained in the body, and if the amount of food needed is to be determined by the heat excreted, the quantity of food required will be that which when burned will produce exactly as much heat as is excreted. If only as much is taken in as is given off there can be no storage of protein or growth. The amount of food to enable growth to be made, therefore, can not be determined by the amount of heat excreted. It is self-evident then that the caloric method is not one that readily lends itself to successful infant feeding, whatever value it may have in the feeding of adults. But for roughly comparing the heat values of mixed diets, which prove to be suitable for the particular case from the digestive standpoint, when the composition and weights of the foods eaten are known, and also to act as a sort of check, the caloric values of the foods may serve a useful purpose, and to enable those who wish to become familiar with caloric food values the preceding key and table are given.

It should be remembered, however, that at the best the figures in the tables are but approximations, and that no exact figures are possible unless each lot of food is carefully weighed and analyzed. The data employed have been derived largely from Bulletin No. 28, U. S. Dept. Agric., Office of Experiment Stations, and the balance from other analyses and by calculation.

Heubner gives the following caloric requirements for infancy:

First three months, 100 calories per kilo of body weight; second three months, 90 calories per kilo of body weight; after that, until the end of the first year, 80 calories per kilo.

Langstein-Meyer gives the following caloric needs:

1- 2	weeks,	107	calories	per	kilo	of	body	weight.
13-14	"	91	"	"	"	"	"	"
25-36	"	83	"	"	"	"	"	"
37-44	"	69	"	"	"	"	"	"

The usual percentage system as applied in this country gives a very close approximation of the caloric needs as they have thus been worked out.

51 WEST FIFTY-FIRST STREET.

THE ECONOMICS OF STATE CARE OF THE INSANE.*

BY ALBERT WARREN FERRIS, A.M., M.D.,

NEW YORK.

PRESIDENT NEW YORK STATE COMMISSION IN LUNACY.

THE problem of the care of the insane is not simple, nor is it easy of solution. Its complexity is due in part to the fact that, while it is undeniably a medical matter, insanity is not a definite disease like malaria, to be treated successfully with a specific remedy like quinine. Rather it is a sociological problem resulting from heredity, food, occupation, education, and mental hygiene. Hence no narrow view, no easy self-satisfaction, no simple financiering, no mere utilitarian theory will avail in grappling with the situation.

So intricate is it in its correlation with psychology, nutrition of tissue, and development of function; with occupation, provision of environment, maintenance, and medical treatment of disease, that the care of the insane should be in the hands of a body of men who together will bring to the work not only prudence, thrift, judgment, and enthusiasm, but also expert medical and administrative training.

A former legislator of my own State gave utterance to the statement that all that the insane need is to be housed, clothed, and fed until they perish. This thought, though confessedly inhuman, he considered practical. It is not practical for it is not economic. Mere custodial care of the insane as a mass is wasteful and extravagant. It is wasteful of the lives and possible future usefulness of those whose mental integrity can be restored through proper nursing, treatment, and occupation. It is wasteful because it writes over the portal of the hospital for the insane the words, "Leave hope be-

*Delivered before the General Assembly, Annapolis, Md., February 9, and in part before the New Jersey State Conference of Charities and Correction, Camden, N. J., February 14, 1910.

mind, ye who enter here," thus making unnecessarily discouraging the matter of the diseased condition, creating in the minds of the near relatives and descendants a personal dread that robs these individuals of their social and industrial chance in life, and limits their effort and ambition. It also contributes toward perpetuating the unfortunate "stigma" that attaches to mental disorder.

Mere custodial care is extravagant because it assumes the burden of permanently caring for those who may become partially or entirely self-supporting, even after years of insanity. It is extravagant because it makes no provision for the study of the conditions of mental development, its arrest and retrogression; from which study by successive groups of physicians, teachers, and parents proper methods of rearing the young may be learned. Every pilot must personally study the charts of the stream, if he is to guide vessels past the rocks, beyond the whirlpools and around the shallows, and bring his ships in safety to the haven.

The importance of adequate provision for the insane is unquestioned. Whether or not insanity is on the increase we do not know. My own State of New York, which for many years averaged a net increase of the insane of 750 patients out of a gross increase of over 5,000, experienced a sudden augmentation of its net increase to 1,246 in the year before last, and one of 1,014 last year, with a total admission of 6,474 cases (of which number 5,146 were first admissions).

In contemplating the apparent increase of insanity, attention must be given to the fact that more of the population has become liable to insanity than was formerly the case, through the operation of an increased longevity. In 1840 the average age at death was about 28 years. In 1900 this average had increased to 34.5, thus bringing more people into the third decade of life, which is the most fruitful decade in insanity.

The question is often asked, "What is the proportion of insane to total population?" Fairly accurate figures are obtainable in several instances. In England and Wales (with an insane enumeration of 128,787) the proportion is 1 to 278, as compared with 1 to 277 in Massachusetts, 1 to 284 in New York, and 1 to 450 in the whole United States.

These figures suggest that a broad, comprehensive view be taken of mental unsoundness, and that all expedients be employed that science can devise to limit and restore, and that the most humane consideration be given to the subject. Past experience has shown that counties, with the rarest exceptions, have not taken such a view of the subject or employed such measures. Revolting and heartrending cases of neglect and cruelty toward even possibly recoverable individuals are too frequent. Abundant instances convince us that the only adequate and proper care of these unfortunates is State care.

It is difficult to compare the cost of county care with that of State care, as the latter is in operation in several commonwealths. The meager furniture, the coarse and common clothing, the revoltingly cheap food, the wretched housing, including bathing and toilet facilities, the insufficient lighting and heating, the infrequent medical attention, the total absence of nursing, the unskilled attendance and the absence of diversion or occupation, as existing or provided under ordinary county care, furnish no basis of comparison with even moderately intelligent provision. Were the counties separately to undertake to construct hospitals and provide properly in all these respects, the cost to taxpayers would be far greater than with one centralized board of administration and control, with an estimate system leading up to a central auditor and a central treasurer, and a single purchasing agency.

There is a widespread impression that the insane are recruited largely from the ranks of the ignorant, the idle, the vicious, and the generally useless members of society. This is most emphatically erroneous. The patients who suffer from attacks of insanity are of the valuable members of the community, in the largest proportion.

To illustrate this point the following statistics are taken from the Nineteenth Annual Report of the New York State Commission in Lunacy: "From October 1, 1888, to October 1, 1907, 104,013 patients (52,152 men, 51,861 women) were admitted to the New York State hospitals. Of this large number but 7,901 (3,052 men, 4,849 women) were not engaged in some legitimate wage earning occupation before becoming insane. In 2,715 the occupation, if any, was unascertained, and but 12,962 were classified as laborers only. Eighty thousand four hundred and thirty-five, over 77 per cent., were engaged in work above the grade of day labor, or were the wives, or in some cases the minor children of men so occupied. Nothing could show more conclusively that the State in aiding these people has given the aid to those who most deserve it, and to those who as wage earners and taxpayers have in the past contributed to the support of others in a similar condition, and that by restoring a considerable proportion to mental health it has made a definite and valuable contribution to the resources of the State."

The most economical method of caring for the insane is naturally the method by which as much as is possible is made of the remnant of life left to the incurable patient, and by which the greatest number of patients are rendered entirely or partially self-supporting, through cure or reeducation, the latter a very important agency.

Such a method is made complete only through State care. With a State properly districted for its hospitals, with hospitals built on the cottage plan for a capacity of about 2,000 patients each, with careful grouping and classification of inmates (socially as well as according to psychoses), with skilled medical officers and good laboratory and other medical equipment, with an organized nursing system radiating from each local training school, with facilities for amusement and therapeutic occupation and practical industries, true economy in care, in the lives of citizens and in the use of the taxpayers' money will be secured.

It is especially economical to make commitment simple and to encourage voluntary admissions. The insane should be placed under treatment without delay. The earlier you can institute care the more patients will recover, the sooner the recoverable cases will be returned to their homes, the earlier they will cease to be a burden upon the State. A close intimacy between State hospitals and families having an insane member will offer opportunity for warning and advice, and for early readmission in case of relapse. Cultivation of such intimacy will be progressed by the admission of voluntary cases.

Two important measures are inseparable from State care: First, prevention; second, after-care or "social service."

Simply to build hospitals in which to treat the insane produced within the State will not solve the

great problem. We must go to the fountainhead and limit the volume of the stream. We must instruct the people and the physicians of the State in the study of the avoidable causes of insanity. Our first preventive measure is instruction of children. As an aid in the instruction of children, we need the old family physician, modernized and versed in the psychiatry of to-day; the true "guide, philosopher, and friend." We need the physician who is wise enough to instruct the young parent and discreet enough to teach the youth important matters. There are certain truths which the parent should impart to the children very early. When the boys and girls are about to leave home for boarding school, the danger of certain diseases should be taught them, whatever their age may be. If children are living at home, and the parents share their complete confidence, these truths should be told the children at the age of fourteen or fifteen. Do not be misled by the old adage, "A young man must sow his wild oats." The harvest is not infrequently insanity. One indiscretion may result in an attack of syphilis which may in later life be followed by the insanity of general paresis. Of the 13,000 men in our New York State hospitals, probably 5,000 became insane as a result of self-indulgence or vicious habits, or sowing "wild oats." The perils of syphilis consist not only in temporary and present illness, but also in a breakdown in the prime of life, in diseased children, and in final insanity.

While the children's minds are being stored by their teachers with the studies of the day, do not neglect the training for the home. Better than free-hand drawing, better than clay modeling is training in correct habits of thought, common sense ideas, and an imagination stimulated along proper lines. Strength and breadth of mind, order, attention, concentration, frankness, sincerity, and avoidance of superstition are the traits that your child should acquire. Encourage your child to ask explanations; see that the children understand. You may recall the story of the examination paper written by a young child in a public school. His paper contained this sentence: "Every name of the Deity should begin with a caterpillar." Poor, little confused head! Not daring to ask what was meant, he had formed the habit of accepting and committing to memory, and thus "capital letter" and "caterpillar" were easily confused. Such a child readily develops a want of self-confidence as well as avoidance of others' help, and easily becomes a prey to doubt, suspicion, and alarm; and thus the dangerous "undercurrents of thought" become strengthened, to break through perhaps at some future time of stress and strain, with resulting insanity. I heard with amazement a public school teacher say that he, in an experience of twenty-five years, had never seen a school child so defective as to require separate or different teaching. Teachers should be psychologists. They should note not only if the conduct and behavior of their children is proper, but also if correct reactions to ideas and experiences follow normally. They should note the occasional weakening of the "upper current of thought" and build up a protective personality. They should encourage the fullest enthusiasm for health, strength, and beauty, and for doing right for right's sake. Nature studies among the bees and birds, the ferns and flowers, the shells and pebbles, or the rocks and trees, will fill the children's minds with interests of great value and will provide the change of occupation that rests the mind.

The second preventive measure is instruction in the dangers of alcoholism. The greatest single factor in the avoidable production of insanity is alcoholism. Of the insane of New York State 28.9 owe their lunacy to alcohol; of Massachusetts, 30.6 per cent.; of three asylums in England, 26.3 per cent.; of Munich, 30 per cent. of the male patients, while in 44.9 of the male Bavarian patients alcohol was the important factor. In a series of 961 New York cases, in which the causation was accurately known, the use of alcoholic stimulants was the precipitating factor in 55 per cent. of the men and in 22 per cent. of the women.

Syphilis is the next important avoidable cause of insanity. It is the cause of insanity in from 14 to 20 per cent. of the men and in from 2.5 to 3.5 per cent. of the women. In the prevalent disease general paresis, commonly termed "softening of the brain," syphilis is the cause in 85 per cent. of the victims. Communities must be investigated, teachers must be informed, youths must be taught plain truths in vigorous language, families must be educated.

Deportation of insane aliens with mental defect is necessary. All States should combine in assisting the United States government in preventing the admission into the country of immigrants who are insane, who have been insane on more than two occasions, or within five years of entering this country, or who, within three years, become insane from causes existing previous to landing. The immigration laws are clear and forcible and will afford ample protection with cooperation of State authorities. When found, such aliens should be deported forthwith, and when discovered within the three years' period, after slipping through the port in some way, they should be returned to their own countries at once. About 45 per cent. of the 30,000 insane people in New York State are of foreign birth, against about 35 per cent. of the population. To use the words of the former president of Harvard College, Dr. Eliot, "we should not water the blood" of our people in this way.

The second great adjunct to State care of the insane is providing after-care. The most practical work and that which will most quickly result in the prevention of the recurrence of attacks in certain cases, and prevention of any attacks in relatives of patients, is the work done by the after-care committees. Some call this important and valuable work "social service." It consists in cooperating with a State hospital and visiting the convalescent patients in their homes. Under a long parole period, patients may be sent to their homes in the care of a relative, when convalescence begins, for a trial. The after-care consists of the following duties: (a) Securing from the hospital information concerning the precipitating factor of the attack of mental trouble, the stress and strain of the patient's life, the undermining features of his environment and the hereditary influences in his case. (b) Securing from visits to the patient in his home additional facts concerning surroundings and conditions, and gaining his confidence and that of his family. (c) Suggesting and providing agencies which will improve his environment, explaining away his remaining doubts, reassuring and encouraging him, and teaching him and his relatives how to avoid future illness. (d) Providing occupation and employment for him and raising up friends for him; giving him a mental and moral prop.

Philanthropic men and women are needed to volunteer for this work who will attach themselves to the after-care committees and familiarize themselves with the common manifestations of the diseases called by the collective name of insanity. There is no more imperative duty, and there is no nobler service one can render humanity, than to care for the insane wards of the State.

SOME FACTS THE GENERAL PRACTITIONER SHOULD KNOW REGARDING THE TREATMENT AND CARE OF THE INSANE.*

By WILLIAM MABON, M.D.,
NEW YORK.

SUPERINTENDENT AND MEDICAL DIRECTOR, MANHATTAN STATE HOSPITAL, WARD'S ISLAND.

It is the prevailing, but erroneous, belief that insanity, one of the most fearful afflictions that besets humanity, is in all cases a hopeless condition. It removes from the family the wage earner, the housekeeper, the parent or the child, for an indefinite period of time. You, as physicians in general practice, first come in contact with this condition in its incipiency, and my purpose to-night is to bring to your attention the progress recently made in the treatment of that group of diseases classified under the general term "insanity," and the steps to be taken by you to secure the advantages of modern scientific treatment for your mental cases. I hope to help you, and through you your patients, to a better understanding of the means provided by the State for the care of these unfortunates. We believe that the good accomplished in the State hospitals can be much augmented by securing the active co-operation of the medical profession and the public in our work, both with the idea of preventing attacks of mental disease whenever possible, and with shortening attacks by early treatment.

In this great city, the second largest in the world, where practically all the public charitable and correctional agencies are under municipal control, it is not realized by the people generally that the insane are, and have been for many years, State charges, and that the institutions for their care and treatment are entirely under State supervision and control.

I shall explain briefly the method of commitment and the essential legal points to be observed; the provision for voluntary admissions; how a patient is examined and cared for at the hospital; the forms of treatment; the methods of discharge, the parole system, and the work of after-care.

There are three essential points to be observed in the commitment of the insane patient, viz., the petition, the certificate, and the order.

First, the petition must be made by certain near relatives, the poor authorities of the town or county, or the person at whose house the patient may be residing. In Greater New York the petition may be made by the Commissioner of Charities or his deputy.

Second, the medical certificate. This must be made after a joint examination by two qualified examiners in lunacy, must state what the patient said and did in the presence of the examiners, and any other facts indicating insanity, and must be sworn to. A qualified examiner must have practised at least three years, be a licentiate of the State and a graduate of an incorporated medical college. These qualifications must be certified to by a judge of a court of record, filed in the County Clerk's office, and a certified copy filed in the office of the State Commission in Lunacy in Albany.

Third, within ten days from the date of the medical certificate an order must be had from a judge of a court of the judicial district in which the patient resides, approving the findings of the physicians and committing the patient to the designated institution.

The law also provides that a notice of the petition must be served upon the person whose commitment is sought, unless in the opinion of the judge the service should be dispensed with, and in this event, the reason for dispensing with the service must be noted on the certificate.

In the case of voluntary patients, Section 99 of the Insanity Law provides as follows:

"Pursuant to rules and regulations established by the State Commission in Lunacy, the superintendent or person in charge of any State hospital for the care and treatment of the insane, except the Matteawan and Dannemora State hospitals, may receive and retain therein as a patient any person suitable for care and treatment, and who voluntarily makes written application therefor, and whose mental condition is such as to render him competent to make such application. A person thus received at such hospital shall not be detained under such voluntary agreement more than five days after having given notice in writing of his intention or desire to leave such hospital."

This comparatively new provision of the law makes it possible to receive borderland, incipient and recurrent cases, as the general hospital receives its cases, and does away with the loss of time required in the ordinary procedure for admission to an institution. In our experience we have found that those who take advantage of this provision are largely former patients, or their relatives. The regulations of the State Commission in Lunacy governing this class provide that alcoholic and drug habitués must not be received, and case history and records must be kept the same as for a committed patient.

When a committed patient is to be received directly from his home the physician should notify the institution that a certificate in lunacy has been completed and the patient is ready to be removed. The hospital on its part will send a physician and nurse, who will bring the patient by carriage or ambulance. If the physician finds the certificate defective, it is necessary to have the required corrections made and the case will have to be deferred until the law in all particulars has been complied with. The institution is always glad to furnish any information as to the procedure to be followed.

It is expected that the relatives, whenever they are able, will reimburse the State for the maintenance, and if the case is one requiring extra care and attention and the relatives are financially able, they are expected to pay a higher rate than the reimbursing one. Furthermore, relatives who are able to pay the rates charged at private institutions are expected to do so, on account of the great number of indigent insane who must be cared for. At the present time all the State hospitals are overcrowded and preference is always given to the indigent class. In order to ascertain the facts as to the financial responsibility of the family, and to protect any property interests the patient may have, the State has special agents who investigate and report to the State Commission in Lunacy, and each hospital has an attorney to assist in this matter. In all cases

*Read before the East Side Medical Association, February 24, 1910.

relatives of patients are expected to provide them with clothing, but when this is impossible clothing is furnished by the State.

The method of examination and keeping case records at the hospital is of a thorough and comprehensive character. There thus results a mass of records, which, valuable as they are in further elucidating psychiatrical problems, are none the less of the greatest value as a guide in directing intelligent therapeutic effort.

Every patient on admission is at once placed in bed, there to remain until the physical examination is completed, the result of which determines the necessity for further rest in bed. Immediately after arrival a superficial examination is made for marks of identification, injuries, and any serious disorder requiring immediate attention, all of which is duly recorded, as is the treatment instituted. Later, more extended physical examination is made, following a general outline, which embraces all necessary points of inquiry in the ordinary case, but which at the same time calls for the most detailed examination of any abnormal condition. While such outline is closely followed, the record of the examination is typewritten upon blank sheets, thus avoiding printed forms which tend to mere routine work. The examiner is thus allowed all latitude in expressing his findings, while, following the outline as he does, no point is overlooked.

A brief survey of the outline shows its comprehensive character. With a paragraph for a description of the general type, appearance, and condition, including anthropological makeup, general state of nutrition, evidence of acute or chronic disorders, the neurological examination is first undertaken following the segmental development of the nervous system. Thus, after a paragraph devoted to general and subjective sensations, the special senses are first examined in their segmental order. Then the condition of the cutaneous sensibility is determined, including subjective complaints, stereognostic sense, sense of position, etc.

The examination of the vasomotor and trophic conditions follows, and in turn the various motor functions are examined, both deep and superficial reflexes are tested, the presence or absence of fibrillary twitchings is noted, while tremors and conditions of speech are made objects of special inquiry. In aphasic conditions a special detailed outline is followed, which is, of course, unnecessary in the majority of cases admitted. The condition of the organic reflexes and their control is determined, the question of convulsions is inquired into, and a paragraph is devoted to the matter of sleep and dreams, respectively.

Following the above, the ordinary physical examination of the thoracic organs is made, the condition of the digestive and abdominal organs ascertained, while a paragraph is devoted to the urinary and genital apparatus, respectively. After the completion of the whole physical examination it is customary to summarize the essential findings, thus avoiding the necessity of searching the detailed record for the most important abnormalities.

The mental examination is then proceeded with, when there are no physical contraindications, likewise following a detailed outline. An effort is first made to obtain an idea of the spontaneous mental activity, and the nature of the stream of thought when uninfluenced by the examiner. Thus, when the patient is spontaneously productive, a sample of the talk is recorded without questions being addressed, but when it is necessary to use questions only the simplest ones are employed, such as inquiries as to the patient's name, occupation, etc., special attention being given to any indication of acceleration or retardation in the stream of thought. As it is of great importance to form an idea of the setting in which the talk is produced, the motor reactions are set forth under this heading showing whether the patient be in a restless, retarded, rigid, or other unusual motor condition when speaking.

The next division of the mental examination is the general mental attitude, which includes inquiry into the emotional reaction and special moods, with a detailed analysis of delusional and hallucinatory states.

Orientation and mental grasp are next determined, this being a special inquiry into the condition of the sensorium as regards the patient's knowledge of time, place, and personal relations.

Memory of the recent past is determined, and then as the patient is induced to give data of his life, one is able to judge as to the memory of the remote past. Under the heading of personal data the examination is extended to all matters occurring throughout the patient's life which may be deemed to have any bearing upon the situation.

Retentive power is determined, the patient's grasp on school knowledge and general information is ascertained, and the latter is then compared with the educational opportunities afforded the individual in question. The same is done regarding the ability to count and calculate, read and write, a specimen of the writing being filed whenever possible.

An idea of the patient's insight regarding his own condition and his general judgment is sought, and the mental examination is then concluded with a paragraph detailing the general attitude and manner. A summary paragraph is made similar to the one following the physical examination, wherein the important diagnostic points are grouped together and where it is possible to find the more important deviations from the normal. Of course, if the patient be in a delirious, stuporous, or mute state, we have to content ourselves by limiting this detailed examination, and in such instances the attitude and manner are more fully described, including the motor reactions, every effort being made to obtain differential diagnostic points in this matter.

While the above general outline is followed whenever possible, the rule is invariably observed of fitting the examination to the individual patient, so if a patient is weak, the mental examination is conducted in brief interviews, but at intervals, until all the various points have been inquired into. In addition, it may be stated that a woman physician makes a gynecological examination of all female patients, while the usual laboratory tests are employed whenever indicated, an urinalysis, of course, being always performed.

Staff meetings are held for two hours daily, at which every patient admitted is presented in turn by the physician making the initial examination, he incorporating in the record such information as has been obtained from the patient's friends, other hospitals, or any other source. A free discussion takes place, from both a diagnostic and therapeutic standpoint. Such discussion is recorded by a stenographer present and is later typewritten, forming a part of the case record. The tentative diagnosis and therapeutic suggestions thus represent the opinion of the whole staff and not of any one physician.

With the typewritten records thus obtained, treat-

ment can be intelligently inaugurated with the view of alleviating the mental as well as any physical disorder that may exist. At frequent intervals additional notes are made as to both mental and physical condition, including also a record of the treatment, with the results observed from day to day.

In addition to this original presentation, every case is presented a second time, usually two or three months after admission, when a summary is read embodying the essential features of the entire clinical record, including the result of treatment. The physician writing the summary makes a differential diagnosis, and the final diagnosis is then determined. As a commentary upon the thoroughness of the original examination, it may be mentioned that the final summary diagnosis agrees with the tentative diagnosis made on the original presentation in approximately 90 per cent. of the cases, the remainder being obscure and anomalous cases, in which prolonged observation is necessary to arrive at a correct understanding of the condition.

At the time of summary, if the patient's condition admits, the question of discharge or parole is considered, likewise after a free discussion by the staff. Suggestions are made, conclusions reached, and all circumstances pertaining to the patient thoroughly expounded. Thus every patient entering the hospital appears at the staff meeting twice, while cases which have not sufficiently improved to warrant their leaving the hospital when summarized are presented for the third time before they are discharged or paroled. In this manner no patient leaves the hospital until all the conditions attendant upon the case have been thoroughly analyzed, and it is thus possible to intelligently advise the patient as to the future.

When the case is to be presented for summary, the following letter is sent to the family physician wherever possible:

STATE OF NEW YORK—MANHATTAN STATE HOSPITAL, WARD'S ISLAND, NEW YORK CITY.
WM. MABON, M.D.,
Superintendent and Medical Director.

.....19....

DEAR DOCTOR—It is strongly felt by many of those engaged in the care and treatment of the insane that a closer cooperation between the family physician and the hospital physician would do much toward developing more effective measures for the prevention and management of mental disorders. Some of the most common psychoses develop slowly out of conditions which might be recognized and dealt with by the general practitioner long before hospital treatment becomes necessary.

It is unfortunate that the practitioner nearly always loses track of the case after the patient is admitted to the hospital. The family physician can frequently supply the Hospital physician with many facts helpful for the understanding and treatment of the case; furthermore, his continued interest will do much to inspire confidence in the patient and secure more ready acquiescence in the necessary detention in the hospital.

A former patient of yours.....was admitted to this hospital on..... At the regular staff meeting to be held..... this case will be presented for discussion as to the diagnosis and treatment.

I beg to enclose for your information a summary of the clinical history of the case, and to express the hope that you will be able to attend the staff meeting, which will be called at 8.30 A.M., and last until 10.30 A.M. If you are unable to attend, we would be glad to have any suggestions from you in reference to this clinical summary.

The most convenient way of reaching the hospital is by way of the surface, elevated, or subway trains to 116th street and the 116th street crosstown car to within one block of the East River. The hospital boat leaves its dock at the foot of East 116th street on the even and half-hour.

Will you kindly notify us if you will be able to attend? Very truly yours,

SUPERINTENDENT.

As a part of the medical work, autopsies are held in approximately one-third of the deaths and once a week at a meeting of the entire staff the clinical facts are discussed in connection with the pathological findings.

As regards specific medical and surgical treatment, it may be summed up in the statement that the insane require the same treatment for like conditions as do the sane. It is our contention that the State hospitals provide as good hospital care for the various physical disorders presented as do the general hospitals. While, of course, it is generally known there is no specific treatment for any form of psychosis, the general hygienic treatment is of the utmost importance, and in this connection one may speak of the open air camps which have been established at the Manhattan State Hospital. Here certain selected patients improve much more rapidly than in the closed wards, simply as a result of their out-door life.

The value of the open-air treatment has always been recognized in institutions for the insane, and it has been the practice to keep most of the patients out of doors during the greater part of each day, but it is only during recent years that its specific value has been appreciated and suitable plans adopted for its special use.

In 1901 the late Dr. A. E. Macdonald introduced tent life for the care of the tuberculous insane at Ward's Island. Following this experiment, it was found that this life had a remarkably good effect on feeble and untidy patients and later on the convalescent class also. In 1904 the late Dr. Emmet C. Dent, superintendent of the Manhattan State Hospital, West, inaugurated this treatment for the acute insane and fully equipped camps were erected for those suffering from acute delirious conditions, anemia, insomnia, and the various physical ailments coincident with the acute insanities. Dr. Dent began his work with tents built on wooden platforms, each accommodating twenty-five patients. These tents were heated with iron stoves and were supplied with closets and running water. It was found, however, that during wet and stormy weather the tents had to be kept closed when ventilation became difficult. As a result of this experiment, a structure was built of wood and glass, in size twenty by seventy feet, and accommodating twenty-five patients. The sides are movable so that if desirable there need be absolutely nothing operating in the nature of an enclosure. These structures proved so satisfactory that they have been greatly extended, particularly in the women's part of the hospital. They are lighted by electricity, have steam heat, steam tables for warming food, water closets and baths, in fact every sanitary requirement. The more robust patients take their meals in the adjacent dining-room, while food is brought to those who are weak and

feeble. The last of these buildings erected was for the tubercular women. It has a sitting room attached and a special dining-room easy of access, and separate from the other classes of the insane. In selecting patients for the camp, aside from the tubercular, no discrimination is made because of violent or suicidal tendencies, and through the six years that these camps have been occupied, only one calamity has occurred, although their proximity to the water would naturally appear to be dangerous. After the acute cases have been under treatment sufficiently long to improve the general health, we notice that the insanity is either well on toward recovery, or we are in position to make a more accurate prognosis. In a certain group of cases there is no more important restorative that a sufficient amount of sleep. Under treatment in the camp, the constant exposure to fresh air and sunlight tends to bring about a normal amount of rest and oftentimes the patients reach in the course of a month an average of six to eight hours sleep out of the twenty-four. Aside from the hygienic advantages derived from these camps, the moral effect upon the insane has considerable influence toward their recovery. The freedom from the restraint of bars and locked doors, together with the wide open windows, is appreciated to such an extent that vacancies in the camps are eagerly sought by the more intelligent class of patients.

Of any single therapeutic agency, however, in the treatment of the insane, it is scarcely to be denied that hydrotherapy is of the first importance. Both hot and cold packs are extensively employed, the hot air bath is important as an eliminating procedure, while the various showers and douches all have their special indications.

The disturbed insane have hitherto formed one of the most difficult groups of cases to treat successfully, but with the introduction of the continuous bath, we now cure approximately 95 per cent. of acute maniacal conditions. The patient lies upon a canvas sheet in a large tub, through which the water is constantly flowing at body temperature, and here a patient will sleep when unaffected by ordinary hypnotics. It may be said that scarcely any form of excitement exists but that is favorably influenced by this treatment. Of course, in senile cases with arteriosclerotic changes and in individuals suffering from gross cardiac or pulmonary lesions care must be exercised, but even such patients undergo prolonged bath treatment much better than might be anticipated, and with benefit in no other way. Indeed, such patients show less adverse symptoms than was formerly the case when their excitement was controlled by powerful hypnotics, with their attendant depressing effect upon the cardiovascular and muscular systems.

Manic depressive excitements are thus favorably influenced, although they usually respond less promptly than do the infective exhaustive and toxic conditions, in which improvement is usually shown within twenty-four to forty-eight hours. In fact this form of treatment is now regarded as absolutely essential in the care of the latter.

By means of the continuous bath, it may be said that the use of hypnotics has been largely reduced and drugs are never employed as a substitute for the prolonged bath, although they have their value in certain cases.

The hospital has two fully equipped operating rooms and the necessary sterilizing apparatus in connection with them. With a population of nearly five thousand, we naturally have a large amount of surgical work. Some minor operations are performed by members of the staff, but this work is largely done by visiting surgeons from the city, members of our board of consulting physicians and surgeons. Active clinics are held by different members of this consulting board and I wish here to express my appreciation of the work of these gentlemen who give freely of their time and skill for the benefit of those committed to our care.

The institution is provided with facilities for the administration of electrical treatment and in certain selected cases this proves of much value. An oculist and dentist visit the institution regularly for work in their respective fields. A trained masseur is employed by the institution. Extra diet is part of the routine treatment in all cases where it is indicated. A training school for nurses is maintained and is under the immediate charge of a Bellevue graduate. This school is registered with the State Department of Education at Albany and gives a very thorough course, especially in mental nursing. There is a considerable demand for our graduates to take charge of private cases.

In the treatment of mental diseases, amusement, diversion, and occupation deservedly occupy a very important place. Perhaps in no particular is the difference between the new and the old régime more marked. Formerly the insane were locked in wards with nothing to do and no opportunity for exercise, except possibly in a barren yard surrounded with a high fence. The bare walls, heavily barred windows, and heavy, crude furniture fastened to the floor were in marked contrast to the modern open-air camps, for instance, photographs of which I have distributed. We strive to interest our patients in some form of industry or amusement—anything to prevent the brooding and introspection so common and so harmful to the insane. Many of the women work in the sewing rooms, others in the laundry, the kitchens, the dining-rooms; some will show an interest in caring for the ward. Some will take up fancy work, embroidery, tatting, Mexican drawn work, and the like. Work in raffia and in brass has recently been introduced in the wards. For the men there is the work on the grounds, in the gardens, in the various mechanical shops, in the tailor and shoe shops, making mats and mattresses, the bakery, kitchens, clerical work, and running errands. These patients work an average of five or six hours a day. The work is assigned by the physicians as a part of the treatment and the nurses make every effort to interest their charges.

For amusement and diversion there are games, such as cards and checkers in the wards, dances and concerts in the different wards, in the amusement hall and out of doors in summer where we have a large platform for this purpose. Two bowling alleys are maintained for patients' use. In the summer four excursions a week are given on the hospital steamer, about two hundred patients going on each trip. We have recently introduced folk dancing and singing games and these have proven of value. The women have shown much interest in this diversion. A baseball team of employees plays exhibition games with visiting teams from the city and the patients themselves occasionally play. Field day sports are held Decoration Day and Labor Day in which patients compete for prizes; these events are greatly enjoyed. Through the kindness of theatrical friends of the hospital, vaudeville entertainments by high-class artists are given frequently dur-

ing the season. On the various holidays throughout the year some of the wards give entertainments, the different numbers on the program being given almost entirely by patients. Every Friday afternoon a party is given by the women, who are convalescing and an informal programme is rendered. These parties arouse much interest and started originally by a nurse reading to some convalescent patients while they were doing fancy work. From this simple beginning the work has developed until now in point of attendance and quality of program given these meetings will rank with some of the women's organizations in the outside world. The hospital has two libraries for patients' use and these are added to from time to time. The Hospital Book and Newspaper Society furnishes newspapers and magazines for the different wards. One of the Jewish papers furnishes ten copies daily for the benefit of those reading that language. Many of the wards have pianos and each ward has its musicians to play for them. The hospital maintains its own orchestra and there are a number of phonographs in use, some purchased and others provided by friends of the institution.

For the religious instruction and comfort of its inmates, the hospital provides three chaplains, one for each faith, Catholic, Protestant, and Jewish. The ministrations of these clerical gentlemen afford much solace to our patients.

When a patient has improved to such an extent that it seems wise to give him a trial outside the institution with his friends, it is the usual custom to grant him what is known as a "parole." This means that he is still carried on the hospital records and can be returned any time within the parole period without the formality of a recommitment. Paroles are from one to six months, most of them for the latter period. During this time the patient reports frequently to his former ward physician and his progress is noted. If he does well outside, his formal discharge takes place at the end of six months. About 10 per cent. of all cases paroled return within the time, many of them of their own volition. In order to bring home to the friends so far as possible the importance of this period in the patient's life, the following letter of advice has been prepared and is handed to them when he leaves the hospital:

State of New York—Manhattan State Hospital, Ward's Island, New York City.

To the Friends of Patients:

The superintendent begs leave to offer the following advice for the benefit of the patient who is leaving the hospital, with the view of preventing, if possible, a return of the mental attack:

Those conditions and surroundings which operated in bringing about the first attack should be avoided and, as far as possible, remedied. Where the surroundings were objectionable, a change should be made in residence. Bad associates should by all means be avoided. In order to effectually change the surroundings and associates, it is frequently necessary to move to another section of the city, or even leave town and take up life in another community.

Oftentimes it is embarrassing to the patient to have the subject of the former residence in the hospital discussed. See that the patient avoids all forms of dissipation; endeavor to keep the patient occupied and establish regular hours for meals and retiring. During the summer months, where it is possible, it is well for the patient to go to the country for a short time at least. The home life should be made as pleasant as possible and friends should endeavor to encourage and help in every way.

Inasmuch as it is the practice of this institution to parole for a period of six months before discharging a patient, it should be considered a duty on the part of relatives to encourage the patient to return to the hospital once a week during the parole period to consult with his former *ward physician* in reference to the progress of his convalescence, and to seek from him advice as to the best mode of living. The patient, at the same time, should have instilled into his mind that the idea of these regular visits to his physician is not for the purpose of his possible return to the institution, but rather to prevent a recurrence of his disease, and hence the necessity for a recommitment.

Whenever a paroled patient declines to return to the institution, it is well to keep him under careful observation, and in case of any illness, or a suspicious symptom of his former malady, the family physician should be immediately consulted, and then if advice is desired, a letter addressed to the superintendent will receive a prompt answer.

William Mabon, M.D.,
Superintendent and Medical Director.

In connection with discharges, I would state that we frequently have much difficulty in persuading friends to allow the patient to remain until fit for a trial outside. In many cases as soon as he has shown a slight improvement, and while still in a very unstable mental state, the relatives become insistent for discharge, overlooking the obvious fact that a return to the environment in which the breakdown occurred, at such a time, would be about the worst possible thing for the patient. The law provides two ways for the possible discharge without the consent of the superintendent. One is by writ of habeas corpus. Quite a number of these are issued during the year, but in nearly all cases the courts have denied the writ and remanded the patients back to the hospital. The other method of discharge is by bond guaranteeing good behavior and maintenance provided the relatives can satisfy the court that the patient will receive proper care. Our experience is that the courts are usually reluctant to discharge an insane person against the advice of the superintendent and require definite assurance as to the provision the relatives propose to make.

For patients with no friends able to assist them, there has been developed, through the cooperation of the State Charities Aid Association, a system of after-care, to look after and see them through the critical weeks of their parole. The Manhattan State Hospital After-Care Committee was formed early in 1906, being the first organization of its kind in the United States. About one hundred cases a year are referred to this committee and its agent makes an average of five visits in behalf of each patient. Employment is secured for about thirty each year and supervision in all cases is continued until they are doing well and have become self-supporting. Some are assisted with clothing or money, some sent to the country, others have board provided until employment is secured. Where home conditions are unknown and thought to be of rather a low standard, the agent makes a visit and reports her observation to the physicians. Many cases referred to the After-Care Committee are turned over to existing charitable and relief organizations and receive help in this way.

I consider this work of after-care of vast im-

portance from the economic, the social, and the humanitarian point of view, as well as that of a superintendent. It fills a need we have felt for years and for which there was no adequate provision before the After-Care Committee was appointed.

Prophylaxis is the keynote of modern medicine, and the old proverb, "An ounce of prevention is worth a pound of cure," is nowhere more true than in the realm of psychiatry. The principal exogenous factors in the production of insanity are those twin scourges of humanity—alcohol and syphilis, both avoidable causes.

In the prevention of insanity, there are two fields to cover, the first being to make the most of the recoveries and avoid relapses, and in this we receive valuable aid from the After-Care Committee. The second, and more important by far, is to prevent, or at least abort, the initial attack. This, gentlemen, is largely in your hands. Persuade your mental cases that the institution should not be considered the last resort, but the first. Tell them that many forms of insanity, if taken right at the beginning, are amenable to treatment; that there is nothing to gain and everything to lose by delay. As in physical diseases, so with mental, there are certain forms in which the prognosis is unfavorable, but even in these early treatment may do much to relieve the patient's distressing symptoms.

The deep-rooted prejudice against the hospital for the insane dies hard, but we hope and believe the time is coming when the person mentally unwell will turn to the institution as freely for help as he now does to the general hospital for treatment of his physical diseases. When that shall occur, and it is recognized that insanity is a disease and not a disgrace, then the medical profession will have achieved another great triumph for humanity.

NONDETENTION AN ALL-IMPORTANT FACTOR IN THE TREATMENT OF THE DRINK HABIT.*

By CHARLES A. ROSENWASSER, M.D.,

NEW YORK CITY.

ATTENDING PHYSICIAN TO THE PRESBYTERIAN DISPENSARY, NEWARK, N. J.; MEMBER OF ADJUNCT STAFF OF ST. JAMES' HOSPITAL; VICE-PRESIDENT OF THE DEPENDENCY AND CRIME COMMISSION OF THE STATE OF NEW JERSEY.

In an article entitled "The Drink Habit and Its Treatment," read before the Medical Society of The State of New Jersey,† and before the Eastern Medical Society of New York City, the writer called attention to the possibility and great importance of the treatment of the drink habit without requiring the detention of the patient. At that time I said: "In most cases, the treatment of the drink habit resolves itself into nothing more or less than the treatment of an aggravated case of neurasthenia, a condition which will tax your skill to the utmost, and exhaust your patience, but, nevertheless, one in which you can achieve success in a gratifyingly increasing number of cases if you will go about it in the right way. Treatment in order to be effective, must be conducted systematically, and must cover a period of months. It consists essentially in thoroughly studying the patient and applying in each case the remedies called for. There is no remedy or plan of treatment which will cure all cases; there is no specific for this condition; each case must be studied and treated as an individual. Your first step in dealing with the patient is to win his confidence. Without having succeeded in this you can do nothing, but having succeeded you can accomplish marvels. The patient demands prompt action without hesitation. You must convince him from the very start that you can promptly and effectively destroy his craving for alcohol, that you can put him in such a physical condition that he will not suffer for the want of alcohol, and will indeed get along better without it; that the nausea and vomiting will promptly subside; that the restlessness will give place to calm; that the sleeplessness will be replaced by peaceful slumber, and that you will leave no stone unturned to help him to get well, and then will show him how to stay well. You must make him feel that your entire aim in life for the time being is to help him win his way back to health. Having won your patient's confidence, and having succeeded in getting him into the proper frame of mind, you must proceed to make good your promises. This you can do with the aid of remedies available to every physician, and without resorting to any secret remedies or secret systems of cure, and what will be news to many of you, you can do this in a surprisingly large number of cases without requiring the detention of the patient, he being able to go about and attend to his business."

That statement was based upon four years' experience with the method advocated. The result of another year's experience has strengthened my earlier convictions. The successful treatment of the drink habit without detention is an accomplished fact. It holds out the greatest hope for the greatest number. Its possibilities are clearly demonstrated in the results obtained in the cases hereinafter cited, to which attention is called in the hope of securing for this subject the thoughtful consideration which its vast and far-reaching importance merits. When such consideration is accorded this subject, physicians everywhere will study and treat victims of the drink habit scientifically, humanely, and hopefully, and then the inebriate will turn to his physician for relief and not to the so-called "cures" and secret remedies, which are exploited solely for gain and are of little or no value. The cure of the drink habit and the restoration of the inebriate lies in the physician and not in the physic.

Viewed from the practical standpoint, the results of the treatment of the drink habit, irrespective of the method employed (whether by the use of drugs or without, whether by detention for a long or a very brief period, or without detention), are as follows: Some patients are cured; some are improved, and some are incurable.

By cured I mean that the patients are leading sober lives. They are cured in the same sense that a patient suffering from gout is cured. The manifestations of gout may disappear under treatment, but the predisposition to attacks remains, and the individual is still "gouty." The manifestations of inebriety may disappear, but the individual is still predisposed to the pathological manifestations of alcohol; using the term pathological to describe the behavior of alcohol in individuals predisposed to the development of the drink habit or drunkenness.

The following are examples of cured cases. They were all treated without detention:

Case I.—A. H., a button maker, married, aged 45, began the use of alcohol at the age of 21 and was

*Read at a meeting of the American Society for the Study of Alcohol and Other Narcotics, Philadelphia, April 7, 1910.

†*Journal of the Medical Society of New Jersey*, February, 1909.

drunk at 23, and has been a steady drinker ever since. He takes beer and whiskey in quantities depending upon his purse, and is drunk almost every day. He came under treatment July 21, 1905, stopped drinking at once, and has remained sober and steady to date.

Case II.—J. S., painter, married, aged 51, has been a hard, steady drinker for 30 years, drinks as much beer and whiskey as he can get, and is drunk every day. He began treatment March 15, 1905, and has been a total abstainer ever since.

Case III.—M. J. W., a fish dealer, married, aged 48, began the use of alcohol socially at 19 years of age; at 30 was drinking very hard, but was able to stop for a time; at 40 got drunk occasionally and since then has been a constant hard drinker, with periodical sprees. Since about one year is almost always drunk, taking a quart of whiskey daily. He came under treatment August 22, 1905, in the midst of a spree, responded very promptly, and has remained abstinent ever since.

Case IV.—J. J. T., a plumber, married, aged 37, began the use of alcohol socially at 17 and was drunk at 25. For the past eight years he had been drinking to excess, being a hard, constant drinker, with occasional sprees lasting two to three weeks. He took from 30 to 40 drinks of whiskey daily when on a spree. This patient came under treatment September 7, 1905, having been on a spree for about two weeks, and was taking about one quart of whiskey daily in an effort to reduce his daily consumption. The results of treatment were very prompt. This was one of the worst cases I ever saw. He is to-day a sober, steady, hard-working man, a property owner, a good father and husband.

Case V.—H. R. C., a restaurant keeper, married, aged 45, has been subject to periodical sprees for twenty-five years. Lately they have been coming more frequently, are of longer duration, and harder to get over than formerly. The present attack began a few days ago. He was taking a quart of whiskey daily. He came under observation November 10, 1905, reacted very promptly to treatment, and has remained well ever since.

However, the number of cases that are cured is small as compared with the number of those in whom improvement is the best that we can obtain. Unfortunately the condition is prone to relapse regardless of what is done in the way of treatment. There are many reasons for this. There is nothing, so far as I have been able to determine, which will remove the predisposition to the development of drunkenness, and there is no alcoholic concoction or beverage, however weak in alcoholic content, which an alcoholic can take without manifesting the pathological effects of alcohol. Occasionally one encounters a man, who, having once been a drink addict, is now a moderate drinker. Though this is the exception which proves the rule, such a man is walking on thin ice, and it is merely a question of time before he will fall and be submerged.

Most inebriates have rather a hard time to remain abstinent. The drinking of alcoholic beverages is a universal custom. Most everyone takes alcohol in some form or other. Physicians use it themselves, and prescribe it, though much less frequently than formerly. I would remind you that in 1889 the London County Asylums, with a population of about 8,100, consumed about 255,000 gallons of malt liquors, while in 1905, with a population of about 19,450, they used only about 1,280 gallons (Sir Victor Horsley). Alcohol is used in the kitchens of most noble housewives, and hence we encounter it in our foodstuffs and table delicacies. Almost all fluid medicines contain it. But little of it is required to arouse the craving for more in the predisposed. A half-ounce of whiskey is usually more than enough. The little which is contained in a wine or brandy sauce, or in a glass of hard cider, will often suffice. "The down-and-outs" will tell you that it is easier to get a glass of whiskey than it is to get a piece of bread. The inebriate must live the life of his environment, hence you see that the road before him is rough and rugged. To err is human, and so is the inebriate. Beset with danger on all sides, cursed with a disease-breeding disposition, misunderstood and, therefore, misjudged, is it any wonder that he so often succumbs to temptation, and that the number of those who remain totally abstinent forever under any plan of treatment is small, as compared with the number of those for whom the best that we can secure is improvement. Improvement insofar that the days of inebriety will be fewer. In this connection we must also remember that relapse is not infrequently due to the fact that inebriety in a certain number of cases is merely an expression of mental disease. This applies especially to periodical dipsomania, which I am inclined to believe is often a manifestation of manic-depressive insanity.

Attacks of gout, as you all know, are not infrequently due to indiscretions in diet. The same is true of some forms of epilepsy. When the victim of gout, or the epileptic, who has disobeyed your orders and is suffering as a result of his indiscretions summons you, do you drive him from your doors or refuse to respond to his call? Do you have him arrested and sent to the workhouse or jail? Of course not. Why, then, should you adopt a different code of ethics in dealing with the inebriate? The drink habit is a manifestation of a chronic disease. Relapse calls for treatment, not for condemnation.

The following case serves to illustrate that improvement is sometimes obtainable even in apparently hopeless cases, and that even in these cases detention over a period of a few days will sometimes suffice after prolonged detention has failed.

Case VI.—J. P. A., a playwright, single, aged 46, has been a hard drinker for many years, being at first constant, but for the last few years has been subject to periodical sprees, which would last weeks or months. He drank enormous quantities of any alcoholic beverage obtainable, and also used narcotic drugs at times. He had been treated at Bellevue and other hospitals for alcoholism innumerable times. Was an inmate of Bloomingdale Asylum on two occasions, and had also been an inmate of the State Hospital at Poughkeepsie on two occasions; the first time for three months—the second for seven months. Concerning him the superintendent wrote me as follows: "While here Mr. R. had a parole to the hospital grounds on several occasions, but each time violated it and went to the city, returning in an intoxicated condition. His word was found to be entirely unreliable and he could not be depended upon to restrain his appetite for drink." He had also been an inmate of the Chester Crest Home and the Inebriate Asylum at Fort Hamilton. He had taken the Keeley cure and the Oppenheimer cure on several occasions, and had also gone through several so-called gold cures. He came under my observation July, 1905, acutely drunk and in a de-

plorable condition. He responded to treatment and remained abstinent about four months. He left me at midnight after an enjoyable evening at the theater, perfectly sober, and an hour later was blind drunk. He did not go back to the gutter, however, but returned to me, for he was making a hard fight to overcome his affliction. No other place being available, I placed him in the Essex County Hospital for one week, and then continued treatment and observation. Following this he remained totally abstinent for about eight months. Then he relapsed. I again placed him in the Essex County Hospital for one week. Following this he remained abstinent about two months. Then came another attack, which was very severe. In order to try the effect of prolonged detention he was placed in the New Jersey State Hospital at Morris Plains, where he remained eight months. He left the hospital on a Saturday afternoon and was drunk the following day. I placed him in St. James Hospital for one week, following which he remained well about six months. During the past two years he has had three attacks, all of them being of very short duration, only a few hours, before he voluntarily returned for help. In the interval between his attacks he has done good work. He is to-day sober and well, and I am pleased to number him among my closest friends. A gentleman by birth and breeding (his grandfather was one of the founders of the New York Hospital), it is his misfortune to be afflicted with periodical dipsomania. I firmly believe that he has no more control over his attacks than an epileptic has over his fit. Under treatment he has been greatly improved. I am hoping that in time his attacks will die out, instances of that kind being on record. Unfortunately, most of these cases are unrecognized, the victim is sent to jail, goes from bad to worse, and dies before his disease does.

Prolonged detention in cases of this type, is insofar as curability is concerned, unwise and usually futile. Almost invariably the patient is kept under restraint during his abstinent period, and is liberated shortly before the onset of his drinking period. Hence disaster follows.

Of incurable cases there are a host. I know hundreds of them. They should be cared for in custodial colonies, both for their own protection and for the protection of society. While such labor is, of course, a very doubtful quantity, there is no doubt that under a skilled manager such a colony could be conducted along lines which would make every man earn his bread by the sweat of his brow. However, no case should be considered incurable, however gloomy the outlook, until treatment has been tried. We sometimes get astonishingly successful results in apparently hopeless cases, as well as we get failures in apparently hopeful cases.

I am of the opinion that in almost every case there is a period in which cure is possible. As a rule this period is early in the disease, but occasionally in young inebriates, those around nineteen years of age, we get very poor results until, after two or three years of indulgence, the youth comes to his senses and gives us the assistance we so much need.

It is clear that the army of incurables is recruited from the army of mild cases. Men in the early stages of the drink habit will not as a rule consent to place themselves under restraint in a sanatorium. They usually will consent to undergo treatment for "neurasthenia," if the treatment will not interfere with their vocations. Herein lies one of the greatest advantages of treatment without detention.

Sanatoriums are, of course, necessary asylums in some instances, but, as a class, they are not adapted for curing inebriates. The patient is thrown into contact with other patients, and being very susceptible, readily learns new tricks. The last cocaine case I saw told me that he learned the use of cocaine in an asylum which he entered for the purpose of getting away from alcohol. Almost all the sanatoria I have in mind are in reality insane asylums, and the atmosphere is certainly not helpful for an inebriate.

The first step in attempting to cure a victim of the drink habit is to remove the alcohol, and to keep it away. If the patient is desirous of overcoming the habit he will give you his assistance. If he is not desirous of overcoming the habit, treatment is futile. Inebriates are sent to sanatoria so that they will be unable to get alcohol, except as ordered by the attending physician. Do they obtain alcohol without the knowledge of the physician? I fear that they do in most sanatoria, for isolation is as a rule imperfect and many alcoholics who have been inmates of sanatoria will tell you the tale of the tree which is hollow and of the attendant who is crooked. A father whose son I had placed in a sanatorium in a neighboring State, wrote me as follows: "The discipline is very lax. I have good reason to believe that drinking, gambling, and drug taking are carried on continually without the doctors' knowledge. My son went to town with attendants who got 'full.'"

In my experience, those patients who really want to be cured of the drink habit can, provided the condition has not gone too far, be cured, or improved by the judicious use of remedial agents and moral support, without detention or with but a few days' detention during the acute stage. That will power plays an important part in the cure is of course self-evident. Under treatment the weakened will can be strengthened in various ways, but best of all by exercise. When the patient resists the desire to take the drink which is within his reach he exercises his will power, and under the exercise it grows stronger. Under restraint, the will power is not exercised and consequently it grows weaker, not stronger, as a rule.

All things considered, the treatment of the drink habit without detention holds out the greatest hope for the greatest number. I commend it to your earnest consideration.

510 West End Avenue.

STRYCHNINE IN PNEUMONIA OF THE AGED.

By WILLIAM FRANCIS WAUGH, A.M., M.D.,

CHICAGO, ILL.

DEAN AND PROFESSOR OF THERAPEUTICS, BENNETT MEDICAL COLLEGE.

The fatality of pneumonia in the elderly and aged subject is well known. No newspaper case ever recovers, and these are always men who have lived long enough to make their demise a matter of public interest. When pneumonia attacks a man of sufficient note to have his condition bulletined, the journals put his obituary in type, for he is sure to die. This inevitable ending may be due in part to the distraction of the medical attendants, who have one eye on the patient and one on the press, but it is largely to be explained by the peculiarities of this class of patients.

In the aged the vital forces are ebbing; the digestive functions grow weaker, the hematopoietic apparatus becomes less capable of supplying extra

demands. The limitless possibilities of youth have passed away, and the shrinking forces are capable only of supporting the steadily contracting activities. There are also to be reckoned with the pathologic relics of the active period of life, the dregs of disease, the results of abuse, and the influence of habits. The most important consideration usually is that the reserves of vitality have been spent.

Disease taken in its broadest sense is essentially debilitant. No malady increases the vital forces or enhances the faculties. Every illness is destructive, constitutes a drain on the powers, and lessens the stock of vitality that must suffice to carry the individual to the limit of his viability. The difficulty with which the aged recuperate from losses of the body fluids was known even to the mighty bleeders of the school of Bouillaud. The value of normal saline solution, as employed to swell the volume of the circulation, is appreciated by comparatively few to-day. While the loss of elasticity in the arterial coats may be an obstacle sometimes, there are many instances in which the pulse communicates to the finger the sensation of a half-empty vessel, where an increase in the bulk of the blood is feasible, if not rashly pushed beyond the capacity of vessels to receive and heart to propel. The evanescent glow following a generous imbibition of hot toddy is not due directly to the alleged stimulus of alcohol, but to relaxation of the vascular walls and the addition to the nutrient stream. Better nutrition of the heart and the cerebral centers is the consequence of the fuller blood current.

These considerations point to the truth of my proposition, that the occurrence of pneumonia in the aged is a formal indication for the administration of strychnine. We need not wait for debility, low vascular tension, or any other of the indications pointing to the need for strychnine in the young; we have an imperative call for this potent helper in the simple fact of pneumonia in the aged. Strychnine arouses the dormant powers and energizes them. It awakens the sensibility, restores the elasticity, the spring of a younger age, and enhances every vital function. The bases of physical power, the digestion, the respiration, and the nervous organization on which all depend, are restored to activity and power by this most potent agent. The presence of secretion is felt in the pulmonary tract, and it is removed by the patient's efforts. The pulmonary tissues are vivified, and the blood serum does not transude the vessel walls, nor do the tissues lose their vitality. The heart shares in the general toning, and the circulation is sustained. The eliminants are likewise energized and the toxemia naturally reduced to safe limits.

Despite the tendency of recent teaching I can not look on fever as altogether beneficent. It is a fire that here threatens to become a conflagration. With Juergensen I look upon it as the chief element in the causation of that cardiac debility that constitutes the most serious danger to the patient's life. While fever represents the patient's reaction against the onslaught of the disease, it is not in itself salutary, or is so only when restrained within salutary limits. It is a combustion that rapidly consumes the tissues, the fluids, the red blood corpuscles, and whatever reserve forces the patient may still possess.

But it is obviously desirable to repress the fever with as little general sedation as possible; and here we have another indication for strychnine, since this drug notably enhances the antipyretic action of the heat-reducers when administered with them. Give a certain dose of veratrine or aconitine, and whatever reduction of temperature they may effect alone, this will be notably increased by the simultaneous administration of strychnine. This remarkable fact was first announced by Oliveira Castro, and has been confirmed by many observers. So marked is the antipyretic action that, to account for it, Biechy was led to claim that strychnine is essentially a sedative and not a stimulant.

The true explanation is different. Drugs do not act directly of themselves, but through the intermediation of the vital functions which they incite or depress. Drugs do not act on a dead body, but only on and through the living, acting functions. Strychnine enhances the sensibility of all these, through its influence over the cerebrospinal centers; and therefore these respond more readily to the power of other remedies, such as aconitine and veratrine, which enhance inhibition and elimination in smaller doses when thus aided by strychnine.

Of the salts of strychnine the preference should be given to the arsenate. Arsenic favors fatty degeneration. Acting more powerfully on the forming, unorganized products of disease than on the healthy tissue cells, it tends to disintegrate the former and facilitate their removal, thus limiting the destruction caused by the disease and shortening the period of repair, or convalescence. It is now held that in malaria arsenic acts beneficially by imparting to the red corpuscles a power of resistance or repulsion against the plasmodia. If so, inferentially we may assume that these cells, and presumably others, may thus be protected against other microorganisms. We need scarcely add that while the pneumococcus belongs in an entirely different category from the malarial plasmodium, the damage wrought by infectious diseases is not solely due to the leading causative germ, but this opens the door to many others, that profit by the opportunity offered by the general lowering of the vital defense. Hence my preference for strychnine arsenate.

In this advocacy I am referring to the scientific use of this remedy, as properly dosed. The man who gives a bulky dose of strychnine once in 4, 6, or 8 hours, never learns to use it. The solubility of a drug regulates its absorption, the manifestation of its activity and its elimination. Strychnine arsenate may be administered in doses of half a milligram every quarter hour, half hour, or hour, repeated until exactly the desired tonicity has been secured, then often enough to maintain this. Employed in this manner, with a clear idea of what it will do, one need not be incredulous of the reports of its efficacy. A given dose of strychnine always exerts exactly similar activity to any other dose of the same size, as to quality and quantity of effect; but the reaction of each patient differs. We may therefore find cases in which three doses *per diem*, of ½ milligram each, suffice for the need; or we may find that a grain a day or more is requisite. There is no such thing as "a dose." The true dose is what suffices to produce the desired effect.

In the treatment of pneumonia in the aged we should hold to this routine:

Clear the alimentary tract and eliminate from the case the factor of fecal toxemia. Free the emunctories, and see that the toxins are passing out freely by every channel. Sustain the vitality and the vital organism from the beginning. Moderate fever to salutary limits and keep up nutrition. In-

crease leucocytosis. Meet each undesirable symptom with the appropriate remedy. Treat in each case the pathological conditions presenting rather than seek an illusory specific for the malady viewed as an entity.

CEREBELLAR ATAXIA — WITH REPORT OF A CASE.*

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Although our knowledge of cerebellar function is at present meager, we have learned to recognize disturbances in the cerebellum with varying success. This is due to the well-known association of the cerebellum with maintenance of bodily equilibrium. Disease processes in this part of the cerebrospinal axis primarily produce disturbances of gait and station, thus affording a valuable diagnostic aid. The associated symptoms, such as vertigo, nystagmus, reflex phenomena, ocular and auditory disturbances, are by no means conclusive of cerebellar affections—merely corroborative, for they may occur in a variety of cerebral affections in which pressure of circulatory disturbances inhibit or disturb brain function.

Cerebellar ataxia had been observed and described by the older writers, who were unaware of the true pathological condition and considered these cases as anomalous forms of hereditary spinal ataxia. Fraser in 1880 described the first case and accurately pointed out the cerebellum as the seat of the affection. Nonne described three cases later, thus placing cerebellar affections as distinct clinical entities. Since then a fairly voluminous literature testifies to the interest the condition has awakened. In reviewing the literature, however, one is impressed by the great number of cases of Friedreich hereditary ataxia described as cerebellar. This is at variance with the pathology of Friedreich's disease. Although ataxia of a cerebellar type is present, the cerebellar fibers are not often affected. The ataxia is due mainly to a sclerosis of the posterior and lateral columns. On this account we should exclude these cases from the true and well recognized affections of the cerebellum, viz., tumors, abscesses, inflammatory processes, sclerosis and atrophy, softening and hemorrhage. Thus the following cases from the literature represent fairly accurately the various aforementioned pathological processes:

Under the title of "Acute Ataxia" (Encephalitis Cerebelli) (Transactions of the Clinical Society of London, 1907, XL., 276) Batten reports the case of a child who, after an attack of measles, vomited, had a convulsion, and passed into a comatose condition. After return of consciousness, an ataxia of the trunk and extremities was present which showed no improvement at the end of three years. The left extremity was incoordinate. Sensation and knee-jerks were intact, and the mental condition was slightly impaired.

Porot (*Bulletin Société Medical de Hôpiteau de Lyon*, 1906, V., 369-374) reports a case coming under observation with marked ataxia and dimness of vision. Examination revealed a right hemianosmia and hemiamopsia. No ptosis or diplopia. No pupillary disturbances or paralysis. A moderate dysarthria was present, and before death there were increased blindness and marked psychic disturbances. Autopsy showed extensive softening of the cerebellum, with destruction of the right hippocampal convolution.

Bacon (*American Journal of Medical Sciences*, Aug., 1895) reports the case of a male patient, aged 31, with a chronic suppurative otitis media of five years' duration, who sought relief for an intense vertigo and a staggering gait. A radical mastoid operation was followed ten days later by severe headache, vomiting, extreme vertigo, difficulty in speech and swallowing, and a right facial palsy. Autopsy revealed an abscess in the right cerebellar hemisphere.

Horsley (*British Medical Journal*, 1887, I., 865) (quoted by Starr) reports a case in a male, aged 18, who had suffered from headache, vomiting, optic neuritis, increasing weakness of all limbs, especially of the left arm and leg, vertigo, and a typical staggering gait of cerebellar disease. He also had epileptoid attacks with turning of head and eyes to right. Mental state good, but he was emaciated and bed-ridden. Operation revealed a tubercular tumor of the right lobe of the cerebellum.

Anderson (*Intercolonial Medical Journal*, Austral., 1906, II., 439) reports a case in a man aged 80, with marked arteriosclerosis, who after a partial loss of consciousness, felt giddy and in a few days developed marked ataxia of legs and left upper extremity. No paralysis was noted. Reflexes were intact. There was thickness of speech at times. No aphasia or amnesia. He regarded this case as one of hemorrhage into the cerebellum.

Under the title of "Defect of Cerebellum Occurring in a Brother and Sister" (*Glasgow Medical Journal*, p. 90, 1880) Fraser describes the first cases observed in a brother and sister, aged 30 and 20 years, respectively, who developed, within a short time of each other, a gradually increasing reeling gait, a "slow, gutteral, and hesitating" speech, with moderate ataxia of the upper extremities. Hearing and vision were undisturbed, and there were no psychic alterations. The brother dying of an acute tuberculous infection gave Fraser the opportunity to study the affection post mortem. He found the cerebellum considerably diminished in size, the cortex shrunken and atrophic and the cells of Purkinje contorted and shrunken.

A résumé of the above reports confronts one with the unalterable fact heretofore stated, that the *sine qua non* for cerebellar diagnosis is the ataxia, and to attempt a diagnosis of cerebellar disturbance on the associated symptoms alone would be rather difficult and unjustifiable. Apropos of the above I can do no better than to quote Collins ("Twentieth Century Practice") who states, "The disturbance of gait or locomotion is the symptom of grand importance, and, although absence of the characteristic gait has been noted in a number of cases of cerebellar disease, particularly of tumor, this in no way militates against the truth of the statement that cerebellar gait is by all means the most important diagnostic symptom."

The subject of my report first came under my observation about a year ago, with the following history: She is a female domestic, 34 years of age, the only child of parents who were considered unusually robust and healthy. She is positive that no similar trouble existed in any of her relatives. The demise of her parents was rather sudden, the father dying of cerebral hemorrhage, the mother of

*Patient presented at a meeting of the Harlem Medical Society, April 7, 1909.

pneumonia. The patient never had any serious illness, with the exception of the usual diseases of childhood. She menstruated at 15, and had a miscarriage at 23. There are no living children. Promiscuous relations were admitted prior to her marriage. About nine years ago, when she was 24 years of age, she noticed a feeling of weight in attempting to use the right leg. This was followed by a gradually increasing ataxia, which the patient interpreted as a staggering gait. On this account she was unable to obtain employment, her reeling gait being always eyed with sinister significance. Up to two years ago she had been able to use her hands for finer movements, then noticed some difficulty in handling small objects and using fingers for complicated movements, such as sewing, buttoning clothes, etc. Has never had any difficulty in using tongue or in swallowing. Vertigo is present at times, but of a transitory character. No headaches. Patient is able to do anything when in a sitting posture or standing still, but is afraid to walk about for fear of stumbling. For past two years there has been an inability to hold bladder or rectal contents for a short space of time.

Examination showed a well nourished and healthy looking woman, appearing none the worse for her malady, of fair intelligence, and with no alterations in the psychic sphere. The pupils react promptly to light and accommodation. The fundi oculi are normal in every respect (Dr. Martin Cohn). There is no true nystagmus, but fairly continuous oscillations of the eyeball can occasionally be observed. There are no ocular or cranial nerve palsies. The speech is somewhat slow and hesitating, but enunciation is quite distinct. A slight ataxia of the upper extremities is present, but no intention tremor. The gait is typically cerebellar, with no particular tendency to forced movements. At times she staggers to the right and at other times to the left. Propulsion quite marked, but no retropulsion. The sensory and motor sphere are intact and there are no vasomotor disturbances. The electrical reactions and superficial skin reflexes are normal. Conjunctival and pharyngeal reflex present. The biceps, triceps, and wrist jerks are present and normal. The patellar and tendo Achillis reflexes are markedly exaggerated, but there are no Babinski, Oppenheim, Kernig, or Romberg phenomena. Ankle clonus is absent. No labyrinthine or auditory disturbances. Wassermann-Noguchi reaction negative. (Kaliski, Mt. Sinai Laboratory).

That the cerebellum is the seat of the trouble admits of no doubt, but the exact pathological process at work is somewhat problematical. In view, however, of a certain luetic infection, and the continuation of the symptoms these many years, it is quite safe to surmise a primary sclerosis of the cerebellum due to syphilitic virus.

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THE THERAPEUTIC POSSIBILITIES OF THE JUICE OF THE FRESH PINEAPPLE.

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In undertaking the study of this subject two years ago, I considered only its possibilities in the treatment of certain throat conditions. But the field of usefulness of the vegetable proteolytic enzymes has been so enlarged and so much is being said on the subject that several months ago I saw my way clear to overlook entirely its employment in pharyngeal diseases and investigate its value along altogether different lines.

The pineapple (*Ananasa sativa*) is a native of the West Indies. It is found in other tropical countries, but the finer varieties come from the British hot houses, the wild pineapples being fibrous and with but little flavor. After a careful inquiry as to the chemical nature of the pineapple, I find that more work is possible along this line. Several authorities have acknowledged as much in personal letters. Older botanies and materia medicas state tersely that analysis of the juice shows the following: sugar 2 per cent., free acid 1 per cent., albuminous and pectinous substances 3 per cent., and water 94 per cent.

Some years ago Señor V. Morcano discovered that the juice had the power of digesting proteins. Professor R. H. Chittenden (*Journal of Physiology*, XV, p. 249) studied the pineapple more thoroughly. He showed that the juice in a fresh condition contained an enzyme, or enzymes of a proteolytic nature, active either in acid or alkaline carbonate media. Concerning the temperature, he stated that it was most active between 122° F. and 140° F., still digested at 86° F., but was destroyed at 158° F. He showed that since leucin and tyrosin, as well as proteoses and peptones, were formed, this new enzyme was more nearly related to trypsin than to pepsin. This active substance (or if there be several) has been termed tentatively bromelin (from *Bromelia*—latin for pineapple).

Careful comparison of the digestive powers of the proteolytic enzymes of certain plants will show that, while those from the pawpaw are more powerful beyond a doubt, bromelin offers so many advantages that it is safe to predict that it will eventually replace the last few months' reign of the *Carica papaya* preparations. With the question of the therapeutic indications of all enzymes in its infancy, we can expect any statement like the previous one to mean merely, "Lo here!" And as the crowd starts coming, some new truth leads a fellow observer to cry, "Lo here! Over here, not there, is the truth."

The various pharmaceutical houses have made such extravagant claims for each new enzyme as it has been isolated that we sometimes are inclined to pass by the entire subject and search no further. Some time ago an advertisement came to my notice claiming that the pawpaw ferments were indicated in all diseases of the stomach.

Before assuming that there is any use whatever for the juice of the fresh pineapple in medicine, we must recognize certain facts: Fresh pineapple juice is always obtainable, pawpaw is not, but must be supplied by pharmaceutical houses in a preserved state, which means, if we know anything of the nature of enzymes, in a more or less, generally less —to say the least, very variable—active condition.

As a matter of course we must look to bromelin for our chief therapeutic results from pineapple juice administration. Yet we must not overlook the presence of other substances in the juice. For example, there is some acid present. The Bureau of Chemistry of the U. S. Department of Agriculture informs me that the principal acid seems to be citric and that it occurs in varying quantities, usually from 8 to 9 per cent. It is well to note the presence of sugar, and likewise certain albuminous substances, in case it is desired to add preservatives to the juice.

In experiments with the juice of the pineapple,

I have found that large amounts may be taken from one apple by the aid of the fruit press. When this is collected it is of a dirty, greenish color, and is translucent. It is filtered with difficulty, the filtrate being clear. All of my experiments have been carried out with the unfiltered juice, it being passed through cotton merely to take out the larger pieces of fiber.

The specific gravity varied considerably, but averaged 1054 from several dozen apples. The reaction was acid, but was capable of being neutralized, or at least overclouded by small amounts of inorganic alkalies. The acidity persisted in old samples of the unpreserved juice, in preserved samples, and in media where digestion of the proteins by bromelin had occurred.

Concerning the requirements for the action of the enzyme to take place, I have found that Chittenden's experiments were easily duplicated. At ordinary temperatures digestion took place with astonishing rapidity the presence of leucin and tyrosin being easily demonstrated in short periods of time and solution occurring rapidly. A small amount of pineapple juice was capable of digesting much protein. For example, piece after piece of steak added to but a few cubic centimeters of the juice disappeared within a few hours, and yet the enzymes seemed capable of further action when more meat was added. The temperature variations and reaction requirements I found to agree with other investigators. Boiling killed the enzymes, so that after canning, the pineapple loses its digestive powers.

The fresher the juice the more success I have had. Pineapples may be kept for long periods and bits of the fruit eaten as food form an ideal method of administering the enzymes internally. For external application, I generally use the crushed pulp or lint soaked in the juice. The expressed juice may serve if it is desired to disguise it. A few drops of caramel will render filtration unnecessary. Spearmint or other flavoring agents may be deemed advisable in certain cases to hide the taste. But, after all, whenever possible, I prefer the fresh pineapple unexpressed, uncolored, and unflavored.

At various times I have attempted to prepare a permanent preparation of the juice which I might keep upon my shelf in a bottle in order to avoid the annoyance attendant upon obtaining and prescribing the fresh juice. The result has been failure, invariably. I would not from these few experiments have any person believe that such a preparation is an impossibility, but rather would point out the difficulty of obtaining it and expecting at the same time no diminution of digestive powers. I avoided the more poisonous preservatives, though, of course, they might find a place in preparations not used for internal administration. Among such I would name thymol, borax, benzoate of soda, etc. Those which I tried were glycerin, alcohol, chloroform water, and spirits of chloroform. The results of these investigations are clearly shown in the table just below. In general, it is evident that as safe preservation from fermentation of the sugars is attained by the addition of certain chemicals, the proteolytic enzymes are rendered inactive, and that this inactivity is in direct proportion to the degree of preservation. Large amounts of aqua chloroformis may serve to preserve small amounts of the juice but render it unfit for internal administration. The amount of fluid used in each test was two drams. So that, if we keep in mind that equal volumes were used at all times the apparent discrepancies in the recording of the amounts of precipitate are easily explained.

THE LEAST POISONOUS PRESERVATIVES AND PINEAPPLE JUICE

No.	Test	Carbohydrate Fermentation	Precipitation	Protein Digestive Powers
1	Aqua destillat (control)	.....	.....	.....
2	Fresh juice (control)	.....	.....	Marked
3	Unpreserved juice	3rd day	Small	Fairly good
4	Chloroform water, 5%	4th day	Small	Fairly good
5	" " 15%	4th day	Small	Fairly good
6	" " 30%	5th day	Small	Fairly good
7	Alcohol, 10%	.....	Moderate	Poor
8	" 20%	.....	Large	Very poor
9	" 30%	.....	Very large	None
10	" 40%	.....	Fairly large	None
11	Spirits, chloroform, 5%	7th day	Moderate	Very poor
12	" " 15%	.....	Large	None
13	" " 25%	.....	Large	None
14	Glycerin, 5%	4th day	Small	Fair
15	" 25%	.....	Small	Poor
16	" 50%	.....	Very small	None
17	Canned juice	.....	.....	None

Note.—All samples except the fresh juice and the canned juice wer kept for two weeks in my laboratory at about 80° F. All sunlight was excluded from the test tubes. In all tests, fibers of roasted beef were used.

The therapeutic possibilities of pineapple juice were brought to my notice some years ago in a case of pharyngeal diphtheria by its administration in the hands of men who, I feel certain, did not understand how it acted, but were sure that it did have some advantages over ordinary gargles. Personally, I have never seen a diphtheritic membrane extensive enough to indicate its use. But the circumstances brought to my mind its possible value, not only in certain cases of this disease, but in several other fields. This value would depend, to be sure, upon the selective action of bromelin, upon its power to pick out nonliving proteins and rapidly digest them, leaving behind all living tissues, thus differing from the action of salicylic acid and other tissue solvents. As I have stated, I have yet to come across a case of diphtheria in which this treatment seemed to be indicated. However, in cases of quinsy, suppurative tonsillitis, and pharyngitis my experience has been different. Here, because of objections by the patient, or because of my inability to see the exact pointing of the abscess, surgical intervention has often been disappointing. I shudder when I recall some cases of needless butchering which I have seen inflicted upon some of these patients. Quinsy and pineapple juice have been synonymous terms with me for some time. The bromelin never makes a mistake, but digests off the necrotic tissue, giving very often a quick relief. To be sure, such an action is impossible early in the disease, though several hours or days of suffering may be avoided after the pus has once by its presence rendered the overlying tissues bloodless and necrotic.

Several months ago I was called to see a lady who had broken both thighs in a fall. As she was eighty-three years old and in poor condition physically, I did not apply extension, but limited movements of the member by bran bags alone. Gangrenous areas developed promptly over the sacrum in spite of alcohol as a rub. It seemed to be a question of a few hours until I should be called upon to sign a death certificate. However, one month later she was walking about with the aid of crutches. I then applied pineapple juice in small amounts to the bed sore. The reaction was prompt, healthy granulations taking the place of digested necrotic tissue, and at the present writing all signs of the sore have disappeared. Caution was necessary in this case to keep the juice within the margins of the decubitus, as the skin was drying rapidly.

While in furuncles the ideal treatment is incision, sometimes this is forbidden by the patient, as he prefers to suffer rather than have the knife used. Thus I have seen a yellow cap remain upon a boil for hours without solution and hold back the pus. Though the man was suffering agonies, he hesitated to face the bistoury. The application of pineapple pulp shavings invariably establishes free drainage within a short time. The yellowish and desiccated necrotic head is often digested promptly.

A peculiar case of aphonia came under my attention some time ago. The man could whisper but could not speak aloud. No pathological changes were noted, although some mucus was raised which evidently came from the trachea and larynx. There was a slight cough. After four weeks of vain medication, pineapple juice was tried. Its action was so satisfactory that I never fail to try the juice where the so-called mucosolvents containing borax and soda do not act properly. However, there are limitations to its use in the mouths of sick persons, as I learned in a case of aphthous stomatitis following measles. Here the use of the fresh apple led to prompt bleeding and great discomfort.

Recurrent urethral gonorrhea, where there is a copious discharge, may yield promptly to injections of the juice. Here dilution is preferable in beginning the treatment, increasing the concentration gradually and cautiously day by day. In cleaning up wounds pineapple juice will dissolve clots and render them more easily removed by the peroxide of hydrogen.

I have yet to see good results from pineapple collodion on corns, though I have tried it in several cases. I have had no experience with it on indolent ulcers and sinuses. It is not only useless, but dangerous to apply it to abdominal suture sinuses commonly termed fat necroses. These tissues are of low vitality, and are easily destroyed.

It is indeed with hesitation that I attempt to offer the fruit of the *Ananasa sativa* as a therapeutic agent in gastric conditions. There has been so much said and yet so little proven concerning the relations of enzymes added or presumably added to the contents of the human stomach. Again, what I would say presumes no finality. Be that as it may, let us consider its theoretical possibilities as an artificial gastric juice in the achylias and hyposecretory conditions. We have both the enzymes and acids; it lacks the disagreeable odor of pepsin, affording rather to the full grown dinner a delightful portion, and, finally, it can be obtained thus in its active and palatable condition when the other vegetable enzymes of a like character are unavailable. No; it is not of use in all gastric disorders, but in very few, if any. In fact, I think that I can see its disadvantages, theoretically at least, in carcinoma ventriculi, where gangrenous tissue is present—we are dealing with enzymes much more powerful than pepsin. But it seems to me that the stomach can use pineapple juice under certain conditions. And this I would point out to be a prevention rather than a relief of symptoms. Pineapple juice cannot quickly neutralize an acute indigestion, but it may prevent one. I recall at least one patient who, though sound physically in every respect, knows that when he sits down to the Thanksgiving dinner a most painful sick stomach is certain to follow. There could be no better addition to the meal than a piece of pineapple eaten now and then. To be brief, I convinced myself long ago that pineapple is a Godsend to the one who dissipates. The midnight chop-suey and lobster lose their terrors, and he retires confident of dreamless sleep even after mince pie or fruit cake, where once he would not have dared. Possibly no encouragement of this kind should be given to such habit; nevertheless, such knowledge is of value to the medical man in his consultation with the one with whom the ordinary meal is as much a dissipation as the midnight banquet. Those who cannot bear the taste of the fruit must search elsewhere—there are stomachs and stomachs. The healthy individual does not need the pineapple except as an adjunct to the especially large dinner. He should avoid permitting his gastric glands to suffer atrophy of disuse by depending continually on an unnatural digestant. I hesitate at this time to give a general rule for dosage of this fruit.

In a brief summary I shall omit the general therapeutic indications, pointing out the advantages of bromelin over the other proteolytic enzymes used in internal medication: (1) To pepsin, in that it is not nauseating, is more easily obtained and administered, and acts promptly in most any kind of media and variation of temperature. (2) To trypsin and vegetable proteolytic enzymes, in that it is more palatable, serving as a dessert rather than a drug, but chiefly in the fact that it is so readily obtained in its most active condition.

Malignant Diphtheria in an Infant.—Rolleston reports a fatal case of diphtheria in an infant six weeks of age. The membrane appeared on the tonsils, anterior pillars, uvula, pharynx, epiglottis, anterior nares, buccal mucosa, labia majora, and anus.—*Proceedings of the Royal Society of Medicine.*

Meat Diet in the Tuberculous.—F. Vandeputte says that the tuberculous subject loses in weight because of increased waste and deficient nourishment. The increased waste results from the fever, the profuse sweats, and the expectoration, as well as the inability of the digestive organs to assimilate foods. The results of meat diet are not brilliant; tolerance fails before a sufficient amount has been taken to feed the body. Man is not a carnivorous animal in the normal state, and cannot become so in a pathological state. If too much protein be taken we get bad digestion, flatulence, and diarrhea due to intoxication from poisonous materials ingested. When the meat is replaced by vegetables we get absence of these symptoms. A mixed diet has these advantages; it keeps up a good appetite; continues the normal function of the digestive tract, and facilitates assimilation. This is necessary for the cure of the individual. If the action of the liver be not good the whole organism suffers.—*Le Nord Médical.*

Relations of Acute Polioencephalitis with Infantile Paralysis.—A. Delearde and André Paquet consider that infantile paralysis and acute polioencephalitis are identical diseases with different localizations. The etiology of these diseases is not established as yet, but they give every reason to believe that they are similar to the other infectious diseases. Both begin with a febrile stage; a stage of paralysis follows in which the paralysis develops quickly; then comes the stage of regression of paralysis and permanent deformity. In polioencephalitis there is an inflammatory process affecting the bulbar motor nuclei, while in infantile paralysis the motor nuclei for the muscles of the limbs are affected. Both involve motor nuclei. In polioencephalitis we may have the eye nuclei involved, with fixity of the globe, ptosis, strabismus, and inequality of the pupils. When the hypoglossus is affected we get troubles of deglutition. When the recurrent laryngeal nerve is involved there is failure of the voice; if the pneumogastric is affected we have failure of respiration and rapid pulse with sudden death. The paralysis is flaccid, with atrophy of muscle, and failure of osseous development. The faradic contractility is lost in permanently paralyzed muscles, and galvanic reaction of degeneration is present. Postmortem there is found inflammation of the bulbar nuclei. All these symptoms are common to both the diseases under consideration.—*L'Echo Médical du Nord.*

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AMERICAN MORTALITY STATISTICS.

THAT the death rate of the country is high is surmised, but not definitely known. At least, such is the statement of Mr. Edward Bunnell Phelps, who has been writing on the matter in the *American Underwriter*, December, 1909. However, Mr. Phelps says that since 1900 the Census Office has compiled approximately accurate vital statistics which, after all, is the best that can be expected. The South, with its unusually large percentages of both the colored race and native born Americans, is still without the fold of the registration area, Maryland being the only Southern State of which reliable mortality statistics can be obtained. The object of Mr. Phelps is to analyze available statistics, and by means of tables he makes a comparison of the annual death rates from various leading causes in the registration area in the nine years 1900-1908, inclusive. The death rates are calculated per 100,000 population, and the urban and rural death rates are set down separately. We are unable to refer here to the rates in detail, but it may be noted that in the last four years of the nine-year period the general death rate of the entire registration area dropped from 1,656.2 to 1,600.6, a satisfactory decrease of 55.6 per 100,000 population. Most of the decrease occurred in the urban districts. No doubt Mr. Phelps is correct in his hypothesis that the causes of the large fall of the mortality rate of cities are various, but that they are due to improvements in sanitation, hygiene, and medical and surgical methods. As a matter of fact, sanitation and hygiene are far superior in town than in country, and, of course, the facilities for obtaining medical and surgical care are much better in urban than in sparsely settled rural districts.

Mr. Phelps draws attention to the fact that the Census Bureau since 1907 has initiated uniform methods for the collection and publication of vital statistics in the United States, and in other respects has greatly improved upon former modes of performing the work, so that probably the death returns of the past two or three years may be more exact than those previous to 1907; but in most cases, at least, the returns for the nine years are fairly comparable. As to comparative figures for the various classes of diseases, as shown by the Census Office statistics, the conclusions to be drawn are both interesting and of a conflicting nature. Typhoid fever apparently shows a pronounced decline in the nine years under survey, although the record of the cities in the registration States seems to have increased from 25.9 to 28.1 per 100,000 since 1904. This is a matter difficult to explain. There has been a decrease since 1900 in the death rate from tuberculosis, but the decrease was not so large as might have been hoped or even anticipated. The mortality rate of other forms of tuberculosis than pulmonary shows an increase; this is, however, probably more seeming than real, and may be largely owing to the method of classification. In any event, the decrease in the death rate from tuberculosis hardly exhibits the decline that might be expected when considering the money expended and the efforts put forth to check its spread. The increase in the death rate from cancer is a sad reflection on the inability of modern science to cope successfully with the disease. Until, perhaps, the cause of the malady is discovered little can be done in the way of eradication. The most hopeful feature of the fight against cancer is that in every civilized country, money and brains are being devoted lavishly to the attempt to solve the mystery of its origin. Diseases of the digestive system, diseases of early infancy, and Bright's disease not only show no decrease of consequence, but in most cases indicate a decided increase. The death rate from diarrhea, enteritis, and diseases of early infancy exhibits a very slight decrease in cities, but a heavy increase in rural districts and a net increase of 5.1 deaths per 100,000 population in the whole registration area. The campaign against infant mortality has been carried on with great vigor in some American cities, and especially in New York, where its good effects have been evident. However, it may be stated as an undoubted truth that, until American mothers generally will feed their children at the breast, the death rate among infants must be high. If possible, it would be interesting and instructive to gather data as to the number of breast-nourished infants in this country.

A most disquieting portion of Mr. Phelps' figures is that which relates to the death rate from violence. If it cannot be said that the death rate from this cause is increasing by leaps and bounds, it can be stated that its decided increase is sinister and alarming. Mr. Frederick Hoffman has shown that the suicide rate has manifested for many years a continuous upward tendency in practically all cities of the first or second rank in this country. The figures of the Census Bureau indicate that in city and country alike suicides have been more frequent since 1904. The increase was approximately 37 per cent. in 1905-1908, as compared with 1900-1904. This seems to prove that we are becoming yearly more and more victims to our environment, to the strain and stress of modern life. The record of other deaths from violence provides sorry reading, for our railway accidents, mining disasters, factory accidents, etc., are mainly pre-

ventable. Good service has been done by Mr. Phelps to the cause of medical science and of humanity by the publication of the statistics on which comment has been here made. Reforms, sanitary or otherwise, will never be introduced so long as the general public is ignorant of the true condition of affairs. The death rate throughout the country is decreasing, but there are many phases of the situation which require scrutiny with a view to improvement. Infant mortality and deaths from violence are the most conspicuous of these.

THE RESEARCH DEFENCE SOCIETY.

A SOCIETY in defence of research work was recently established in Great Britain under the presidency of Lord Cromer. The so-called antivivisectionists of Great Britain have advertised their objections to animal experimentation with such clamor that the ordinary individual has been dazed by the noise and has taken part in a movement of the merits of which he has been profoundly ignorant. His ignorance has been played upon by the specious arguments of fluent partisans. No doubt there are those who thoroughly believe in the propaganda against vivisection which they advance, but it may be stated without fear of contradiction that those are little conversant with the scientific aspects of the case. The society in denfence of research work which has been founded in Great Britain has been established for the purpose of explaining to the public the objects of animal experimentation and in order to dissipate the myths and rumors which have gathered about and which have been spread concerning the modus operandi of these experiments. Anyone who cares to take the trouble can thus easily investigate the matter, and whoever does this will find that the origin of many of the most dreadful diseases to which man is liable has been found by animal experimentation, and as a natural corollary a discovery of the means of eradication, of prevention, and of treatment has followed.

The antivivisectionists of Great Britain are now greatly concerned because the Bishop of North Queensland, Australia, has allowed himself to be enrolled as one of the vice-presidents of the Research Society. Of course, his action has aroused a storm of protest in England and he has been written to by the chairman of the Church Antivivisection League imploring him to reconsider his determination. However, the bishop is not to be moved by these entreaties, and in his reply he stated that he deemed it his duty to join a society which was founded "to make known the facts as to experiments on animals, the immense importance to the welfare of mankind of such experiments, and the great saving of human life and health directly attributable to them." Moreover, he remarked that he could judge of the ignorance of the public in England only by the "rhetorical license" of those who essayed to represent them. Furthermore, the bishop stated that he had stronger reasons for his advocacy of animal experimentation, in that he had seen something of those dreadful tropical maladies of which the public knew nothing in England. He himself had been largely instrumental in establishing an Australian Institute of Tropical Medicine, and in its laboratories, as in others of a like nature, animal experiments were necessary, needless to say carried out with humanity and due regard to animal life. The British Research Defence Society has commenced its work under favorable auspices, and the fact that a bishop has been sufficiently courageous and broad-minded to act as a vice-president should give some of the sentimental enthusiasts who declaim so noisily against experiments on animals food for thought.

NUTRIENT SUPPOSITORIES.

A FEW years ago the use of the nutrient enema was somewhat more in vogue than at the present day, partly due to the fact that it has recently been found by physiological and metabolic experiments that but a small portion of the food given by this method is absorbed into the system. Adding to this the frequency with which the oft repeated injections of fluid into the rectum not only excite peristaltic unrest and thus defeat their purpose by causing their premature expulsion, but even by their irritant action set up various degrees of colitis and proctitis, the growing prejudice against nutrient enemata is sufficiently explained. There are, however, many cases in which complete gastric rest is to be desired, or a temporary obstruction to the upper alimentary tract makes feeding *per os* impossible, while not of sufficiently long standing to make gastrostomy necessary, in which it is desirable to get some food into the body, be it ever so little. To meet these cases Boas, in an article in the *Berliner klinische Wochenschrift* for April 4, 1910, suggests the use, instead of nutrient enemata, of nutrient suppositories. Those which the author has used for over three years consist of crystallized egg white, which Ewald showed twenty years ago to be as easily absorbed as albumose, provided a little salt is added, carbohydrates in the form of the nonirritating dextrin, and fat, for which the usual cocoa butter is used. Each suppository, which is two and one-half inches long, and one-half inch thick, contains approximately 20 per cent. of water, 2 per cent. of salts, 20 per cent. of fat, 33 per cent. of carbohydrate, and 23 per cent. of protein, and has an energy value of 46.2 calories. Such suppositories Boas administers four times a day, if necessary, with five drops of laudanum. He irrigates the bowel morning and night with saline solution. While not claiming that this small amount of nourishment is sufficient to sustain life for any length of time, he finds that such suppositories are better borne by the patients than nutrient enemata, that a much larger proportion of the food is absorbed, and that the patient's general condition is distinctly better.

THE VISCOSITY OF THE BLOOD.

DURING the past decade the procedure of viscosity estimation of the blood and its relation to disease has received more or less attention from various observers. This physical characteristic of the blood, as estimated by measuring the time required for it to flow through a glass tube of a definite bore and length and comparing this with the time required for distilled water to make the same journey, depends upon such various factors that uniform results have been rare, and the ascribing to them of chemical significance has been diffi-

cult. Not only do changes in the red blood count and hemoglobin content alter the viscosity, but variation in the blood plasma, in its globulin, and its salts, and the amount of absorbed water, all influence it in one way or another. Sex, age, constitution, diet, exercise, baths, and drugs are influencing factors in the determination of the viscosity. In the *Berliner klinische Wochenschrift* for March 28, 1910, Oehlecker reports a series of investigations into the significance of viscosity variations in acute surgical diseases of the abdomen, especially in appendicitis. His cases are divided clinically into three groups, simple appendicitis, appendicitis with localized peritonitis, and diffuse purulent peritonitis. In the first class of cases the author has found that the viscosity shows no especial variation from the normal, that it is 4.5 times that of distilled water; in the second class of cases it was moderately raised, averaging 5.3; while in the cases of general purulent peritonitis, the index was distinctly above normal, varying in the cases which recovered from 5.0 to 6.3, and in two fatal cases being 7.0 and 7.1. From these findings it would appear that while the viscosity will be of but little value in the diagnosis of simple acute appendicitis, it may be of use in determining the extent of peritoneal involvement when the appendix has ruptured. The fact, too, that in hemorrhage the viscosity is rapidly reduced below normal, may make the test an aid in the differentiation between appendicitis, adnexites, and ruptured ectopic pregnancy.

Thirst Fever in Infants.

Variations in the temperature of the young infant, as the result of the most insignificant causes, are common occurrences. What in the adult would be a hardly noticeable gastrointestinal disturbance is capable in the baby of producing a temperature as high as 104° or 105°. A troublesome tooth about which there is but slight congestion may well cause a fever sufficiently high to result in a panic in the mind of the watchful mother and in a hurried call for the physician. A child, too, apparently desperately ill with hyperpyrexia may be seen four hours after a thorough catharsis playing happily in its cot. Recently the German pediatrists have called attention to another cause of sudden fever in the infant, the so-called "salt fever", produced by subcutaneous or rectal injection of saline solution, in which a few hours later the temperature rises rapidly, remains so for a few hours, and then as rapidly falls. In the *Berliner klinische Wochenschrift* for April 11, 1910, Erich Müller reports two cases of a condition first described by Crandell in 1899, but as yet not widely appreciated, which is closely related to the "salt fever", but is due to concentration of tissue salts, not by the administration of salt, but by withholding of water. In his cases, a few hours after withdrawing the child's food, for one reason or another, a rapid pyrexia appeared, lasting until either milk or some other fluid was given. First considered to be cases of fever from hunger, they were soon shown to be prevented if the milk was replaced by weak tea, and it was conclusively proven that the important factor in causing the fever was thirst. The possibility of such cases of "thirst fever" should be borne in mind by the physician when ordering starvation in the gastrointestinal affections of childhood, or when suddenly confronted with an inexplicable case of fever in the young infant.

News of the Week.

The Illinois State Medical Society and the A. M. A.—At the annual meeting of the Illinois State Medical Society, held May 17, some important resolutions, introduced by Dr. G. Frank Lydston, were adopted. After a preamble to the effect that the present organization of the American Medical Association was radically defective and fundamentally illegal, and that the methods of election and government now in operation were inequitable and undemocratic, it was resolved to offer a number of recommendations to the House of Delegates. Among these were recommendations that the offices of secretary, editor, and general manager be separated; that officers whose positions involve financial responsibility should be required to give bonds; that the financial condition and business affairs of the Association should be presented in more detailed form than at present, thus maintaining the confidence of the membership at large; that there should be more than one trustee in the town where the central office of the Association is situated, the burdens of the present lone trustee being too great; that provision be made in the by-laws for the initiative and referendum for safeguarding the interests of the membership at large; and that the Association should conform to the corporation laws of the State of Illinois by holding its election within the State, the Association, under the present system, being liable to attack on the ground of illegality.

New York State Vital Statistics for the month of March show a net gain in the State population of 3,538 and in New York City of 4,914. Tuberculosis caused 1,409 deaths; pneumonia 1,405; heart disease 1,015, and Bright's disease 934. There were 131 suicides and 30 homicides. The total deaths from violence were 689. Under the classification of heat and sunstroke was recorded one case, and under that of cold and freezing 4 cases.

Yellow Fever Commission Memorial.—On May 2 Senator Owen introduced into the U. S. Senate a bill providing for an appropriation of $50,000 for a monument in honor of the Yellow Fever Commission, composed of Major Walter Reed, Dr. James Carroll, Dr. Jesse W. Lazear, and Dr. Aristides Agramonte. The bill provides that the monument be erected in Washington under the supervision of a commission composed of the President of the American Medical Association, the Secretary of War, Major-General Leonard Wood, the Surgeon-General of the Army, and Colonel William C. Gorgas.

Health in the Canal Zone.—The report of the department of sanitation of the Canal Zone for March 1910, shows an annual mortality among employees of 8.91 per 1,000, as against 8.75 for February, and 8.76 for March, 1909. The total death rate including Panama and Colon was 18.33 as against 17.50 for February, and 17.07 for March, 1909. The annual average per 1,000 of employees in hospital for malaria was 125, as against 85 for February, and 182 for March, 1909. No case of yellow fever, plague, or smallpox originated on the Isthmus during the month. One case of yellow fever died at the Culebra Island quarantine station, having originated in Guayaquil and taken off from a Guayaquil boat at the quarantine station. The general health of the Canal Zone continues excellent.

King Edward's Illness.—The *Lancet* of May 14 publishes an authorized report of the last illness of King Edward VII. According to this it appears that for some years his Majesty had suffered from emphysema and bronchial catarrh, the signs of which were permanently present. His reaction to various minor ailments recently had shown to his attendants that his power of resistance was rapidly diminishing. On March 7, while in Paris on his way to Biarritz for a rest, the King had a severe attack of acute indigestion accompanied by dyspnea. Though he fulfilled his social engagements in Paris, he developed, on arrival at Biarritz, an attack of acute bronchitis which confined him for ten days. On April 27 the King returned from Biarritz greatly improved, and on April 30 went to Sandringham for the week-end. On Sunday he caught cold while inspecting some work in the gardens and returned to London on Monday, May 2, feeling "chilly and out of sorts." He was seen that evening by one of his physicians, who found him suffering from dyspnea with slightly raised temperature and quickened pulse. Bronchial crepitations were heard at the basis of both lungs. Tuesday morning, though feeling better, he suffered much from cough and expectoration and considerable dyspnea. Against professional advice he attended to his duties that day, and Tuesday night was quite ill and distinctly dyspneic, the attacks for the first time coming on even without exertion. On Wednesday morning the temperature was 99° F., the pulse 90, and there was some irritation of the throat, which showed a catarrhal condition. That evening the air entry of the lungs at both bases was poor, and the right side of the heart was embarrassed. The temperature was normal and the respirations 34 per minute. Though his condition was not improved Thursday morning, the King gave several audiences. The dyspnea and cyanosis increased. That evening the first bulletin as to the King's illness was issued. Thursday night he seemed to be better and passed a comfortable night until 4.30 A.M., when the dyspnea returned, and in the morning the second bulletin was issued to the effect that his Majesty's condition was causing grave anxiety. From then on his condition grew rapidly worse; dangerous dyspnea developed on the slightest movement, consciousness began to fail at 3 P.M. and never completely returned. The end came at 11.45 P.M. after a long period of perfect calm. The report is signed by Drs. Francis Henry Laking, James Reid, and R. Douglass Powell.

A Characteristic Misstatement.—The silly and unveracious antivaccinationists of London had the impudence a few days ago to distribute a leaflet about the streets declaring that King Edward's death was due to a vaccine treatment which he underwent prior to his trip to Biarritz and which was designed to avert influenza and pneumonia. This having been brought to the attention of Queen Alexandra, she has issued a statement in which she expresses herself as deeply grieved at the false report and asserts that the late King's fatal illness was not due in any way to the treatment. She adds that, on the contrary, he was kept in excellent health for fifteen months by the doctors who attended him.

The Standard of Milk Lowered.—On May 21 Gov. Hughes signed the Baumes bill lowering the standard of milk so that it shall be deemed adulterated when it contains less than 11½ instead of 12 per cent. of milk solids.

Care of Insane Convicts.—Gov. Hughes has signed the bill introduced by Senator Bayne, providing that when a convicted murderer appears insane, the Governor may appoint a commission of three to examine him and report to the Governor, whereupon, if found insane, the Governor may order his removal to the State Hospital for Insane Convicts, where he shall be kept in custody until cured of insanity, when, upon an order of the Justice of the Supreme Court, the convict is to be returned to the custody of the warden of the State's prison to suffer the sentence given him under the law.

The Etiology of Pellagra.—A dispatch from Rome from Dr. Sambon of the Field Commission, which has been investigating pellagra, states that the committee has proven that the conveyor of the disease is the *Simulium ripens,* a species of black fly. A simultaneous dispatch says that Professor Alessandrini of the University of Rome has found the etiological factor in water.

Plague at Amoy.—On May 16 the bubonic plague was officially declared to be epidemic in Amoy.

Pure Milk Decision.—In a test case recently on the question of the right of the New York City Department of Health to exclude from the city milk from dairies which do not meet the sanitary requirements of the board, Judge Coman held that the New York City Health Department had absolute jurisdiction without as well as within the city lines, could impose whatever rules and regulations its officials wished, and compel their observance under penalty of prohibiting the sale of dairy products shipped to New York City for consumption as food.

Bequest to Hospital.—By the will of the late Justus P. Jones of Philadelphia, the sum of $25,000 will revert to the Germantown Hospital on the termination of certain trust bequests.

The New York Postgraduate Medical School and Hospital has commenced work on the new $600,000 addition which is to be erected adjoining the present building on the east. The basement of the new addition will be devoted to diseases of the nose and throat, the first floor to medicine and surgery, and the second floor to the eye and ear. The third, fourth, and fifth floors will contain public wards accommodating 180 beds. Research laboratories, an *x*-ray room, eight small operating rooms, and extensive roof gardens and porches are included in the plans.

The New York Polyclinic Medical School and Hospital.—Work was begun early in May raising the houses on West Fiftieth street preparatory to the erection of the new hospital. The new building will be ten stories in height and will have a frontage of 95 feet. The ground floor will be occupied by the out-patient department. The second floor will be devoted to teaching rooms, and the third to laboratories. The fourth and fifth floors will contain the free wards, and the remainder of the building will consist of private rooms and staff accommodations. Lower building to the east and west of the main building to be used for ambulance service and nurses' home will insure light and air to the wards. The hospital, when completed, will accommodate 350 patients.

The Coney Island Branch of the Kings County Hospital was formally opened recently. The hospital will accommodate 100 patients.

Tulane University.—The medical department of Tulane University recently inaugurated the custom of holding an "Alumni Week", at which clinics and demonstrations were held for the benefit of graduates of the school and other medical men. The custom is to become annual. The school will this summer give regular summer courses to post-graduates.

The Metropolitan Life Insurance Company has withdrawn its application to the State Commissioner of Health and the local health officer of the town of Somers, in Westchester, for permission to build a sanatorium for the treatment of its tuberculous employees, in deference to the sentiment expressed by the people of the City of New York in opposition to the construction of such a sanatorium within the watershed of New York City. The company is now looking for a site to which the present objections cannot be raised.

Cocaine Seller Sentenced.—A cocaine seller was sentenced recently to two years in the State Prison by Judge Mulqueen of New York City. This was the offender's fourth arrest and second conviction. The sentence is said to be the heaviest ever handed down under the cocaine act in New York.

The Medical College of Virginia held its seventy-second annual commencement exercises on May 18, 1910. The speakers included Dr. Lyon G. Tyler, president of the College of William and Mary, and Dr. Simon Baruch of New York. The subject of the latter's address was "Therapeutic Lessons of Half a Century in Medicine."

Dr. George Howard Monks has been appointed professor of oral surgery in Harvard University.

Dr. William Colby Rucker of the United States Public Health and Marine-Hospital Service has been appointed Health Commissioner of Milwaukee by Mayor Seidel.

The American Society of Tropical Medicine will hold its seventh annual meeting at the Medical School of the St. Louis University, St. Louis, Mo., June 11, 1910. The president of the society is Dr. Wm. C. Gargas.

The Fifth Congress of the Association of French Physicians of North America will be held in Sherbrooke, August 23, 24, and 25, 1910. The president of the society is Dr. P. Pelletier of Sherbrooke, and the general secretary Dr. F. A. Gadbois of Sherbrooke.

The Nurses' Associated Alumna held its annual convention in New York City May 18 and 19, 1910. The officers elected were: *President*, Miss Jane A. Delano of Washington, D. C., and *Secretary*, Miss Agnes Deans of Detroit.

The National Association for the Study of Epilepsy held its ninth annual meeting in Baltimore May 7, 1910, as the guests of the Maryland Psychiatric Society. The more careful study of individual epileptics, their classification, and the indications for operation were the chief subjects discussed. The following officers were elected: *President*, Dr. H. L. Perry of Parsons, Kan.; *Vice-Presidents*, Dr. W. T. Shanahan of Sonyea, N. Y., and Mr. Chas. H. Grasty of Baltimore, Md.; *Secretary and Treasurer*, Dr. J. F. Munson of Sonyea, N. Y.; *Editor of the Transactions*, Dr. W. P. Spratling of Maryland.

The American Climatological Association.—At the 27th annual meeting of this association in Washington, May 3, 4, and 5, 1910, the following officers were elected: *President*, Dr. John Winters Brannon of New York; *Vice-Presidents*, Dr. W. H. Swan of Colorado Springs, and Dr. J. H. Lowman of Cleveland; *Secretary and Treasurer*, Dr. Guy Hinsdale of Hot Springs, Va. The meeting in 1911 will be held in Montreal.

The Nebraska State Medical Association met at Lincoln May 3-5, 1910. The following officers were elected: *President*, Dr. J. P. Lord of Omaha; *Vice-Presidents*, Dr. H. M. Hepperlin of Beatrice, and Dr. C. A. Anderson of Stromsburg; *Delegate to the American Medical Association*, Dr. P. H. Salter of Norfolk; *Alternate*, Dr. W. J. Birkoffer of Gothenburg. The *Secretary* of the association is Dr. A. D. Wilkenson of Lincoln, and the *Treasurer* is Dr. A. S. von Mansfelde of Ashland. The next meeting will be held at Omaha.

The Connecticut Society of Social Hygiene was organized at a meeting in Hartford on May 16, at which the following officers were elected: *President*, Dr. Phineas H. Ingalls; *Treasurer*, Dr. Charles S. Stern of Hartford; *Secretary*, Dr. Thomas H. Hepburn of Hartford.

The New Hampshire Medical Society, which met at Concord May 12 to 14, 1910, elected the following officers: *President*, Dr. Alonzo S. Wallace of Nashua; *Vice-President*, Dr. G. W. McGregor of Littleton; *Secretary*, Dr. D. E. Sullivan of Concord; *Treasurer*, Dr. D. M. Currier of Newport; *Councilors*, Dr. P. T. Haskell of Concord, Dr. E. Bralock Atherton of Nashua; *Trustees*, Dr. J. M. Gile of Hanover, Dr. J. W. Parsons of Portsmouth; *Delegate to the American Medical Association*, Dr. F. A. Stillings of Concord; *Alternate*, Dr. John C. Shedd of North Conway.

The Ohio State Medical Association held its annual meeting in Toledo and elected the following officers: *President*, Dr. G. A. Skeel of Cleveland; *Vice-Presidents*, Dr. S. P. Filler of Portsmouth, Dr. E. J. Marsh of Canton, Dr. A. V. Spear of Newark, and Dr. A. C. Starr of Pittsburg. The next meeting will be held in Cleveland.

The Missouri State Medical Association meeting at Hannibal, May 6, elected the following officers: *President*, Dr. Herman E. Pearse of Kansas City; *Vice-Presidents*, Dr. W. T. Lindsey of Hamilton, Dr. George Harmon of St. Louis, Dr. Hume Armstrong, and Dr. A. W. Camp of Springfield, and Dr. Ashley of Bloomfield; *Secretary*, Dr. E. J. Goodwin of St. Louis; *Treasurer*, Dr. J. Franklin of Salisbury.

The Worcester (Mass.) District Medical Society, in a meeting at Worcester May 11, elected the following officers: *President*, Dr. A. C. Getchell; *Vice-President*, Dr. C. A. Church of Millbury; *Secretary*, Dr. Roy J. Ward; *Treasurer*, Dr. George O. Ward.

The Hampshire (Mass.) District Medical Society meeting at Northampton, Mass., May 12, 1910, elected officers as follows: *President*, Dr. D. M. Ryan of Ware; *Vice-President*, Dr. N. C. Haskell of Amherst; *Secretary*, Dr. A. G. Marshall; *Treasurer*, Dr. J. G. Hanson; *Librarian*, Dr. F. L. Burnett; *Censor*, Dr. J. S. Hitchcock; *Councilors*, Drs. F. H. Smith of Hadley, J. S. Hitchcock, and E. D. Williams of Easthampton.

The Walker County (Texas) Medical Society was organized May 6 at a meeting held at Huntsville. The following were elected: *President*, Dr.

W. E. Fowler; *Secretary and Treasurer,* Dr. L. H. Bush.

The Fort Bend County (Texas) Medical Society was organized at Richmond, Texas, recently with the following officers: *President,* Dr. J. C. Johnson; *Secretary and Treasurer,* Dr. J. B. Turner.

The Webb County (Texas) Medical Society met at Laredo May 6 and elected the following officers: *President,* Dr. Sauvignet; *Secretary and Treasurer,* Dr. Hamilton.

Dr. Byron Robinson.—A memorial meeting in honor of the late Dr. Byron Robinson was held in the Whitney Opera House in Chicago May 22, 1910. Prof. Charles R. Van Hise, president of the University of Wisconsin, presided, and Dr. William A. Evans delivered the address.

Obituary Notes.—Dr. Frank Monroe Tiffany of Stamford, Conn., died at his home May 18, 1910, aged 41 years. He was a graduate of the University of Pennsylvania in 1896 and a member of the Fairfield County Medical Society, the Connecticut State Medical Society, the American Medical Association, and the American Academy of Medicine. Dr. Tiffany was physician to the Stamford Hospital, the Children's Hospital, and St. John's Church Home, and consulting physician to the Day Nursery.

Dr. Daniel Mayer of Charleston, W. Va., died in Cincinnati May 21, 1910, aged 73 years. He was a graduate of the Eclectic Medical Institute of Cincinnati in 1859, was a surgeon in the Civil War, and was Consul-General to the Argentine Republic.

Dr. James E. Blaine of St. Louis, Mo., died suddenly May 11, 1910, aged 59 years. He was a graduate of the Bellevue Hospital Medical College in 1872. Dr. Blaine was associated with Dr. Keeley in the formation of the Keeley Institute at Dwight, Ill., and at the time of his death was physician in charge of the Keeley Institute of St. Louis.

Dr. Martin Cagle of Adairsville, Ga., was killed by a train in Atlanta May 6, 1910. He was a graduate of the Georgia College of Eclectic Medicine and Surgery in 1894.

Dr. Oliver P. Rex of Abington, Pa., died at sea on May 13 at the age of 64 years. He was graduated from Jefferson Medical College in the class of 1867. He served a term as resident physician in the Philadelphia Hospital, and he was for a number of years physician to Jefferson Hospital and lecturer on diseases of children. He was for twenty-five years Medical Director of the Penn Mutual Life Insurance Co. During the Civil War he served as hospital steward in the Thirty-third Regiment Illinois Volunteers, rising to the rank of Major.

Dr. Walter C. Jackson of New Orleans, La., died at his home, May 11, 1910, aged 30 years. He was a graduate of the medical department of Tulane University in 1900.

Dr. Elijah W. Jay of Marshalltown, Iowa, died in that city on May 5, 1910, as a result of an accident to an ambulance. He was 47 years of age. Dr. Jay was a graduate of the University of Wooster in 1893, and was a member of the Marshall County Medical Society, the Iowa State Medical Society, and the American Medical Association. Dr. Jay was coroner of Marshall County.

Dr. Michael Brinkman died at Philadelphia on May 19 at the age of 83 years. He was graduated from the University of Marburg in the year 1848 and he served during the following two years as surgeon in the German Army.

Correspondence.

TREATMENT OF CARCINOMA WITH THE BODY FLUIDS OF A RECOVERED CASE.

To the Editor of the Medical Record:

Sir:—I was unable to get a copy of the Medical Record of February 26 until a few days ago, but I am very pleased to have seen it, however much belated, on account of the important communication with the above reference which it contains. The article, with your own note referring to it, cannot fail to prove of highest interest not only to those who are specially engaged in cancer research, but also to the ordinary practitioner who is anxious to get some method of dealing with cancer other than by the knife. With commendable scientific reserve, Dr. Hodenpyl does not claim conclusively to have made out a cure, but he is certainly on a live trail. The case he described bears a very striking resemblance in most points to one I had to deal with over three years ago. In mine there had been large recurred growths in both breasts, both axillæ, and in the neck. A spontaneous cure took place and this was complete in that the disease, so far as it could be made out clinically, had absolutely disappeared. The attendant circumstances were such that there was positive proof that the result was due to a sudden and rapid absorption of a large pleuritic cancerous effusion. I was so much impressed with what took place that in a paper which I wrote on the subject (*British Medical Journal,* July 20, 1907) I suggested that in similar cases i tmight be possible to imitate artificially what took place spontaneously in this one. I found no opportunity in my own practice of trying the direct transference of a serous exudate into the system, but I have repeatedly recommended the method to medical men who asked my advice in reference to such cases. I have often tried an alternative method on the same principle. This consisted of taking the patient's blood by a venesection, partially defibrinating it, and then injecting this fluid into the tumor or into its near vicinity. In four patients in which this has been done the results could not be claimed as cures, but the growths were retarded in all. Three patients improved very much in health, the fourth I have not seen for two years, but she is still living.

The interpretation I put upon the phenomenon I had seen was, that the active agent, whatever it be, was in the serum (in this case sanguineous), and in effect had power to dissolve cancer cellular tissue, which, so dissolved, became absorbed. Wells of Chicago, who was pleased to take notice of my paper (*Journol Amer. Med. Assoc.,* May 29, 1909), thought it more probable that the serum had acted as a stimulant to the body tissues and thus led to the development of cytolysins for the cancer cells, and he referred to Ribbert as supporting this view. Whether the action is indirect as the weighty authorities I have named regard it, or direct as I judged, may have importance on theoretical grounds as to how and where immunity arises, but the point of greatest practical importance is that whatever cancer be there certainly is a defence against it in the system, and in consequence exudates, pleuritic, ascitic, or other, arising secondarily to, that is, as a result of, the cancer, contain bodies that bring about immunity, and are there curative agents. The point has a scientific basis and is supported by clinical experience.

Charles G. Mackay, M.B., C.M.
Lochcarron, Rossshire, Scotland.

PITUITARY EXTRACTS IN HAYFEVER, ASTHMA, ETC.

To the Editor of the Medical Record:

Sir:—The period of so-called "rose cold" or "vernal hayfever"—*i.e.* vernal, pollen-caused, angioneurotic edema of the air passages—is approaching, or with certain patients, here. Referring to my observations in 1898 concerning the use of adrenal preparations in this disorder and in asthma (since confirmed throughout the world) I wish now to ask physicians to use preparations of the pituitary gland, and more especially of the infundibulum or posterior lobe. There are at least two, and possibly several, good commercial preparations now available. From the recoveries which I have observed to follow their use in Quincke's edema, asthma, recurrent erythema, and other angioneuroses, as well as their effects in "opening" the nasal passages, I should expect them to be superior to the adrenal preparations in all varieties of hayfever. The action is slower, but more persistent. The pituitary extracts may be used both topically and systemically. While more

effective by hypodermic injection, they also produce clinical results when administered by the mouth—another advantage over the adrenal extracts. I shall be much obliged for reports by letter or publication of the experience of those adopting this suggestion.

Solomon Solis Cohen, M.D.
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OUR LONDON LETTER.

(From Our Regular Correspondent.)

CANCER HOSPITAL MEMORIAL—GASTROPOSIA—RISK OF INFECTION IN HOSPITALS—ANTHRITIS — POST-OPERATION HEMORRHAGE—TROPICAL SCHOOL—BRITISH COMMITTEE FOR DRESDEN HYGIENE EXHIBITION—OBITUARY.

London, May 6, 1910.

H. R. H. the Princess of Wales has appointed July 14 next as the date on which she will lay the foundation stone of the Barnato Memorial Hospital. You will perhaps remember that Mr. H. Barnato left a quarter of a million sterling to found a charity in memory of his brother and nephew. The trustees decided to devote the money to an addition to the cancer charity of the Middlesex Hospital. They secured a site adjoining that hospital to enlarge the wing in which so much work has been done and equip it for every kind of treatment and research known to science. The ground has been cleared and the plans accepted, but the contract for the erection of the building has not yet been settled. It is believed, however, that all will be ready for the ceremony on the date fixed by the Princess. The estimate for the cost is about £50,000, and the remainder of the bequest will be invested for endowment of the memorial institution.

Gastroptosia is not of frequent occurrence; indeed, many practitioners have never met with it, and some are disposed to deny its existence as an ailment. Others regard it as a definite disease. Mr. F. S. Eve last week read a paper on its surgical treatment at the Medical Society of London. He had to acknowledge that the symptoms were so like those of other gastric diseases, especially ulceration, that a diagnosis could only be made by the process of exclusion, often culminating in an exploratory laparotomy. He had had twenty cases; in nine hematemesis was present, in seven of these to the extent of a teacupful or more. A great point with him was that acidity was rarely increased; in fact, it was sometimes decreased. He favored gastropexy when medical measures failed, and gave results of eleven cases. He had done gastrojejunostomy in seven cases, but his later experience led him to avoid it, though it might be necessary in certain cases of dilatation with atony or for the relief of hematemesis.

A paper from the medical side was then read by Dr. Robert Hutchison, who could not admit gastroptosis to be a disease. It was common enough, he held, in routine examinations to find displacement in patients who did not complain of gastric symptoms. Neurasthenia was the underlying condition in most cases, and required rest and improved nutrition. Those who had much digestive disturbance while going about lost their symptoms on remaining recumbent and could then take full diet. In the neurasthenic state bromide was perhaps the most useful drug. Strychnine, often prescribed, was frequently injurious. Iron might be of use if anemia were present, but that was seldom the case, and even if it were iron was apt to disagree, and arsenic might be substituted. He had a poor opinion of hypophosphites, glycosophosphites, and such like. Massage of the stomach stimulated its motility. Evidence was wanting that electricity was any use. No doubt patients with any enteroptosis derived comfort from effective support, but it did not follow that the result was due to actual pushing up of the viscera. But the best belt was a firm abdominal wall and a rest cure tended to improve this by increasing the natural packing of fat. His conclusion that these patients should be well fed, but not over-dieted; their stomachs should not be washed out, nor should they be operated on.

Dr. Scanes Spicer held that gastroptosis was brought on when the diaphragm did not act centrifugally, and that physical exercises would suffice to remedy the condition.

Dr. Hertz said gastroptosis was very rare as a sole condition, but common as a part of a general ptosis of the abdominal viscera.

Dr. Parkes Weber said these cases were relieved at once by the recumbent position; so were some of albuminuria. He would like to know why.

Dr. West, in the chair, remarked that the utility of washing out the stomach had been denied, but these cases were benefited by getting rid of accumulated fluid.

The risk of infection, if any, incurred by residence in a consumption hospital has been an occasional topic of medical conversation ever since the discovery of the bacillus. Some statistics, too, have been collected, but it cannot be said they were of a kind to secure much confidence. So that discussion, if it may be so called, has been rather the statements of general impressions than well-founded convictions. The question has been revived by Dr. Edward Squire in a paper submitted to the Royal Society of Medicine on the 26th ult., based on the records kept by him of fifteen years' experience at the Mount Vernon Hospital. At this institution it is the rule that every nurse and every man or boy employed in or about the hospital shall be examined before being definitely engaged, and again on leaving, by one of the physicans. Dr. Squire, now senior physician, has undertaken this duty for fifteen years. It is obviously an advantage that the same person should examine all the applicants, and a nurse who feels indisposed during her employment will be naturally more willing to consult the physican who has already examined her than the resident medical officer, who is in daily contact with her. The tables give information as to 420 individuals, among them 235 of the nursing staff, to which I must restrict my remarks. Some 14 per cent. had been infected before application, and it appears some of these, having quite recovered, were engaged. It may be questioned whether they should have been employed in the wards. Excluding those rejected, or who did not stay above three months, there were 215 nurses of whom nine developed tuberculosis during residence, giving a percentage of 4.18. Some nurses stayed in the hospital for years, but the average period was only eighteen months, a figure due to the large number who only entered as probationers for a part of their training. Notes of the cases which developed signs of tuberculosis, definite or suspicious, were given in tabular form, and Dr. Squire added further details of half a dozen illustrative cases.

The discussion on arthritis, about which I wrote to you on April 1, was resumed on the 20th, but less interest seemed displayed in the speeches than at first. Dr. Garrod agreed that several distinct diseases had been included under the same or similar names. Osteoarthritis should be distinguished from rheumatoid arthritis, as the prognosis and treatment differed. Dr. Latham held still to the hypothesis he put forward in 1901, that rheumatoid was due to lesions in the spinal cord, and he recommends blistering and cupping. Mr. Anderson of Buxton supported Dr. Latham and said he had found good results. He had not found serums and vaccines of any use. Dr. Sunderland thought that the greater prevalence of arthritis deformans in the female sex might be due to germs lurking in the reproductive passage. He had several years ago stated that, contrary to the common opinion, gonorrheal arthritis was more common in females. Dr. L. Canney contributed a paper on the climate of North Africa, in which he maintained that chronic arthritis was best treated in Egypt. The driest health resort in the world, he declared, was Assouan.

The prevention of hemorrhage in major operations is a question of importance to every surgeon, as shown by the many devices that have been used to secure it. In many cases a small loss of blood turns the case against the patient. Hemorrhage and shock are the twin dangers and may even be considered as one. To interrupt the blood supply is the aim of tourniquets and a multitude of other appliances, of which Esmarck's band is perhaps most in vogue. To ligature the main artery before amputating at the hip or shoulder is a recognized practice, and Mr. Lockwood of St. Bartholomew's Hospital is disposed to extend this plan to other operations, notably of the leg or arm. Not long since he gave an address at a northern medical society in which he advocated this practice and supported it by a number of cases. He is distrustful of digital compression, which he has known to fail, and serious loss was always the consequence. Esmarck's clasp bandage, too, seemed distasteful to him, for he called it crude and said its pressure could not be good for the vessels beneath. He asked why skin flaps sometimes die so mysteriously. The risks of amputating the leg

at the upper third when the vessels are calcareous are well known, and in such cases Mr. Lockwood would tie the tibial and peroneal vessels before completing the flaps. Another objection to Esmarck's band is the troublesome bleeding which follows its removal, as if the small arteries had been paralyzed by the pressure. No surgeon cares to amputate the thigh for diabetic gangrene, the mortality being so high. Mr. Lockwood related a case which appeared quite hopeless in which he exposed the vessels at their exit from Hunter's canal, tied the artery and vein, which were closely adherent, in a single ligature, and completed the operation leisurely without moving the patient. The relief, if only temporary, was very great.

The dean of the London Tropical School (Sir F. Lovell) has returned from his tour in the West Indies on behalf of the school. He has been promised subsidies from the governments of the different British possessions.

Yesterday a British committee was formed to carry out arrangements for the British section of the International Hygiene Exhibition at Dresden next year.

Dr. Vaughan Holberton died on the 4th inst. aged seventy-seven. He had practised at Hampton-on-Thames for above forty years and retired about sixteen years ago. He succeeded his father (at Hampton), who was surgeon to Queen Adelaide.

Dr. Alonzo Henry Stocker died on April 24, aged eighty-one. He was a distinguished student of the London Hospital, carrying off a number of gold medals and prizes. He qualified at the age of 21-22 and was soon after appointed medical superintendent of a private lunatic asylum. Thus the way was open for him to become a specialist, at which he for many years held a high position. He retired several years ago.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

TUBERCULOSIS IN BERLIN.

BERLIN, May 1, 1910.

IN the Society for Social Medicine, Hygiene, and Medical Statistics a lecture has been held which, though it applies directly to Berlin, has a general interest, as its results are of value for many large cities. I refer to A. Kayserling's lecture upon the incidence of tuberculosis in Berlin. In the first place, the lecturer presented some statistics on the course of the tuberculosis mortality in Berlin from 1880 to 1908. These statistics are of especial value because in the city the number of the inhabitants is registered very carefully and for every fatality the physician must make a certificate of the cause of death. The statistics show that in 1885 for every 10,000 inhabitants 34.63 died of tuberculosis, while in 1908 19.93 succumbed to this disease. The fall in the intervening years is not absolutely regular, as there are many variations, but the descent in the curve has been continuous. The objection may be raised that this fall is only apparent, in that owing to better diagnosis the mortality of other pulmonary diseases has increased. This objection is easily controverted by the statistics, as there has been a falling off in the mortality from all pulmonary diseases. In 1886 of every 10,000 inhabitants 32.8 died of pulmonary diseases, while in 1907 23.7 died of such ailments. The cause of this fall in mortality from tuberculosis lies in the discovery of the tubercle bacillus, and the measures which have been directed against it. Among these are the work of the sickness insurance, which makes early diagnosis and treatment possible. The growth of the "homestead" movement in Berlin has been especially valuable. Since 1892, when the first tuberculosis "homestead" was founded in Malchow, near Berlin, the movement has grown with such rapid strides that now there exist 1,500 beds in the city of Berlin. That comprises one-seventh of all the beds open to adult tuberculosis patients in the German Empire. In relation to the population in Berlin there are 75 beds to 10,000 inhabitants; in the rest of the German Empire there are 19 per 10,000. The forest convalescence resorts of Berlin, which were opened in 1900, have up to date cared for 30,000 persons, the greater portion of which were tuberculous.

The statistics of tuberculosis mortality, calculated for men and women, show, in the class between 20 and 25 years of age, a reduction of fatalities among men and an increase among women. In the next older class the mortality among men is also reduced; among women it is stationary. As an explanation of the increased mortality among women may be mentioned the increased number of women who have gone into business and the lack of a sickness insurance among household servants. The results of the institutional treatment will be more striking during the next decade. The significance of the sanatorium treatment in Berlin has become evident only since 1907. Furthermore, it is only recently that the method has been introduced of repeated sanatorium cures, which has proved to be especially beneficial. The increase of tuberculin therapy is also a hopeful feature.

That the battle against tuberculosis is not entirely satisfactory is the result of the especially unfavorable conditions in Berlin in relation to the number of the sick. In Berlin 4,000 persons die annually of consumption. The mortality rate from tuberculosis in the city is 21 per 10,000, in the remainder of Prussia 16. The main reason for this is the unhygienic mode of living, as the following statistics demonstrate: During the past three years 40 per cent. of the deaths from tuberculosis among those dying at home occurred in people living in single-room dwellings, and 41 per cent. among those in two-room dwellings. The single roomers must be considered as the main source of contagion. With these single roomers who died from tuberculosis there lived 8,229 persons, so that exposure to contagion was extremely great. Furthermore, the tuberculosis cases which died in the hospitals averaged a residence in the institutions of but 45 days, so that the greater part of their illnesses were spent in their homes.

In the condition of home life, therefore, lies a point of attack for further activity in the campaign against tuberculosis. The nursing depots, with their educational work, accomplish much good in this matter. The national insurance statistics work even more effectually, for they control through their single district branches the entire city, and carry out their measures systematically. These measures include regulation of the renting of rooms, disinfection of dwellings on removal to a new home or admission of the patient to an institution, periodic disinfection of the house during the patient's occupancy, and supplying of sputum cups. The city of Berlin seems also to be about to realize a long-standing need. This is a special hospital to care for a great number of advanced cases of tuberculosis. The organization of this hospital is of such importance that it will be taken up on another occasion for special discussion.

THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

(From Our Regular Correspondent.)

MANILA, P. I., March 17, 1910.

AT the close of the eighth and last scientific session of the Far Eastern Association of Tropical Medicine, which was held at Bagnio, March 14, a business session was held which commenced at 11 A. M.

An invitation from His Excellency, the Governor-General of Hongkong, asking that the next meeting, which will take place in 1912, be held at Hongkong was read. The invitation was supplemented by a further invitation from all the medical men of Hongkong. On motion the invitation was unanimously accepted.

Resolutions upon beriberi, opium, plague, quarantine, tuberculosis, and leprosy were then presented to the association by the different committees which had been named to prepare suitable resolutions upon these subjects.

After considerable discussion, the following resolutions were passed:

Beriberi: Resolved, "That in the opinion of this association sufficient evidence has now been produced in support of the view that beriberi is associated with the continuous consumption of white (polished) rice, as the staple article of diet, and the association accordingly desires to bring this matter to the notice of the various Governments concerned."

Quarantine: Resolved, "That the Far Eastern Association of Tropical Medicine, appreciating the benefit which would accrue from concerted sanitary action on the part of Eastern Governments, be empowered officially to approach the following governments, namely: Philippine Islands, Japan, Hongkong, French Indo-China, Siam, Netherlands-India, Straits Settlements, and Ceylon, with the view, if possible, of obtaining their official support on the following lines:

"1. To have a common standard for the term "epidemic" when making reports to or imposing quarantine against each other. We suggest the following definition for consideration: 'Plague, cholera, small-pox, or yellow fever, shall be considered to be epidemic, when, after the first telegraphic report of its occurrence, any weekly report thereafter, shall show the occurrence of an average daily number of three cases.'

"2. To agree to notify each other's territories as infected, only when the infectious disease shall have assumed epidemic proportions as defined above; and automatically to withdraw such notification when the average number of cases for three successive weeks has fallen below the status epidemicus as above defined.

"3. To circulate weekly returns of plague, cholera, small-pox, or yellow fever among each other, and also a telegraphic report on the first occurrence of any of these diseases in a clean port or territory.

"4. To insist on a bill of health being carried by all ships leaving a country declared to be infected, which intend to proceed to the port of another signatory, such bills of health to include a return of infectious disease for the previous 48 hours.

"5. To report by telegram to the country concerned the departure of an infected or suspected ship (as defined by the Paris convention) which may intend to proceed to any port in the territories of another signatory; and to endorse the bill of health of the said infected or suspected ship with a full account of measures taken to disinfect or otherwise deal with the said vessel."

Opium: Report.—"Your committee appointed to consider the opium question regret that the time at their disposal precludes the possibility of giving the subject adequate consideration. They have reviewed the work done and the resolutions agreed on by the International Opium Commission, Shanghai, 1909.

"With these resolutions your committee are in agreement, but it is to be regretted that the paucity of medical commissioners prevented the question being dealt with fully in its medical aspects.

"Any measures which are introduced for the control of opium must be adequate to guard against the danger of secret remedies containing opium and opium derivatives being substituted.

"They would suggest that the delegates from the various countries represented at this conference should be asked to arrange that the regulations controlling the sale of opium in their respective countries, as well as any observations they may care to make on this subject, be submitted to the next meeting of this association in 1912."

Plague: Report.—"In our opinion the only practical measure concerning plague that we can recommend is the advisability of each country represented agreeing to notify to the other countries the occurrence of plague within their borders, the first case by telegram and afterward by weekly returns."

Tuberculosis: Resolved, "That the Far Eastern Association of Tropical Medicine should use its influence to cause the formation of a national anti-tuberculosis society in each political entity represented in the Far Eastern Association of Tropical Medicine. These societies to be formed along the lines of existing anti-tuberculosis societies in other parts of the world, yet revised to facilitate the work under local conditions."

Leprosy: Resolved that. "1. Leprosy is to be regarded as a dangerous communicable disease.

"2. Compulsory notification of all cases of leprosy to the authorities is essential.

"3. Compulsory segregation of all cases of leprosy is necessary and preferably in special colonies constructed for the purpose.

"4. The entrance of aliens afflicted with leprosy into a country must be prohibited."

The election of officers was then held and Dr. John M. Atkinson, principal civil medical officer of the Government of Hongkong, was unanimously elected president. Dr. Francis Clark of Hongkong continues in the position of secretary-treasurer of the association. Dr. Victor G. Heiser was elected vice-president for the Philippine Islands. Sir Allen Perry was elected vice-president for Ceylon. Dr. Vassal was elected vice-president for Indo-China. Dr. Stanton was elected vice-president for the Straits Settlements.

The convention then adjourned *sine die.*

Federal meat inspectors have shown that 2 per cent. of the 56,000,000 hogs in this country a year ago, and valued then at $339,000,000, are affected with tuberculosis.

Progress of Medical Science.

Boston Medical and Surgical Association, May 12, 1910.

Circulatory Failure in the Acute Infections of Children; Causes and Treatment.—J. Howland gives an admirable summary of the literary on this question. In a general way he states that the cause of death is a paralysis of the centers in the medulla; that this is confined primarily to the vasomotor center, and secondarily the respiratory center; that the circulation shows striking symptoms earlier than does respiration, but that respiration ceases first; that paralysis of the vasomotor center is the cause of the circulatory symptoms and that the heart is comparatively unaffected. The author then passes in review the action of the remedies commonly employed. Alcohol when given in large enough doses to produce any effect on the heart causes a lessened efficiency and a weakness of the contractions, and it causes also an inhibitory effect and finally a paralysis of the vasomotor center, exactly what we wish to avoid. Ether is absolutely contraindicated, as it is accompanied by a rapid fall of blood pressure. Strychnine is without effect in circulatory collapse unless enough is given to cause convulsions, and it is denied that it has an effect in the treatment of the low blood pressure in shock. Digitalis has no effect on the vasomotor center. For use on human beings in circulatory failure this drug has the great disadvantage of slowness of action. It takes hours for its effects to follow if it is given by mouth, and we have no reliable preparation for hypodermic use. If the condition for which it is to be given can be foreseen, it may tide us over an emergency. It is to be considered an adjuvant to other remedies. Caffeine is probably the best vasomotor stimulant we have. Camphor is also useful. We may raise the pressures also by increasing the peripheral resistance. For this purpose we may employ infusion of salt solution and the injection of adrenalin. Infusion will act only as long as the increased amount of fluid is contained in the arteries and the pressure sinks when the abdominal veins still further dilate. From the knowledge at present available it seems that the continuous use of cold air, the use of caffeine and camphor reinforced by digitalis, with infusions of salt solution and the careful, not too often repeated, use of adrenalin are our best methods to combat this dangerous condition.

Some Observations on the Late Results Obtained by the Submucous Resection of the Nasal Septum.—O. A. Lothrop has reported on the late results of 59 cases of this operation. He considers it as beneficial in almost every case. The greater the septal deflection, the more definite will be the improvement. To ensure the best results the operation must be thorough and complete and all thickened and deflected portions of the septum must be removed, particularly the vomer ridge and the perpendicular plate of the ethmoid high up opposite the middle turbinates. If careful attention is given to these points the flaps of mucous membranes will approach nearer the middle line. Drainage from the middle turbinate region is facilitated and greater space on the convex side is obtained. If turbinectomy is indicated it can be then limited to the larger turbinate on the concave side. If there is insufficient space between the septum and the larger turbinate when the septum is brought to the median line, a judicious trimming of the turbinate will prove efficacious. This may be done either before the operation on the septum and allowed to heal, coincidently with it or subsequently. If there is any laceration of the septal mucosa on that side it should be allowed to heal before the turbinate is trimmed or cauterized lest synechia form later. The operation should not be attempted before the nose has obtained full development. However, trimming of the turbinates and plastic operations in children may not be contraindicated. An incomplete operation renders subsequent attempts difficult and unsatisfactory. Perforations are undesirable and they may cause crusting. No whistling was found in the author's cases. Crusting is not relieved in cases of atrophic rhinitis. Correction of external deformities may be combined with the resection operation.

New York Medical Journal, May 14, 1910.

Molluscum Contagiosum.—F. D. Knowles reports ten family epidemics and forty-one cases in children. He says that in reviewing the literature and taking into account his own cases there seems but little doubt but that the disease is contagious. In approximately 25 per cent. of the patients, a history of contagion can be elicited, in the direct family, the household, or from intimate friends.

Children are more frequently attacked by the disease than adults. In a great majority of the cases the face is attacked, especially in the vicinity of the eyelids, either alone or in combination with other portions of the body. Most cases have but a few lesions. In those cases in which there are a large number of mollusca the trunk and the extremities are the areas usually attacked, frequently exclusive of the face.

Caloric Method of Infant Feeding.—S. A. Blauner says that the percentage method finds its widespread support in the fact that it attempts to make the proportions of the three important elements of cow's milk, correspond as closely as possible to that of breast milk; and that it succeeds in this important phase of the problem, there can be no doubt. But, unfortunately, it has missed one other important truth of infant feeding, in that it does not consider the child's actual volume requirement; and it is this element that the caloric method tries to supply. The percentage method recognizes the importance of making cow's and breast milk as similar as possible, and insists upon its absolute necessity, in order to preserve the child's digestive powers. But, in doing so, it seems to feel that the child lives only for its digestion, and not that the digestion is only a means of supplying the child's energy value. The caloric method recognizes and adopts the value of diluted milk, and also, like the percentage method increases the carbohydrates of this diluted milk to equal that of mother's milk. The percentage of sugar of mother's milk being 7 per cent., in a liter there will be 70 grams, and to increase the sugars of the diluted artificial milk to contain that amount, it will be necessary to add to the diluent of one-third milk, 8 per cent.; of one-half milk, 10 per cent., and of two-thirds milk, 12 per cent., and their respective caloric value will be: One liter of one-third milk, 400 calories; liter of one-half milk, 500 calories; liter of two-thirds milk, 600 calories. This may appear rather complex, but if simplified to a system, all that is necessary to be remembered is: (1) Age of child and its weight, and the computation of its caloric need by multiplying its weight by either 80, 90, 100 calories, depending, of course, on its age. (2) To remember that a liter of one-half milk with 8 per cent. addition equals 400 calories; one-half milk with 10 per cent. addition equals 500 calories; two-thirds milk with 12 per cent. addition equals 600 calories, and full milk equals 650 calories. Is the administration of milk by this method any more difficult than by the percentage method? Surely not. In fact, it is a saving of both time, labor, and expense to both mother and physician, and once we get into its routine, it is surely surprising how quickly we can prescribe any strength of milk for any infant, and how quickly the mother comprehends its execution. An illustrative computation is given.

Acute Anterior Poliomyelitis.—J. W. Cokenower considers this disease from the standpoint of etiology and the best treatment to prevent deformities, that result. He says that a faulty milk supply, period of dentition, hot weather, etc., suggest autointoxication following gastro-enteric disturbance as a possible cause. The disease is undoubtedly contagious. The conclusions to be drawn as to etiology from the literature of the disease do not warrant the statement that any one cause produces the disease, but many, because various degrees and kinds of illness often precede the attack, such as malaise, headache, loss, of appetite, varicella, measles, scarlet fever, cholera infantum, otorrhœa, and many other diseases incident to child life. Hence, the disease may be the clinical expression of the reaction of the spinal cord to one of the several causes, of which infection may well be considered one. At present we must observe, study, and collect material, remembering that we may be dealing (1) with a specific infectious disease, (2) with an infection due to one of several organisms, or (3) with a disease of more than one origin, not always necessarily infectious. The physician perceives plainly that his patient is suffering from an acute infectious process of some kind, but he is surely to be pardoned if he fails to appreciate its true nature, for until paralysis makes its appearance no pathognomonic symptoms are seen. Disability from this disease is seen almost ten times as often in the lower as in the upper extremities, and yet in the early stage the paralysis is found in all parts of the motor system, and in the recumbent position we find it absolutely favorable to spontaneous recession of the paralysis. The arms and hands retain this advantage when the patient is erect, but the impaired muscles of the legs and feet give way at once when they meet the weight of the body, and become attenuated and elongated, and could not be put in a position more damaging to them, and the result is plainly seen in all kinds of club foot, short tendo-Achillis, anterior muscles of the thigh, and flail joints. Therefore, if in acute anterior poliomyelitis we can by means of a recumbent position give to all the muscles alike the same opportunity for spontaneous recession of the disease in them, we will not see ten times as many deformities in the lower extremities, as we do in the upper, and the number of deformities from this disease will be materially reduced. Another treatment in this disease, when it has taken on the chronic form and the deformity is well marked, which has proved very satisfactory in his practice, is repeated plaster casts at short intervals, while the patient is under an anesthetic and muscles and tendons easily stretched.

Journal of the American Medical Association, May 14, 1910.

Acute Visceral Perforation.—B. B. Davis advises prompt treatment in any case of visceral perforation or in which there is strong suspicion of its existence. In every acute abdominal pain the possibility of perforation of some part of the alimentary canal should be considered and the patient should not be dismissed until the possibility of such an accident can be definitely excluded. If the symptoms point rather definitely to perforation, but there is still some doubt as to diagnosis, an exploratory operation is safer than delay. Shock is no contraindication to operation, which should be as expeditious as possible, only necessary work being done and artistic ideals being left for less urgent conditions. Davis thinks that appendiceal perforation is more frequent than is generally supposed, but, as in gall-bladder perforations, there is some protection by adhesion, though unfortunately these are not always life-saving.

Acid-Fast and Semi-Acid-Fast Tubercle Bacilli.—L. J. Tint and L. Breskman say it has been questioned by some whether acid-fast bacilli demonstrable in the sputum are always significant of tuberculosis of the respiratory organs, and ask, if not, of what are they significant. They give their experience and the difficulties they have encountered in the examination of an average of 2 sputa a day for a year past in the Pennsylvania Hospital, describing the methods and technic employed, and tabulate their results as regards the proportions of resisting, semi-resistent, and decolorized forms found with each acid or reagent used. Inoculation experiments on guinea-pigs were also performed with the cultures and tuberculosis produced. The following points are enumerated by them as worthy of further investigation: "1. The acid-fast property of the tubercle bacillus increases with the age of the culture. 2. In old cultures, isolated bacilli are found which are non-acid resisting, and these bear a relationship to the acid-resisting forms. 3. The number of acid-non-resisting forms and the acid-semi-resisting forms are relatively increased in young cultures. 4. In very young cultures, mostly acid-non-resisting, more semi-resisting and very few acid-resisting forms are present. 5. The semi-resisting forms when removed from the decolorizing fluid, and placed in a solution of methylene blue of definite strength, will gradually assume that color in proportion to the time that the slide was left in. 6. No single decolorizing agent, at present employed will stain uniformly all bacilli that cause demonstrable tuberculous lesions. 7. No decolorizing agent at present employed in tuberculous lesions of the examination of any tuberculous material is efficient enough to bring out the presence of acid-non-resisting forms. This is brought out by the work of Much, Terebinsky, Michaelides, Ferran, Duval, and others. 8. Acid-non-resisting forms have been demonstrated in tuberculous lesions of the lymphatic system by Much, Terebinsky, and Duval; also in cavities of lung, and in sputum by eminent observers. Such forms were demonstrated by cultural methods when they were not demonstrated by staining methods."

Tuberculous Adenitis.—C. L. Leonard recommends the Roentgen-ray treatment as the most effective method of treating tuberculous adenitis in all its varieties, affording the best cosmetic as well as permanent results. If taken early, scars are completely avoided, which is an important consideration, especially in young women who are often subject to the disease. The treatment is harmless and painless but must be adapted to the individual. If too weak there will be no progress and if pushed too far it may be hurtful. It also has an effect, he thinks, in raising the opsonic index and in producing an autogenous vaccine or antibodies which pass through the patient's system and effect tuberculous lesions at a distance and produce an immunity. The treatment is not confined to the earlier stages though it is in these that the best cosmetic results are obtained. Old scars, however, can be softened and reduced and recurrence after operations of persistent

ulcerations or sinuses can also be thus treated. Medical measures, tonics, etc., tending to increase the bodily vigor and resistance can also be used at the same time. Two cases are reported.

Transurethral Operation.—H. A. Kelly advocates the use of the cystoscope in removal of calculi from the bladder in women, and reports a case of operation on calculus impacted in a diverticulum of the viscus. He thinks that it will be possible in the future to treat almost all calculi found in diverticula in this way, *i.e.*, (1) by exposing the diverticular orifice through an open speculum; (2) by cutting the sides, so as to open the cul-de-sac, with an electrocautery; (3) by extracting the calculi with forceps; (4) by examining thoroughly the interior of the cavity through the cystoscope. He says that there is no reason why a variety of operations should not be done in a simpler manner through the open tube of the cystoscope instead of through a bloody suprapubic or transvaginal incision. The method is applicable to the male as well as to the female bladder.

Heat Spasm in Cooks.—L. Clendening writes of the occurrence of muscular spasms, similar to those described as occurring in persons exposed to intense heat, observed in cooks employed on Pullman dining cars. His patient was a negro, aged 64, who had worked considerably on such cars and said that the condition was familiar to him and to all others in like situation. The heat in the kitchens of these cars during hot weather sometimes rose to 150° F. and he had known of one death from this cause. On inquiry, while Clendening finds that the condition is well-known among Pullman chefs, it is not familiar to those who work in the better ventilated kitchens of hotels, restaurants, etc. He has not seen it mentioned as occurring in cooks in the literature of the subject which he has examined.

The Lancet, May 7, 1910.

The Bacillus Influenzæ and Symbiosis.—R. W. Allen refers to his studies of the last few years, noting that as he has previously stated, the great majority of cases of influenza (so-called) are not really such, but instances of infection by the pneumococcus. He finds that so long as the infection remains in a truly chronic condition no dissemination by means of contact seems to occur, but as soon as the climatic conditions determine the lighting up of an acute attack, the carrier becomes a source of infection to all around him. With regard to a vaccine therapy under the circumstances, the author says that the establishment of an immunity against this disease is very difficult. Large doses are necessary before the patient begins to improve. In such cases would the better way be to attack the symbiotic bacteria and exterminate them? The author is satisfied in his own mind that the good results reported as having been achieved in some cases of pyorrhea alveolaris have been brought about in this way, and he cannot help feeling that a thorough investigation of the relationship, one to another, of the *Bacillus tuberculosis* and the secondarily infecting organisms in pulmonary tubercle will point the way to a more satisfactory method of treatment.

Cerebellar Abscess and Acute Suppurative Labyrinthitis; Differential Diagnosis.—J. Harper refers especially to the matter of nystagmus and says that there are three chief tests on the labyrinth by which the nystagmus is brought about, the caloric, the rotatory, and the galvanic. He regards the caloric as the most valuable. It is practically the only one which can be applied to bed patients. Let us imagine, says he, a strong rotary nystagmus to the right and that it is the right ear that is diseased. With the patient lying on his back, sterilized water at 21° C. is allowed to flow in through the external meatus. If after a lapse of from 12 to 60 seconds we do not get a nystagmus to the left and the nystagmus to the right is not lessened, this nystagmus to the right must be due to some intracranial condition. The absence of the right caloric reaction shows that the right canals must be already destroyed, and that they are no longer capable of sending impulses, and again, if all this spontaneous nystagmus were due to the destruction of the right canals, it would be to the left and not to the right, and thus we can settle the point that the nystagmus is not due to any labyrinthine condition. But should the patient have rotary nystagmus to the left and not to the right, we can again apply the caloric test, but in this case the water must be at a temperature of 39° C., since we wish, if possible, to create a nystagmus to the right. If we find the function of the labyrinth remains, even though it is impaired to some extent, we must diagnose suppuration of the labyrinth and not cerebellar abscess, but should this spontaneous nystagmus not become less after four or five days we must diagnose cerebellar abscess in addition. Indeed, we may say, as a general rule, that should the patient have a strong rotary nystagmus to the right or left, and if on application of the caloric test the right canals are found capable of being irritated and if this nystagmus does not get less as time goes on, then it is evident that the case must be intracranial.

The Use of Solid Carbon Dioxide.—E. R. Morton gives his personal experience with this remedy. His statements contain nothing new to American readers. Most of his cases were nevus cases, of which he has treated 208 growths occurring in 167 patients. Of these 134 were capillary, 121 being cured by a single application; 51 were cavernous, 33 being completely cured; with port wine mark cases the results were less satisfactory. Results were good in seven cases of lupus vulgaris, and in moles and warts success should always result. Care must be taken to avoid sepsis after extensive applications.

Berliner klinische Wochenschrift, April 18 and 25, 1910.

The Function of the Hypophysis and the Action of the Extract on Animals.—Franchini, as the result of animal experimentations with the hypophysis and its extracts, finds that administration of an extract of ox and horse hypophysis produces marked metabolic changes, especially in the inorganic elements, causing particularly a decrease of calcium, magnesium, and to a lesser degree of phosphorus. In the circulating blood it causes an increase of calcium and magnesium. The extract administered to rabbits only exceptionally causes glycosuria. Besides its toxic action on guinea-pigs and rabbits, the extract has an especial influence upon the intestines, producing ulcerations and hemorrhages, which appear to be due partly to changes in the vessels and partly to alterations in the trophic nerves. The greatest toxicity is produced by intravenous injection, but is also present following subcutaneous or gastrointestinal administration. Digestion *in vitro* to a certain degree weakens its toxicity. The anterior lobe, isolated from the epithelial covering produces, even in large doses, but slight lesion, but causes death if the epithelial layer which covers the posterior lobe is attached to the anterior lobe. The posterior lobe, isolated, has a special action on metabolism and on the vessels and organs of the abdomen and pelvis. In the isolated posterior lobe there is a substance which produces mydriasis in the frog's eye, but gives no other adrenalin reaction. This is not present in the isolated anterior lobe, but appears to be in the epithelial layer, but to a lesser degree than in the posterior lobe. The serum of animals which have been injected with the extract of the posterior lobes produces mydriasis, a phenomenon obtained very rarely with the extract of the isolated anterior lobes, but somewhat more frequently when the latter is combined with the epithelial layer.

The Prophylaxis and Therapy of Caisson Disease.—J. Plesch discusses the theory of the causation of caisson disease on the premise that it is due to the absorption of nitrogen in proportion to the increased pressure following physical laws. He says that the chief factor in prophylaxis, besides slow decompression, is the proper selection of the workers. There are six groups of individuals which it is of especial importance to exclude from the high pressure work: (1) Fat Men; (2) men with heart weakness, vasomotor weakness, as hysteria and neurasthenia, or arteriosclerosis; (3) chlorosis, primary or secondary anemia; (4) persons with disease of the central nervous system; (5) edematous individuals and nephritics without edema; (6) persons with ear affections.

Feeding Experiments in Tumor Rats.—F. Medigreceanu calls attention to a previous finding that mice and rats who had either spontaneous or inoculated tumors had livers somewhat larger than normal animals of the same weight. On the theory that this might be due to an increased amount of food eaten as a result of the nutriment requirement of the growing neoplasms he undertook a series of experiments on normal and tumor rats to see whether the latter ate more than the former. The method consisted of careful weighing of the animals before and after meals of a constant quality. He was unable to demonstrate any increased ingestion of food on the part of the inoculated rats in comparison to the normal. The total weight of the animals during the early period of tumor growth increased more rapidly than in the controls, but during the later periods of the disease it decreased. There was a decrease in the appetites of the tumor rats during the later period. From these findings it may be stated that the hypertrophy of the liver in tumor rats is not rue to increased ingestion of food.

Münchener medizinische Wochenschrift, April 12, 19, *and* 26, 1910.

The Treatment of Peritonitis with Camphor Oil.—Hirschel reports nine cases of advanced purulent peritonitis treated with a 1 per cent. solution of camphor in oil, of which five recovered and four died, a mortality of 45 per cent. The operation consists in making an incision, searching for the seat of perforation, and sewing it up. Then the pus is sopped up very carefully with dry or moistened gauze throughout the entire abdomen, and removed as far as possible. This may be accomplished with the hand or with a sponge stick. Douglas' sac is carefully dried out. The whole cleaning process must be done rapidly. After this superficial cleansing of the peritoneum from 100 c.c. to 300 c.c. of the warmed 1 per cent. camphor oil is injected, and, with the hand covered with gauze, is spread over the whole peritoneum, between the intestines, and in Douglas' sac. As a rule a counter incision is made in the left lumbar region, the peritoneum is drained by numerous drains the size of a finger, the root of the appendix or the neighborhood of the perforation is packed off, and the incision partially closed.

An Albumin Reaction in the Blood in Psychoses.—Geissler has found circulating in the blood serum of patients with melancholia and catatonia, a material which is not present in the healthy. This material is apparently an albuminoid substance, and is antagonistic to the serum of those of normal mentality. The substance which circulates in the blood of melancholia is only in part similar to that found in catatonia. The material may be recognized by the precipitative reaction. Normal sera and sera of bodily diseases and other psychoses do not supply the antigen for the reaction. The hemolysis reactions make possible the diagrams of these two psychoses only. Further investigation is desired.

The Influence of Acute Febrile Processes Upon the Tuberculin Reaction.—A posthumous report of the work of H. Krannhals upon this subject is given. The first set of observations were of the opthalmoreaction during typhoid fever in 158 cases. In all there were 251 instillations, of the 140 during the fever 16.4 per cent were positive while of the 111 during convalesence, 43.3 were positive. Of the 93 cases tested both during the fever and during convalescence, 13 were positive during the febrile period, and 40 during convalescence. The cutaneous test was made in 133 typhoid cases, 202 times. Of the 111 vaccinated during the fever, 32.5 per cent. were positive; of the 91 during convalescence 82.5 per cent. Of the 69 cases vaccinated both during the fever and afterwards, 24 were positive in the febrile period, and 56 during convalescence. In 154 conjunctival tests made in cases of relapsing fever, 29.2 per cent. were positive during the attacks, and 32.0 per cent. during the intervals. Of 189 of cutaneous tests made in 130 cases of relapsing fever, 35.3 per cent. were positive during the attacks, and 76.2 per cent. during the interval.

The Value of Fulguration in Gynecology.—Richter reports his results in using the Keating-Hart method of fulguration in 45 cases of pelvic cancer. Twenty-eight cases were treated once, 11 were treated twice, 3 were treated three times, and 3 four times. The first cases were treated under chloroform narcosis, later with lumbar anesthesia, and finally without anesthetics. The immediate effect of the fulguration was relief of the pain, explained by loss of blood and reduced pressure, control of hemorrhage, from the hemostyptic action of the spark, and cessation of suppuration. The final results of the experiments warranted the following conclusions: (1) From fulguration one cannot hope for lasting benefit, but the palliative effects are excellent. (2) As the spark may be used in breaking down cancer of the uterus without an anesthetic, the method is an improvement over cauterization. (3) The fulguration relieves the pain for a considerable time, stops the hemorrhage and prevents the discharge. For these purposes it is best to combine it with the acetone treatment.

The Means by Which Mercury in the Treatment of Syphilis Acts on the Serum Reaction.—August Brauer says that there are theoretically three possible ways in which mercury may act to prevent the occurrence of the Wassermann reaction; the mercury may act to make the serum hemolytic; it may destroy or paralyze the complement binding substance in the serum, or it may prevent the production of the complement binding substances by acting directly upon the virus. As a result of a series of experiments the author finds that there is no relation between the amount of mercury excreted in the urine, which may be taken as a measure of the amount absorbed in the tissues, and the serum reaction; the reaction may be positive when the mercury excretion is high and negative when it is low or even nil. A previously negative reaction may become positive in spite of a moderate or even large amount of mercury in the blood. A reaction which has become negative as a result of treatment may again become positive although mercury is continued. The mercury present in the serum of a syphilitic under treatment is not able to destroy or paralyze the complement binding substance in the serum of an untreated syphilitic. Clinical experience shows that both in early and late syphilis the effect of mercury treatment upon the Wassermann reaction is most variable. The mercury content of the organism has no direct influence upon the serum reaction. Mercury has only an indirect influence upon the Wassermann reaction because its action is directly upon the virus of syphilis and not upon the complement binding material.

Deutsche medizinische Wochenschrift, April 14 *and* 21, 1910.

The Shape of the Pathological Stomach.—Groedel, as a result of *x*-ray examination of the human stomach, says that one is not able to determine the character of the disease by the position of the pylorus or the fundus. There are cases with no gastroptosis but a pyloroptosis which is evidenced by the movability of the pylorus. There are cases, as a rule a result of overloading and dilatation, which are recognized by the lengthening of the stomach, the decrease of the angle, and the small size of the stomach, which may be falsely considered to be cases of gastroptosis owing to the low position of the fundus. In atonic ectasia (atonic widening finally combined with lengthening) the lower part of the organ is stretched by chyme, the upper portion by air; between the two there is a narrowing. In megalogastrica (lasting dilatation of the stomach fixed by muscle hypertrophy) the food collects in the lower part of the organ with its horizontal upper border in the lower part of the fundus; the angle is not visible. This is caused by pyloric stenosis.

The Nature and Treatment of Hysteria.—Romberg says that hysteria may be considered to be a congenital pathological lesion of the associations. Close relations are easily broken. For a longer or shorter period the coordination of a greater or smaller number of associations is destroyed. The character and the duration of the defect determine the character of the hysteria. For the explanation of the irritating symptoms of the attack, one must look for a weakness of associated actions of which the inhibitory power is lost. Possibly there may be besides the easy loss of association, an increased activity. By this the irritative symptoms may be explained. Certain definite psychic peculiarities in hysteria suggest such a process. In the treatment of hysteria it is above all things imperative to recognize the discomforts and troubles as real. It is wrong to urge the patient to the exercise of the will. Besides the general treatment, the most necessary thing is the influencing of the individual complaints. The treatment of hysterical diseases by surprises and by neglect is discussed. Hypnosis and psychoanalysis are mentioned. The personal cooperation of the physician is a most favorable plan of action. The physician must keep away from everything suggesting mysticism in treating hysteria.

Comparative Study of the Wassermann Reaction, Lymphocytosis, and the Globulin Reaction in Diseases of the Nervous System.—Arthur Wolff says that these three tests are valuable aids in the differential diagnosis of neurological conditions. Of the three the globulin reaction is of the most practical value, for, though it does not occur with absolute constancy and its presence alone is not definitely diagnostic, it is diagnostically especially useful because in contradistinction to the complement binding and lymphocytosis, it appears always to be negative where there is only a syphilitic history without the presence of para- or meta-syphilitic nervous diseases. If syphilis is ruled out, we may from the behavior of the lymphocytosis and the globulin reaction, taken in connection with the clinical picture, draw definite conclusions for differential diagnosis between organic and peripheral or functional nervous affections in so far as positive findings suggest the former and negative findings the latter. This is especially valuable in the incipient cases of tabes and paresis. The absence of this complement binding reaction in lumbar puncture fluid is of but little value as it is often negative in tabes and paresis. Complement binding, lymphocytosis, and the globulin reaction may occur in cases of the so-called periodic vomiting which gives evidence of the central cause of this disease.

Book Reviews.

Girl and Woman. A book for Mothers and Daughters. By Caroline Wormeley Latimer, M.D., M.A., with an introduction by Howard A. Kelly, M.D. Pages 8 to 381. New York and London: D. Appleton & Co., 1910.

There is need for a book written by a woman for the use of women, which shall describe accurately and fully many things which they should know concerning what may be termed "the physiology of femininity." The essays here presented in book form were published originally in a popular magazine read widely by women, and are on the whole interesting and instructive. Dr. Latimer discusses the physical, mental, and moral disturbances of girlhood, the facts of menstruation and reproduction, the life of the girl at school, her life after leaving school, and the importance of the proper care of the body, exercise, rest, and sleep. Her recommendation as to the use of chloroform in acute ear conditions, however, is scarcely wise, and she does not, as we think, warn sufficiently against the harm which may result from chronic ear discharge, but with these exceptions the book can be highly recommended.

Treves' Operative Surgery. A Manual of Operative Surgery. By Sir Frederick Treves, Bart., and Jonathan Hutchinson, F.R.C.S. In two octave volumes. Volume I, New (Third) Edition. Philadelphia and New York: Lea and Febiger, 1909.

The present edition of Treves' well-known manual has been completely revised by his colleague, Jonathan Hutchinson. Among the changes necessitated by this revision and in accordance with the great advances which have been made in the science, is the grouping of all the abdominal operations in the first volume. A considerable number of illustrations have been added and also a special series of color plates to elucidate the anatomy of various important operations. These were drawn especially for the work from dissections in the Museums of the Royal College of Surgeons and the London Hospital Medical College. The first part of the book deals with the general principles of surgery, including chapters on the patient, the surgeon, technic, the elements of operative surgery and the after treatment of the wound. These introductory chapters contain a great many valuable features which are often omitted from the larger surgical manuals as being too trivial in character and yet are of considerable importance. Thus, an excellent description is given in the chapter on the "condition of the patient," of the various factors which enter into and affect the results of an operation. In describing the preparation of the patient's skin before operation and also at other places, reference to the frequent use of carbolic solution (1:20) will probably attract the attention of the American operator. The second portion of the book is concerned with the surgery of the entire abdominal cavity, including that of the male and female generative organs and also of the rectum—a separate chapter being devoted to an account of the excision of the latter organ. Although operations on the female genitals are claimed by general surgeons as part of their field, their description in surgical manuals is rarely sufficiently satisfying or complete. There is too much to be said about the lesions which occur in the female pelvis to be included in a few chapters of a general textbook or manual of surgery. The work, as a whole, however, remains a valuable contribution to medical literature and will undoubtedly continue to merit the well deserved attention which has been extended to it since its first appearance almost twenty years ago.

Textbook of Diseases of the Ear. By Macleod Yearsley, F.R.C.S., Senior Surgeon to the Royal Ear Hospital, London. Chicago: Chicago Medical Book Co., 1908.

This volume strikes one as exceedingly practical and helpful, not only for the general practitioner, but to refresh the mind of the specialist and increase his interest in the more exhaustive study of otology found in other works. Dr. Yearsley shows the importance of chronic middle-ear discharge, and deprecates the folly of those doctors who tell the patient that "he will outgrow it." Sixty-three pages are devoted to the influence of general diseases upon diseases of the ear, and this chapter, considering the great neglect of this important matter, is one of the most interesting and helpful in the volume. Some of the general diseases which he mentions and fully details are scarlet fever, diphtheria, syphilis, meningitis, epilepsy, heart disease, adenoids, tonsillitis, pneumonia, diabetes, myxedema, and disorders of the teeth, stomach, and liver. The author's recommendation of the use of peroxide of hydrogen in the treatment of chronic discharge may not be concurred in by all otologists, for its use is attended with danger, but his recommendation of pilocarpine in cases of labyrinthine deafness following parotitis seems a good one and is worthy of trial. The last chapter contains some wholesome advice to the otologist brought into court as a witness, and the pages dealing with life and accident insurance contain some useful hints. The author has written a systematic and accurate essay, which, while sufficiently complete, is not unduly exhaustive. He has supplied a large bibliography in his footnotes, and his volume is altogether satisfactory. The type and illustrations are of excellent quality.

Physiology of the Special Senses. By M. Greenwood, Jr., M.R.C.S., L.R.C.P., F.S.S.; Statistician to the Lister Institute of Preventive Medicine; Director of the London Hospital Statistical Department; Late Senior Demonstrator of Physiology in the London Hospital Medical College; and Examiner in Physiology to the University of St Andrews. New York: Longmans, Green & Co.; London: Edwin Arnold.

This is a very readable little volume on the physiology of the special senses. It is intended for two classes of readers: for students of psychology, who may desire more information on this subject than is usually found in psychological textbooks; and for students of physiology as a bridge between the ordinary textbooks and original memoirs. For the first class of readers the book seems to be admirably adapted. The other class will find it useful as a companion to any of the more modern and complete textbooks, and as a guide to collateral reading; but we do not think that it is much in advance of what our best physiologies contain. At the end of each chapter are references to works which are, as a rule, easily accessible. Two-thirds of the book is concerned with vision, and the remainder is about evenly divided between the other senses.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia. Assisted by H. R. M. Landis, M.D., Assistant Physician to the Out-Patient Medical Department of the Jefferson Medical College Hospital. Philadelphia and New York: Lea & Febiger, March 1, 1910.

The present issue of this valuable publication contains chapters on surgery of the head, neck, and thorax, by C. H. Frazier; infectious diseases, including acute rheumatism, croupous pneumonia, and influenza, by J. Ruhräh; diseases of children, by F. M. Crandall; rhinology and laryngology, by D. B. Kyle; and otology, by A. B. Duel. It will be noted that Dr. Ruhräh of Baltimore now contributes the section so ably supplied for many years by Dr. Preble of Chicago.

Anatomy and Physiology for Nurses. By Leroy Lewis, M.D., Surgeon to and Lecturer on Anatomy and Physiology for Nurses at the Lewis Hospital, Bay City, Michigan. Second edition, revised and enlarged. Philadelphia and London: W. B. Saunders Company, 1910.

The first edition of this book was noticed at some length in the Medical Record of January 6, 1906; it is therefore only necessary to say that this new edition contains an extra chapter on the male organs of generation. For the rest, we can only repeat that in many places the statements in the book are indefinite and inaccurate; and that considerable further revision is necessary before the volume can be recommended to nurses.

The Conquest of Disease through Animal Experimentation. By James Peter Warbasse, M.D.; Surgeon to the German Hospital, Brooklyn, N. Y.; Member of the American Medical Association, American Association for the Advancement of Science, etc.; Author of "Medical Sociology." New York and London: D. Appleton & Company, 1910.

This little book gives in concise form the debt of medicine to animal experimentation. After describing the various procedures used in the medical laboratories and showing the care which is taken to reduce suffering to a minimum, the author devotes separate chapters to the advances which have been made in physiology, medicine, hygiene, surgery, and the diseases of the lower animals by the use of animals for experimental purposes. In his concluding chapter he expresses in plain words his opinions of the sentimentalists who are striving to interfere with the advance of the healing art. The book is written for the laity, but should in these troublesome times be read by every physician also. It is full of facts which may at any time be useful as arguments to be used against the antivivisectionists.

Society Reports

ASSOCIATION OF AMERICAN PHYSICIANS.

Twenty-fifth Annual Meeting, Held in Washington, D. C., May 3, 4, and 5, 1910.

PRESIDENT, DR. HENRY HUN OF ALBANY, N. Y.

(Special Report for the MEDICAL RECORD.)

First Day, Tuesday, May 3.

The President's Address.—Dr. HENRY HUN of Albany, N. Y. said that the association had lost one from each of its classes of membership: emeritus, Dr. Andrew H. Smith; active, Dr. Wharton Sinkler; and honorary, Dr. J. Allison Scott. This was a fitting time to look back over a quarter of a century and seek for suggestions to guide the future and to judge how fully they had been able to fulfill that inspiring prophecy of Dr. Delafield's, made at the first meeting when he said: "We want an association composed of members, each one of whom is able to contribute something real to the common stock of knowledge. We want a society in which we can learn something, to which we may come year after year with the well-founded hope that at each meeting we shall find something to learn." Membership to-day still remained a high honor and privilege to be obtained only by scientific achievement. The selection of worthy candidates was a difficult and disagreeable task, but the good had to be selected and the less fit rejected in spite of the promptings of friendship or self interest. Their membership was practically full and there was a long waiting list. They had been no less successful in their scientific work than in their selection of members. Many papers were offered each year and this was an expression of the vigorous life of the association. He was convinced that it was necessary: (1) To limit the contributors to actual members, unless in very exceptional cases; (2) to have the essentials of each paper presented in as brief abstract as was compatible with clearness; (3) to promote full discussion; and (4) to extend the meeting over sufficient days or sessions to permit the presentation of every paper offered. The social side of these meetings was of great influence and value. Washington offered so many attractions that they lost touch with their members and he hoped that the experiment might be tried of holding their meetings occasionally in Atlantic City where they could live together and be in constant communication with one another. Dr. Hun said the association had given him the privilege of serving as its secretary for twenty-one years.

Observations on the Etiology of Subacute Infective Endocarditis.—Dr. E. LIBMAN and Dr. H. L. CELLER of New York presented this paper. They had had unusual opportunities during the past eight years of making studies in 43 cases of subacute infective endocarditis. Blood cultures were made during life in 36 of the 43 cases. Twenty-nine of these cases had been seen since 1906 and this seemed to show that the disease was being recognized more frequently than formerly. The duration of their cases had varied from four months to a year or a year and a half. In nearly all cases the disease began insidiously. Fever was present in all cases; sweats occurred in nearly all cases; malaise and gastric or intestinal disturbances were frequently present. There was a progressive weakness and emaciation in all the cases. The spleen was nearly always enlarged and palpable. Pains were quite a constant feature; in some cases they were localized in the bones, joints or muscles, in others they seemed to be aural in origin. At times the pains were due to the development of embolic aneurysms. The painful erythematous cutaneous nodules seemed to be pathognomonic. One symptom present in nearly all cases to which no attention had been paid was tenderness of the lower part of the sternum. The progressive anemia and the color of the face were noteworthy features. None of the cases recovered and autopsies were performed on nineteen cases. In fifteen of these blood cultures had been made during life. The lesion was vegetative, not ulcerative in type. When the aortic valve was attacked, there was a marked tendency for the process to spread down and to involve the wall of the ventricle, the ventricular surface of the aortic flap of the mitral valve, and the chordæ tendineæ. The latter were often torn. In ten cases the mitral valve alone was involved. Both valves were affected seven times. In six of these auricular endocarditis was present. When the mitral valve was involved, lesion of the auricle practically always occurred. As a rule the vegetations contained innumerable organisms. In all 103 examinations were undertaken; in thirty-five cases typical cocci were found; in one case the influenza bacilli were found. The number of colonies varied from two colonies in twenty-five centimeters of blood to 500 in one cubic centimeter. They had investigated nineteen strains of pneumococci, sixty-nine of streptococci, and twelve of *Streptococcus mucosus*. They had reached the following conclusions: 1. The type of capsule of the pneumococcus and that of the *Streptococcus mucosus*, as described by Buerger, were diagnostic. All organisms presenting such capsules were dissolved by bile. 2. Solution by bile was diagnostic of the pneumococcus and the *Streptococcus mucosus*. This latter organism was easily distinguishable by its type of capsule and certain other features. 3. The absence of precipitation spoke almost absolutely against an organism being a streptococcus. 4. The fermentation of inulin was not of pathognomonic value. This property might be absent and, furthermore, streptococci occasionally gave a positive result. 5. The ring colonies were diagnostic of the pneumococcus. 6. The growth in the blood plates gave the following results: (a) A definite, large, perfectly clear zone about a colony was diagnostic of streptococci if it was found to persist in several generations. Incomplete clearing was of no diagnostic value, nor was a linear clearing. The clearing might occur in concentric rings. (*b*) Pneumococci always grew green. An organism not productive of a green color always proved of further study not to be a pneumococcus. The conclusions they arrived at in the study were based on the following findings: 1. Type capsules were found on all nineteen pneumococci studied, either in the original material obtained from the patient or in cultures. All the organisms were dissolved by bile. Type capsules were found on all the strains of the *Streptococcus mucosus*. Of sixty-nine ordinary streptococci, thirty-two had capsules. 2. All of the streptococci precipitated. Of nineteen pneumococci only two precipitated; these two had been in bile and did not precipitate in the second generation. Of twelve strains of the *Streptococcus mucosus*, one precipitated for four generations and one for two generations. 3. Of nineteen pneumococci, all fermented inulin except two; with these two a slight result was obtained by passage through two mice. The strains of the *Streptococcus mucosus* all fermented rapidly. Of the sixty-nine streptococci, two fermented inulin; one lost the property in the second generation and also after passage through one mouse. The other lost the property after passage through two mice. 4. On blood media, all but eleven of the streptococci grew in fine grey colonies surrounded by an absolutely clear zone. Of the eleven exceptions, seven gave a good white, moist growth without any clear zone, three grew green like the pneumococcus and one gave an almost colorless dry growth with no clearing. The cocci found in cases of subacute and chronic infective endocarditis during the past few years were all Gram-positive; they had never been found

to have a capsule. They were either round, ovoid, lancet-shaped, or bacillary in form, and might be found in diplococcus form, in groups or in chains. The point to be brought out was that whenever they had found the organism which they had usually called the endocarditis coccus *par excellence* there was always present in infection of the endocardium. In no other disease had they found the organisms in the blood current. They, therefore, seemed to have a diagnostic import.

Dr. Francis P. Kinnicutt of New York said that as he undersood Dr. Libman, the results of the blood cultures determined the prognosis; if this were true it was a very useful means at one's disposal.

Dr. James P. Herrick of Chicago asked Dr. Libman in what proportion of the cases was there a history of valvular lesions having preceded the chronic endocarditis; also what relationship the organism he described bore to the so-called organism of rheumatism.

Dr. E. C. Rosenow said that during the first years of his work in making cultures he thought that he was dealing with the *Streptococcus pyogenes;* further studies had convinced him, however, during the last two years that he was dealing with a modified pneumococcus.

Dr. F. Forchheimer of Cincinnati said that an enormous step forward in the recognition of this disease had been made by the researches of the men who had just spoken, and the work that had been done by the German observers must be gone over again if what they had heard was true.

Dr. E. Libman, in answer to Dr. Herrick's question, said that in all the cases the disease had been superimposed upon previous cardiac disease. In some cases it had been superimposed upon an endocarditis of so-called rheumatic origin. The disease could be diagnosed only by cultural tests of the blood.

The Commoner Types of Functional Cardiac Murmurs.—Dr. S. W. Thayer of Baltimore said that for seven years he had been studying cardiac murmurs in individuals who appeared to be perfectly normal and he had concluded: (1) That a cardiac murmur was but one, and sometimes an unimportant one, of the links in the chain of evidence leading to the recognition of disease of the heart. (2) That certain cardiac murmurs were present normally in a large proportion of healthy young people. (3) That the common form of these murmurs were: (a) The basic systolic murmur, heard best in the third left interspace, and often all over the area in the recumbent posture. (c) The cardiac respiratory inspiratory murmurs. (4) That the commoner functional murmurs, those heard in healthy individuals, should be carefully distinguished from those other murmurs which might arise at various orifices without actual valvular disease; but nevertheless, as a result of pathological changes in the heart muscle or in the blood. The anemic murmurs, the murmurs systolic and diastolic, depended upon weakness of the heart muscle. (5) That a familiarity with the cardiac murmurs, common in the normal individual, was at least as important as an acquaintance with those murmurs which were associated with cardiac disease.

Dr. Henry Sewell of Denver felt quite sure that clinically these functional murmurs, if he could call them such, were to be interpreted by changes in the first sound of the heart; it was a double sound and was heard at the end of inspiration when the individual sat up; when he lay down, however, there was almost always a systolic murmur heard at the apex and this he thought was due to contraction of the papillary muscles which snapped down early in systole. That might play a part. He found this reduplication of the heart sound especially in cases of venous congestion.

Congenital Syphilis of the Heart.—Dr. A. S. Warthin of Ann Arbor presented this paper in which he stated that a few good studies of this condition had been made and that the importance of certain syphilitic affections of the heart in young people was not recognized clinically. Special attention was called to the diffuse fibrosis of the myocardium due to congenital syphilis; a study was presented of the pathology of this condition and of the occurrence of spirochetes in the heart wall. The relation of the congenital fibrosis of the heart to cardiac insufficiency in young and early life was emphasized. Cardiac changes occurred in all cases of congenital syphilis in which the liver showed the changes characteristic of congenital syphilis. He called attention to the association of infantilism and delayed puberty in connection with this form of heart lesion.

The Clinical Significance of Transitory Delirium Cordis.—Dr. A. W. Hewlett of Ann Arbor presented this paper which was written by Dr. George Henry Fox. He stated that by transitory delirium cordis was meant a transitory but extreme irregularity of the heart, during which the auricular waves disappeared from the venous tracings. The paroxysms might be excited by exhaustion, vomiting, exertion, or excitement, or they might come from no apparent cause. In two patients the first paroxysms occurred after operations. The heart might be absolutely negative on physical examination between attacks and the diagnosis of a nervous condition might be made. As five out of the six patients ultimately developed the permanent form of irregularity with cardiac insufficiency the prognosis should be guarded.

Dr. Joseph H. Pratt of Boston reported a case that he had under observation of the type described, and said he wished to emphasize the fact that the condtion might readily be mistaken for a cardiac neurosis. His patient was sixty years old, a very nervous individual, and he had had six or seven attacks since last October. He was not short of breath and had no cyanosis. He had a very irregular pulse. The attacks lasted about twelve hours.

Dr. Walter B. James of New York thought that the study of irregular hearts and the classification of them was very unsatisfactory. From his study of about one hundred and fifty cases and cardiograms had left him with the conviction that arythmia formed an important group of cases which had not been at all satisfactorily subdivided. There was no doubt but that a great many of these cases depended upon an irregular auricular fibrillation. The use of the electric cardiograph was the only way to determine whether or not this was the case. Auricular fibrillation was necessarily associated with permanent irregularity of the heart.

Dr. Richard C. Cabot of Boston asked the age of these patients.

Dr. Isaac Adler of New York had seen a large number of cases like the ones described, but he had not had any experience with the electric cardiograph. If the conditions were based upon a purely nervous condition, after exercise the heart not only became regular, but the blood pressure rose. In those cases, on the other hand, which depended upon disease of the heart muscle, the orthodiascope would show that after exercise the blood pressure decreased, and the arythmia did not disappear.

Dr. Hewlett said that in the cases he described one should be very guarded in giving a prognosis. Some cases that he had seen operated upon, apparently insignificant operations, resulted in bringing on a paroxysm. The patients were all over forty years of age.

(*To be continued.*)

An All-Russian Anti-Tuberculosis Association has been formed, with headquarters at Moscow.

Societies for the promotion of public health measures and particularly for the erection of tuberculosis sanatoria have been formed in Bosnia and Herzegovina.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting Held in Washington, May 3, 4, and 5, 1910.

(Special Report for the MEDICAL RECORD.)

RUDOLPH MATAS, M.D., OF NEW ORLEANS, PRESIDENT, IN THE CHAIR.

(*Concluded from page 900.*)

Abnormal Position of the Duodenum.—Dr. ARMSTRONG of Montreal reported a case where the duodenum lay outside of the colon at its hepatic flexure, had a mesentery and could be lifted out of the abdomen. A case of maldevelopment where the cecum did not rise as usual and pass in front of the duodenum, but the fetal condition persisted. In this case he had operated for pyloric stenosis.

Dr. MAURICE RICHARDSON of Boston, speaking of the anomalous position of the abdominal viscera said that he had not until recently seen a case of transposition of the viscera, but that he had recently operated on a case for appendicitis and not finding the appendix had followed the colon to the left iliac fossa before finding the cecum.

Dr. RIXFORD of San Francisco said that he had found one case of failure of rotation of the primary gut, during an operation for fibroids of the uterus. The case was followed by intestinal obstruction and led to the investigation of the upper abdominal region. He considered this failure of rotation as due probably to a fetal adhesion of the cecum to the parietal peritoneum.

Dr. BLAKE of New York City considered the location of the duodenum outside the colon as one of the fairly common anomalies. He had seen two such cases.

Dr. BLOODGOOD of Baltimore noted a case of absence of the appendix associated with a very high location of the cecum.

Biliary Fistula.—Dr. G. E. BREWER of New York reported a case in which he had operated for acute cholecystitis and the wound had been infected. The patient got up in the eighth week with a persistent biliary discharge. The wound closed of itself only to have further symptoms and to reopen of itself. No bile passed into the intestine. On the second operation he had found that the common duct had sloughed away, and the head of the pancreas was exposed without finding any useful duct. He had, therefore, inserted a rubber tube into the end of the common duct next to the liver and carried the other end of the rubber tube into the duodenum. Attempt to pull the duodenum up to the end of the duct had been futile, so he had wrapped the exposed inch of rubber tube with duodenum omentum and closed the abdominal wound without drainage. Bile passed into the intestine and there was no leakage of bile from the skin wound. Six weeks after the operation the patient was discharged from the hospital in excellent general condition. Ten days later he had returned with fever, jaundice, and no bile in the stools but the condition had cleared up of itself. The rubber tube had not been found in the stools, or in the *x*-ray pictures that had been taken.

Resection of the Pancreas.—Dr. FINNEY of Baltimore reported a case of this nature: There was a primary solid tumor of the pancreas in its middle third and he had resected the pancreas and sutured the head to the tail. The patient was a woman of 43 years who for three years had had a freely movable mass in the upper abdomen the size of her fist. The time of greatest comfort was after eating. On operation the mass was found to be under the gastrohepatic omentum. Two-thirds of the pancreas were involved and after excision the part of the pancreas left was about the size of a walnut. After operation there persisted for a year, a fistula discharging pancreatic juice. The tumor was called an adenocystoma. Partial excision of the pancreas had been shown to be safe though total excision was fatal. The secretion of the pancreas was harmless to the peritoneum though destructive of fat.

Dr. HARRIS of Chicago described a case of bullet wound of the pancreas with associated perforation of liver, stomach, and left kidney. The abdomen was opened and the wounds sewed up as securely as possible and then drainage left in both anterior and posterior. In twelve weeks the wounds closed and the patient had fully recovered.

Dr. ARMSTRONG of Montreal, called attention to the generally unappreciated factor in diagnosis that the pancreatic tumor moved freely with respiration and under manipulation.

Dr. WILLY MEYER of New York City, confirmed the statement that the pancreatic juice did not effect the peritoneum. In two cases he had cut the pancreas in removing a splenic tumor and no bad result had followed.

Dr. MATAS of New Orleans reported a case of thrombosis of the splenic artery with degeneration of the body of the pancreas and multiple tumors in the spleen in which he had removed the spleen and on investigating the pancreas had pinched off the greater part of that organ bloodlessly, as the gland was degenerated to the point where it felt like a mass of soft putty.

Dr. FINNEY in closing said that he had hopes before long of finding that the head of the pancreas also could be resected.

Congestion of the Base of the Right Lung an Early Symptom in Appendicitis.—Dr. J. D. ROBERTS of Philadelphia thought the presence of râles and the decreased breath sounds could be found in many cases of acute appendicitis if searched for.

Vaccine Therapy.—Dr. JOHN B. DEAVER of Philadelphia cited a series of cases of surgical conditions including cellulitis of the extremities and pelvis, suppuration of kidney and sepsis. In many of the cases there was an apparent change in the patient's condition dating from the administration of the vaccine. Of five cases with blood cultures showing streptococci three recovered and two died. In pelvic sinuses closure had followed in some. The vaccine treatment was not meant to supplant other methods of treatment but merely as an important adjunct. The use of the stock bacterins was only a makeshift and not nearly as reliable as the autogenous vaccines. The dosage should be the smallest that would give a reaction and should be smaller the weaker the patient, in contrast to the antitoxin treatment. In the cases where the patient was already overwhelmed with the poison the vaccines did no good. The intervals between treatments should vary. It was better to give too little rather than too much, and the intervals should be too long rather than too short. In the staphylococcus cases the results were usually good. The localized conditions at times gave as good results as the staphylococcus cases.

Dr. DE FORREST WILLARD of Philadelphia agreed with Dr. Deaver as to the usefulness of vaccine treatment especially in the chronic bone cases. The autogenous vaccine should be used and the work followed by a skilled pathologist and bacteriologist, the clinical symptoms remaining as a guide to the treatment.

Therapy by Bacterins and Tuberculins in Mixed Suppurative Bone and Joint Diseases.—Dr. B. A. THOMAS of Philadelphia read this paper: He said that in the treatment of the chronic bone and joint lesions it was necessary to use the several strains of bacteria as found in the mixed cultures from the bone and hence to change repeatedly during the prolonged treatment as the types changed as shown in the repeated cultures. The temperature of the patient was the most significant sign. If two bacteria were culturable from a bone cavity they should be used alternately every five or ten days or the bacterin and the tuberculin were used alternately or one abandoned

and the other used. If fever followed the injection of the tuberculin or vaccine the dose should be cut down. The use of tuberculin should be especially cautious and not used unless the temperature was persistently below 100° F. If the temperature was above 100° only the bacterin should be used. In the mild cases, the use of vaccines was superfluous as the cases got well anyhow. In the acute cases tuberculin alone was not helpful.

Dr. MacDonald of Albany said that while he had never seen any fatality from overdose of a vaccine yet he had seen most distressing sickness. In one case (of a skin infection) he had seen an illness lasting a year follow a small dose of vaccine.

General Sternberg of Washington spoke of the lack of knowledge on the part of the surgeons as to the theory of this treatment. Why when the body was filled with a vast number of bacteria should injecting a few more of the same dead bacteria lead to a cure? The principle seemed certainly that of *similia similibus curantur* and the dose was surely homeopathic.

Dr. McArthur of Chicago mentioned cases of essential hemorrhage of the kidneys without evident cause for the hematuria in the urine or in the kidney on operation, which not infrequently showed a bacteriuria, the colon bacillus being the most common germ. An autogenous vaccine had been curative in his hands in five cases.

Study of the Etiology of Cancer Based on Clinical Statistics.—Dr. Isaac Levin of New York said that statistics showed that, with the exception of cancer of the breast and uterus, cancer occurred in man much more frequently than in woman, organ for organ. Nearly half of the cases of cancer of the extremities occurred in people under thirty-four years of age. In women childbearing had no effect on the frequency of the occurrence of cancer. The primitive races not having the same wear and tear in the stress of life as the more highly civilized were less prone to cancer. Cancer was rare in miners. Arteriosclerosis was a frequently associated condition, especially in the cancers of the head, face, and neck. The same organ had been previously diseased in many of the cases: Such were ulcer of the stomach preceding cancer, chronic mastitis preceding breast cancer, balanitis preceding cancer of the penis. Heredity was a small factor probably negligible. In cancer of the extremities only one per cent. and in cancer of the penis two per cent. of the cases gave other cases of cancer in the patient's family. In general it seemed to show that local trauma and heredity were not as important factors as the increased vulnerability from the increased stress of life.

A Review of the Cancer Cures of America.—Dr. Bevan of Chicago spoke of the treatment by *x*-rays, radium, mixed toxins of erysipelas and *Bacillus prodigiosus*, and of the serum therapy from an immune. One of these methods of treatment should be considered as the choice. Though the *x*-rays or radium might be acceptable in the precancerous stages of the senile skin changes, and in the inoperable cases, the only sure cure was the early radical removal by the knife.

Dr. McLaren of St. Paul, said that he had given the mixed toxins in several cases with disappearance of the masses but recurrence followed, causing death.

Dr. Finney of Baltimore had not seen good results from *x*-ray or radium. He had used the mixed toxins in some forty cases with no permanent results. The immune serum he had used in seven cases. In one breast case with multiple nodules in the skin. Many of the nodules had disappeared and there had been a local reaction about other nodules. But new nodules appeared and the patient died of the recurrences. In every case a certain amount of temporary effect was seen. The limit of technique in operative treatment had, however, almost been reached, and the serum treatment gave the most hope for cure.

Dr. Deaver of Philadelphia had been trying the reinjection treatment suggested by Coca of Philadelphia and believed that a cure was at hand for the recurrent cases, though it was yet too early to report.

Dr. Keen thought that every operable case should be operated on, but that the discussion had been carried on by the wielders of the knife in the absence of the authorities on the *x*-ray treatment, Abbe, Coley, and Hodenpyl, all of whom reported undoubted cures. And he would beg for the next meeting of the association a symposium with the leaders in these lines present.

Dr. Gerster of New York did not believe in the skepticism of the pure knife surgeon. He had seen one cure from a natural erysipelas and one from the use of the mixed toxins.

Dr. Wier of New York said that the treatment of the early cases was by the scalpel; and of the late cases with hope. The work on immune serum and embryonic tissue serum was still in its infancy. Personally he believed more in the *x*-rays and radium. Both had a marked influence on external cancer. The effect might not be permanent but temporarily it was very marked.

Dr. Blake of New York agreed with Dr. Bevan that there was as yet no better cure than the knife, liquid air and carbonic oxide snow gave also skin destruction. In one case he had referred to Dr. Hodenpyl for treatment, the maximum dose had been given intravenouly of 17,000 c.c. This had been followed by a cessation of growth. It was interesting to note, however, that in animals an indifferent serum did the same as Dr. Hodenpyl's serum in man.

Dr. Rodman of Philadelphia had used the mixed toxins in many cases with distinct betterment in many but no cures. He had three cures from the *x*-ray. In the cancers of the mucous membrane the *x*-ray did no good but more harm. He uses the *x*-ray now only in postoperative conditions where he has done an incomplete operation.

Dr. Bevan in closing urged the furtherance of cancer research to find a cure for the inoperable cases.

A Review of One Hundred and Twenty Resections of the Rectum for Cancer.—Dr. William Mayo of Rochester, Minn., presented this paper. Of this series sixty-three had been in men and fifty-seven in women. The youngest was twenty-seven years of age, the oldest eighty-one years, and the average age had been fifty-two years. One hundred and eighteen had been carcinoma and two sarcoma. He had operated by the perineal route in thirty-eight, by the posterior route in fifty-six, and by the abdominal route in twenty-six. The portion of the bowel removed had been: the lower rectum, in five; the middle rectum in five; the entire rectum in seventy-five; the sigmoid and the rectum in thirty-two; a panhysterectomy, the sigmoid and the entire rectum in one; the prostate and the rectum in two. The operative mortality had been twenty per cent. The operation had been done more than five years ago in thirty-two cases. The present condition of only seventeen of those was known and of those seventeen, four were alive and well. Two of those four had been done by the abdominal route, eight and nine years ago respectively; and the other two had been done by the perineal route, nine and five years ago respectively. Sixty of the cases had been done more than three years, of whom the present condition was known in forty-three. Of these thirteen were alive and well, four done by the abdominal route, three by the perineal route, and six by the posterior route. One hundred and two cases had been done over one year and of those the present condition was known in eighty-two. Of those thirty-six were alive and well.

Chorion Epithelioma.—Dr. A. Primrose of Toronto discussed the types of these growths noting the more or

less benign chorion adenoma with the structure of the chorionic villi, predominant in the milder cases and the chorion carcinoma with the villus structure less evident and the mitosis cells predominant in the malignant cases. The secondary nodules in the tissues at times seemed to disappear with the removal of the uterine growth. The metastases in the liver seemed to show the spread through the blood vessels. He described a case of the most malignant type.

The Changes in the Central Nervous System in Infections, in Hyperthyroidism, in Anemia, and in Surgical Shock.—Dr. CRILE of Cleveland said that the neuropathological cytology had been instigated by the belief that when the function of any organ was disturbed that some pathological changes could be found, and as no gross lesions were found in the central nervous system in the conditions mentioned although their functions were disordered, the cytology had been studied. In uncomplicated surgical shock from trauma, the brain cytology had been studied and showed the size of the pyramidal cells to be increased, the nucleus to be larger than normal in proportion to the size of the cell, the limiting membrane of the nucleus to be ruptured and uneven in contour, the Nisl staining bodies to be larger and the nucleolus to be abnormal. Even in the fatal cases of shock not all of the cells were thus involved, but more of the cells were destroyed the more severe the shock. In anesthesia similar changes were found, but the changes under nitrous oxide and oxygen were only one-fourth as frequent as under ether. Mere changes in the cortex and fewer in the cord were found than in shock. In Graves' disease, anemia, and the infectious diseases similar cell changes were found. In peritonitis, toxemia, streptococcus sepsis, and chorea, the same types of changes were found in the cells. In cases of intestinal gangrene after the blood supply had been cut off for a certain length of time, if the blood circulation through that intestinal loop were restored, the patient died quickly. If the blood supply were not restored the patient died later. The expressed juice from the loop of the gangrenous gut if injected into the lumen of the gut elsewhere or into the subcutaneous tissues, or into a vein, produced destruction of the brain cells. Therefore, in operating on strangulated intestine it, was very deleterious to express the contents of the gut into the healthy gut after releasing the constriction and much wiser to block the circulation to that loop before operation on the intestine. In Graves' disease the cell destruction was most marked in the cortex, less in the cerebellum, and still less in the medulla. The cellular pathology did not afford a diagnosis of the condition but allowed a class diagnosis. The several conditions also augmented each other in their action, so that it was not wise to add anesthesia to a case that already was suffering from infection, hemorrhage, trauma, and fear.

Operative Intervention for Fractures of the Base of the Skull.—Dr. RANSOHOFF of Cincinnati read this paper. Of 190 cases of fracture of the base of the skull somewhat more than half had been operated on. Fifty-six per cent. of the cases seen had died within twelve hours of the injury; seventy-eight per cent. had died within twenty-four hours, and eighty-five per cent had died within forty-eight hours. After the second day eighty per cent. of the cases recovered. Of the other cases a decompression operation might save a few. The most constant symptom of fracture of the base, present in all but eleven cases (95 per cent.), was coma. The depth of the coma was significant; the greater and more persistent the coma, the worse the prognosis. On the other hand, of eleven that were conscious all the time, three died. Of those having but a light stupor, all recovered but one of ninety-eight, with deep stupor, only twenty-six recovered. The possibility of an associated delirium or stupor of alcoholic origin must always be remembered. The temperature was significant to the extent that all those with an early marked rise of temperature all died. Hemorrhage had occurred in one hundred and sixty-three cases, the most common hemorrhages were from the eye or into the ear. Hemorrhage from the nose occurred in but eleven cases of which four died. The cases with paralysis (hemiplegia) almost invariably died. The pupils were of the greatest prognostic value. Of forty-two cases in which the pupils were fixed and failed to react to light forty-one died. Whether the case was operated on or not made no difference. The operative treatment was indicated to relieve intracranial pressure. The cases in which a cranial wound could be enlarged were not included as fractures of the base operated on. In some cases fluid could be evacuated. In the last nineteen cases operated on seven had recovered and twelve died. Of twelve cases not operated on nine recovered, but the cases not operated on naturally were the less severe cases. If there was a hemorrhage supradural that could be removed, most of the cases recovered; but if the hemorrhage was subdural only two recovered. In many of the cases there was an antemortem rise of temperature and a tachycardia after operation, similar to what occurred in the non-operated cases The most of the operations were done within the first twenty-four hours after the injury. Of three cases operated on after the first day two recovered. One of these would have recovered anyhow. Cushing reported the loss of only two of the last fifteen cases of basal fracture operated on and these were lost because only unilateral exploration was made. The late occurrence of neuroses and epilepsy from scars was a possible objection to operation. Lumbar puncture and decompression seemed to be indicated in pressure. If the symptoms did not indicate severe intracranial pressure, but the pressure was increasing, then decompression should be done. Subtemporal decompression should be done for fracture in the anterior of middle fossæ, but in fractures involving the mastoid region and posterior fossa a subtentorial trephine must be done or else a bulbar paralysis would follow. Taking the ordinary cases, if the blood-pressure was increasing and a choked disc appearing the case ought to be decompressed, but routine decompression was not advisable.

Dr. BLOODGOOD of Baltimore reported that no case of epilepsy had been found unless the button of bone had been removed. In children he would do a temporary resection of the skull and close the skull again by a later operation.

Dr. MACDONALD of Albany called attention to the cases where lumbar puncture made the breathing worse from bulbar pressure, while bilateral temporal trephining improved the breathing. In two cases of which he knew, epilepsy had followed loss of a part of the skull.

Dr. CRILE of Cleveland thought that unconsciousness showed fatal destruction of the brain tissue. If the thermogenic center was upset he considered that the injury was usually fatal as the temperature regulation was one of the oldest and most fundamental functions of the brain.

Dr. POWERS of Denver reported a case in which the temperature rose to 105.5° and the patient recovered.

A Method of Overcoming Shortening After Old Fractures Treated by the Open Method.—Dr. EDWARD MARTIN of Philadelphia described this method. He put a strip of canvas over the end of the exposed bone and let the canvas exert a steady uniform pull on the distal fragment. This in three to five minutes with twenty-five or thirty pounds weight gave a satisfactory lengthening in cases where prolonged traction with greater weights without an anesthetic had not given sufficient lengthening.

Dr. HARTE of Philadelphia used a similar method fixing the trunk by two perineal bands formed from sheets, and applied the traction by a roller towel fastened to the leg

by a clove hitch and then pulled by a rope over two pulleys several feet apart. He showed a number of special elevators for dissecting out and manipulating the ends of the bones. He advocated the use of steel (not silver) plates and screws to hold the ends of the bones in place when they had been reduced.

Dr. Ochsner of Chicago advocated the slow stretching of the muscles by traction on two rubber adhesive bands applied high up in the thigh in the case of fractures of the femur. Twenty-four pounds traction would suffice in every case.

Dr. Thompson of Galveston called attention to the frequent interposition of a blood clot between the ends of the bones that prevented reduction of the fragments. Removal of the clot permitted reduction of the fracture.

Dr. Sherman of San Francisco exerted traction and countertraction by hanks of yarn one on either side of the perineum and one on the foot; this traction was continued until the plate fixing the ends of the bone were in place.

Dislocations of the Os Innominatum.—Dr. Sherman of San Francisco reported a series of cases from literature and two of his own, in which there existed a pure fracture dislocation of the bones of the pelvis not associated with any visceral injury and hence the fracture dislocations ran mild courses. In the cases of injury to the urethra or bladder as evidenced on attempt at catherization, the proper treatment was drainage of the prevesical space of Retzius and the fascial planes perforated by the urethra. Intraperitoneal rupture of the bladder was unusual as a consequence of fracture of the pelvis.

Dr. Gerster of New York reported a case of interference with the function of the urethra with no rupture. In this case a hematoma had formed and compressed the urethra.

Momberg's Method of Artificial Anemia by Suprapelvic Constriction.—Dr. Gerster of New York City said Momberg had extended the application of the Esmark construction band to the compression of the aorta, and by its application in over three hundred cases had shown the futility of the fear that any injury to the intestines would be done. No injury had been shown by symptoms in many of the cases nor in the postmortem demonstrations. The great mass of the intestines rolled above the ligature. Personally he had seen it applied in only one case, a case of sarcoma of the pelvis in which removal of one leg and one-half of the pelvis was done. The patient was put in the extreme Trendelenburg position and a three-fourths inch rubber tube placed under the waist. Then the operator and his assistant stretching the band to its limit of elasticity carried one end over the abdomen and around the waist crossing the ends in front of the patient. The tube was carried round and round the patient from two to six times until the femoral pulse disappeared. The ends of the tube were then tied and the tubes relaxed. The number of turns depended on the amount of fat and the relaxation of the muscles. The Trendelenburg position was important to carry the intestines above the constriction band. Addition constriction bands were applied to the thighs and the knees to allow gradual return of circulation to the tissues when the main band was later removed after operation. The band around the waist constricted the aorta and the inferior or at times the superior mesenteric artery. This constrictor gave a bloodless pelvis for operation and was especially suitable for injuries to the pelvis as occurring on the battlefield, railroad, and in the factory. On trial it had been shown to be safe for at least two hours and forty minutes, which would allow time for transportation to a hospital. It seemed also applicable in cancer of the uterus operations. In those cases a transverse incision could be made below the line of application and then if any intestines were found caught in the constriction band, the band could be loosened and the intestines placed above the line of constriction and then the band reapplied. The band was of special utility in obstetrical practice with a postpartum hemorrhage. It had been noted that the lax and bleeding uterus contracted with the anemia produced by the application of the constriction band, and that when the band was released the uterus contracted again firmer than ever expelling the placenta if it happened to be still retained. The question of the safety of the method had been tested on animals; in dogs the only bad sequence had been the paralysis of the back legs. This was not to be expected in man as the blood supply to the spinal cord came off of the aorta above the point at which the band was applied, so that it would have a continuous blood supply. When the superior mesenteric artery root was included in the band there was a greater increase in blood pressure by twenty millimeters in five minutes; and when the band was removed the blood pressure fell forty-five millimeters. If only the inferior mesenteric artery was included, the change in blood pressure was not so great. In youth this change in circulation was not dangerous; in older people and those with sclerotic arteries the vascular strain was much greater. In myocarditis and in valvular lesions the upset at times was alarming. In one case there had been an immediate collapse with the application of the band. This was repeated on an animal and showed suppression of the venous but not of the arterial circulation, thus giving congestion and accumulation of the blood below the band, with anemia of the brain and other tissues above the band. In one case of cancer of the uterus the band had been applied and on removing the hand symptoms of an unsuspected mitral stenosis had developed requiring the use of digitalis for three weeks.

Dr. Matas of New Orleans spoke of the value of the method and noted the cautions advised. He had tried it on his freshman class, not, however, under an anesthetic so that the constriction required was much greater than in the cases under ether or in the relaxed postpartum abdomen. In his cases it was necessary to carry the band four or five times around the abdomen to obliterate the femoral pulse. Then there still was the mental apprehension left to upset the circulatory quiet. At first all of the class had volunteered to be experimented on in this way. With the first four all went well, and then the fifth man fainted and the sixth man and the seventh man did the same, and the others then backed out. Dr. Matas, however, considered the trouble to be the mental impression, and not due to the circulatory disturbance produced by the Momberg band. In all the case the femoral pulse disappeared so that it did not seem probable that the trouble lay in the insufficiently tight ligature. Of the cases with the band applied in one the pulse continued to beat seventy times a minute and the blood pressure was one hundred and nineteen. In another the blood pressure went up to one hundred and sixty-eight but the rate of pulse dropped to sixty. In several of the cases the blood pressure dropped. The main caution seemed to the not to try the method or persons with cardiovascular lesions.

Dr. Gerster in closing said that the reactive hyperemia was present just as in the Esmarch bandage and that was a good reason for using the secondary ligatures. In Dr. Matas's cases the trouble probably was not all mental as in the conscious postpartum cases no pain had been evinced nor mental effect noted.

Splenomegaly and Hydrocephalus.—F. Parkes Weber reports a child aged 13 months with slight internal hydrocephalus, the head measuring 20⅞ inches. The spleen reached nearly to the ilium. The blood count was: Hemoglobin, 20 per cent.; red cells, 2,568,000, and leucocytes, 6,300. The Wassermann reaction was negative.—*Proceedings of the Royal Society of Medicine.*

Pathological Society of Philadelphia.

At a stated meeting, held May 12, Dr. C. C. Norris exhibited two specimens of "Carcinoma of the Vermiform Appendix." In one case the organ had been removed seven years ago and the patient was still living. In the other the appendix had been removed more recently in connection with abdominal section for another cause. Both specimens exhibited the basal or spherical tpye of epithelium, whose evolution is characterized by a relative want of malignancy. Cases of this sort demonstrate the wisdom of removing the appendix whenever the abdomen is opened for whatever cause, provided no contraindication exists. Dr. John Speese also exhibited a specimen of Carcinoma of the Appendix, the growth being present at the extreme tip of the organ. Dr. Brooke M. Anspach exhibited "A Series of Interesting Gynecological Speciments." One was a specimen of multiple fibromata of the uterus, one of the tumors presenting the contour and occupying the situation of an enlarged liver. Another was a specimen of epithelioma of the vulva in which removal was undertaken to free the patient from the offensive discharge. Still another was a twisted ovarian cyst causing symptoms like those of renal calculus. Dr. Alfred Gordon exhibited "A Brain from a Man Who Died Five Hours After a Violent Fright." The patient had been greatly alarmed while riding in a street car against which various missles had been thrown during the time of a strikers' riot. He suffered no physical injury, but he became unconscious and paralyzed, dying after being assisted to his home in a carriage. Post-mortem examination disclosed a large extravastion of blood in the white matter of the left cerebral hemisphere in its posterior aspect, disorganizing the internal capsule and other adjacent structures. Dr. David Riesman exhibited a specimen of "Malignant Endocarditis of the Pulmonary Leaflets." The heart came from a patient who, previously free from evidence of valvular disease of the heart, developed at the close of the febrile period of an attack of unresolved pneumonia a systolic and a diastolic murmur to the left of the sternum, which were attributed to endocarditis of the pulmonary leaflets. Post-mortem examination disclosed a considerable mass of vegetations involving the leaflets of the pulmonary valve exclusively, quite a rare condition. Dr. D. B. Tint exhibited specimens of "Hypertrophy of the Heart with Asymmetrical Cirrhotic Kidneys." The urine had contained a small amount of albumin and a small number of tube-casts, and death had occurred suddenly. The heart was greatly enlarged, the mitral and aortic leaflets being sclerotic and the aorta atheromatous. Dr. E. H. Goodman presented a communication entitled "A New Method of Examining the Sputum for Tubercle-Bacilli." This consists in treating the sputum with solutions of sodium hypochlorite and sodium bicarbonate and precipating the sediment by centrifugation. In this way it was possible to demonstrate larger numbers of bacilli than by the ordinary platinum-loop method. Dr. W. T. Cummins presented a communication entitled "Tuberculosis of the Myocardium," based upon a study of three cases together with those recorded in the literature, some 82 in all. The various forms of the disorder were discussed and the clinical features analyzed. Dr. John Funke presented a communication entitled "Thrombosis and Embolism of the Pulmonary Artery," and he exhibited three illustrative specimens. One of these came from a patient who had been operated on for inguinal hernia, the other from a patient with pulmonary tuberculosis, and the third from a case in which gangrene of the toes had resulted from obliterative endarteritis.

Iceland has a Society for the Prevention of Tuberculosis and is building a $75,000 sanatorium to accommodate fifty or sixty patients.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of May 21, 1910:

	Cases	Death
Tuberculosis Pulmonalis	589	190
Diptheria	484	41
Measles	1,259	18
Scarlet Fever	563	23
Smallpox	2	—
Varicella	127	—
Typhoid Fever	48	3
Whooping Cough	60	8
Cerebrospinal Meningitis	7	4
Malarial Fever	—	—
Totals	3,139	287

Tuberculosis in Ireland.—A bill will be brought before the new British Parliament, calling for steps to be taken to prevent the high mortality from tuberculosis in Ireland. The bill will demand the compulsory notification and registration of tuberculosis cases, the establishment of special institutions for consumptive patients, the instruction of the public about this disease, and improved control over the meat and milk supplies.

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 20, 1910.

CHOLERA

		CASES	DEATHS
India, Bombay	April 6–19	..	2
Calcutta	Mar. 20–May 2	..	147
Negapatam	Mar. 12–25	..	21

YELLOW FEVER

Ecuador, Guayaquil	April 1–15	14	7
Gold Coast, Sekondi	May 16	..	Present
Trinidad, Port of Spain	April 10–12	2	..

PLAGUE

Chile, Iquique	Jan. 1–April 9	92	32
Ecuador, Guayaquil	April 1–15	9	3
Egypt, Alexandria	April 9–22	1	1
Provinces—Assiout	April 3–22	36	15
Beni Souef	April 3–22	4	5
Fayoum	April 3–22	4	5
Gahoobeh	April 3–22	1	2
Kena	April 3–22	48	50
Minieh	April 3–22	5	1
India, Bombay	April 6–19	..	442
Calcutta	Mar. 20–May 2	..	125
Kurrachee	April 3–16	142	136
Rangoon	Mar. 27–Apr. 2	..	43
Japan, Formosa	Mar. 27–April 2	1	..
Osaka	April 5	1	1
Paraguay, Asuncion	Feb. 21	..	Endemic.a
Trinidad, Port of Spain	April 20–27	3	..

On plantation 10 miles from city.

SMALLPOX

Abyssinia, Adis Ababa	April 3–9	..	Present
Arabia, Maskat	April 3–9	..	Present
Canada, Halifax	May 1–7	2	
Toronto	Jan. 2–May 17	11	..
Victoria	April 24–30	1	..
Chile, Valparaiso	April 10–16	5	..
China, Amoy, Kulangsu	Mar. 27–April 2	..	2
Hongkong	Mar. 20–26	1	..
Egypt, Cairo	April 16–22	2	3
Port Said	April 16–22	1	..
France, Paris	April 17–23	4	..
Germany, general	April 17–23	15	..
Great Britain, Glasgow	April 23–29	1	..
Hull	April 24–30	..	1

a Bulletin Sanitary Information, Brussels, April 2, 1910.

India, Bombay	Apr. 6–19	..	136
Calcutta	Apr. 26–May 2	..	1
Kurrachee	Apr. 3–9	3	..
Madras	Apr. 2–15	..	7
Rangoon	Mar. 27 Apr. 22	..	22
Italy, general	Apr. 18–24	4	..
Naples	Apr. 18–24	10	4
Japan, Formosa	Mar. 27–Apr. 2	18	2
Kobe	Apr. 10–16	1	..
Malta	Apr. 10–16	1	..
Mexico, Aguascalientes	Apr. 24–30	..	7
Guadalajara	Apr. 24–30	..	2
Portugal, Lisbon	Apr. 17–23	35	..
Russia, Libau	Apr. 17–24	7	2
Moscow	Apr. 3–16	56	22
Odessa	Apr. 3–16	97	12
St. Petersburg	Apr. 10 16	45	6
Spain, Barcelona	Apr. 19–May 2	..	3
Huelva	Mar. 24–30	..	2
Valencia	Apr. 17–23	2	..

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Original Articles.

ACTINOMYCOSIS (STREPTOTHRICOSIS) IN MAN; WITH THE REPORT OF A CASE OF PULMONARY INVOLVEMENT.*

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AND
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PHILADELPHIA.

The number of contributions that have appeared on the subject of actinomycosis is so large that no effort has been made to review all the literature in this article. Actinomycosis of the jaw in cattle was described by Leblanc, in 1826, under the title of "osteosarcoma." In 1845 Langenbeck observed the "yellow granules" characteristic of some forms of actinomycosis in pus from a case of caries of the spine in the human subject. Lebert in 1848 described similar granules in the pus from a thoracic abscess. The exhaustive contribution of Crookshank appeared in 1858. Rivolta in 1868 noted the presence of the yellow granules in the swollen jaw of an ox. Hahn in 1870 observed similar bodies in the hard, indurated tongue of cattle known as "wooden tongue." Bollinger showed in 1876 that the disease affecting the jaw of cattle and formerly called "osteosarcoma" was due to a fungus that Harz, the botanist, named the "ray fungus," or actinomyces, on account of its shape. In 1878 Israel described the affection as observed in man, and in 1879 Ponfick established the identity of the disease in man with that observed in cattle. In 1885 Bostrom expressed the view that the ray fungus was a bacterium belonging to the genus cladothrix. Since this time the classification of the organism has been the subject of numerous contributions, but authorities still differ widely as to its proper grouping.

Two generic names have been applied to the microorganism causing this disease—actinomyces and streptothrix. The committee appointed by the Pathological Society of London in 1899 recommended the adoption of the latter term, which has been accepted, among others, by Warthin and Olney, who believe it best to classify all streptothrix infections under the general heading of streptothricosis, giving in each instance the specific name of the particular organism causing the infection. Other authors hold, with Stokes, that the generic name for this group of germs should be actinomyces, as the other names suggested have been previously applied to other organisms. Until some agreement is reached, the only solution of this question would appear to be the employment of both terms, or to use them synonymously.

*Read before the College of Physicians of Philadelphia March 2, 1910.

Morphology.—It appears to be established that there are a number of varieties of the ray fungus—Wright tells us there are as many as twenty-five—classified at present at seven species, which produce different manifestations. Stokes says the various forms of pathogenic actinomyces can be classified at present as seven species, which produce suppuration or necrotic pseudotubercles in man and various animals. At the present time the different varieties can be recognized only from their cultural and staining peculiarities.

Microscopically the fungus consists of the following parts: clubs, mycelium threads, and numerous small bodies like micrococci. Clubs may be absent, but the other two forms are always present. The threads are the spore form; the clubs are the mature germs. As Butterfield points out, too much importance has been attached to the presence of clubs. These are extremely variable in appearance, and their absence must not be considered as excluding the possibility of actinomycosis. Branched forms even are not always present, as, in old abscesses, the parasite may have undergone complete segmentation, and thus would be difficult of differentiation from bacilli. Careful search, however, will probably reveal short branches and a few long filaments.

Schabad considers as a subgroup the forms that do not show clubbed ends, and calls them "actinomyces atypica." These are acid-fast, and do not appear as "sulphur-like granules" in the pus.

In view of the fact that the ray fungus resembles the tubercle bacillus in certain particulars, especially in that the lesions caused by the two organisms have definite features in common, the view held by Metchnikoff and revived by Wright is significant. In 1888 Metchnikoff called attention to the variations in the morphology of the tubercle bacillus, which, he believed, was not the final stage, but represented a condition in the developing cycle of a thread-like bacterium, and he pointed out that there is a progressive series of organisms from the harmless butter bacillus, through the turtle and fish bacilli, to the bovine and human bacilli. Actinomyces is essentially aerobic, and it has been shown recently that the tubercle bacillus growing on a favorable medium shows more frequently the branched forms when the access of oxygen has been free.

The ray fungus is said to occur on certain grains and grasses, particularly on rye. It does not appear to have been observed growing on plants externally, but if infected grain is planted, the fungus develops with the growth of the plant, so that the latter is infected throughout.

In addition to its occurrence in certain plants and in man, actinomycosis has been found in cattle, horses, pigs, sheep, and the elephant, but no example has been reported in the carnivora, except

one possible case in which a pet dog died from a large swelling of the lower jaw; and subsequently, the owner of the dog, a woman, developed actinomycosis of the lower jaw. While the relation between the two in this instance may be suspected, it was not definitely established.

Mode of Entrance.—In cattle the disease affects the jaws or tongue in a large majority of instances, and in man the primary seat of the disease is in or about the mouth in over 50 per cent. of the cases. It is probable that infection takes place through the mouth in many additional cases in which the portal of entry cannot be established. It may be concluded, therefore, that the organism usually gains access to the body with the food or other articles taken into the mouth. In man, infection probably takes place, frequently, from chewing grain or pieces of straw or grass. It is stated that 75 per cent. of the cases occur in those who have to do with these articles, *e.g.* farm laborers, grooms, etc.

As to other modes of infection, Müller reports the case of a woman who developed a swelling of the hand at the site where a splinter had penetrated two years before. The swelling proved to be a focus of actinomycosis, and in the center of the mass a minute fragment of wood was found. In another case the disease appeared at the site of a blow from a stick of wood. Von Partsch records a case in which the disease developed in the scar left by a surgical operation; and Kopfstein observed a case in which the disease appeared at the site of a cut on the hand of a woman who had been binding corn before the wound healed. Many cases have occurred at harvest time after threshing, as Illich has shown. Israel, however, disputes the view of infection through the skin, and thinks that in most cases infection takes place through the alimentary canal, as happened, for example, in a case of Soltmann's, in which an infected head of barley stuck in the esophagus of a child and caused infection of the lungs secondarily.

As regards the modes of infection of the lung, Hichens believes the fungus may be conveyed by the blood stream, be air borne, or be spread directly from neighboring viscera. In the miliary variety of the disease the mode of infection is, of course, hemic. In the pleuropulmonary variety the invasion may be by direct extension from neighboring viscera, as in a case in which the disease apparently started in the liver and spread through the diaphragm to the base of the right lung.

Etiology.—In reporting three cases in one family, Knox emphasizes the fact that all three patients had been in the habit of spending a good many weeks in the country—a farm in Perthshire had been visited for several years in succession. During their last visit the farmer was seriously ill with a slow form of "consumption" from which he ultimately died. Cattle in the district had died from anthrax or some similar malady. The first patient developed serious symptoms at the farm; she had an attack of pleurisy, with high temperature, though it must be noted that her early symptoms were observed in London, and she was sent to Scotland to recruit and, if possible, to avert a breakdown in health. She had visited the farm the year before and appeared to be in her usual health. The two boys had adenoids for years, and it is quite likely that the girl may have had them also earlier in life. The girl had glandular trouble, with abscesses, early in life; the second boy also had some glandular trouble; and the older boy had a definite glandular abscess. All had suffered from colds in the head and congested throats at different periods.

Wagner speaks of a case occurring in a farmer who was in the habit of chewing corn as he walked through the fields. McArthur relates a most interesting case in a young woman who frequently played golf, and while playing plucked and chewed hay. An obstinate abscess of the alveolar process first developed, and healed only after three or four months' treatment. Nine or ten months later a tumor developed in the right iliac fossa. At operation, the cecum, being infiltrated, was resected. The disease was found to be actinomycosis. The patient recovered and was well for a period of three months. Then cough, fever, chills, and sweats appeared. These were at first thought to be due to pulmonary tuberculosis, but abscesses of the chest-wall developed later and in the contents of these actinomycetes were found. The patient died.

Ingal's case occurred in a man of 22 years, who worked on a farm in Italy, and on the railroad in America, during which time he slept on a straw bed on a construction train. Hichen's case occurred in a farmer, aged 32 years. In Reignier's case, it is stated that the only possible source of infection was the straws used in drinking iced beverages. A number of cases are reported in which it is stated that the teeth were bad. Wright says: "Many cases seem connected directly with carious teeth." Some patients were the subjects of "winter cough."

Localization.—Almost every part of the body has been affected—mouth, cheeks, abdominal viscera, appendix, lungs, pleura, and brain. The disease may be disseminated by the blood-stream, and cases of generalized actinomycosis have been reported in both cattle and man. The *Centralblatt für Bakteriologie* contains reports of 117 cases from 1887 to 1904, in which the lesions were distributed as follows: Neck, jaws, mouth, pharynx, in 72; primary in abdomen or viscera, in 18; thoracic wall, lung, pleura, in 21; brain, in 3; skin, in 3.

In 1905 Hichens collected 79 cases, reported in the British Isles, and he found the disease distributed as follows: Head and neck, 27, or 34.17 per cent. (face and neck, 24; tongue, 2; brain and orbit, 1); thorax and lungs, 12, or 15.18 per cent.; abdomen, 39, or 49.3 per cent. (liver, 20; intestinal tract, peritoneum, and abdonimal wall, 16; bladder and prostate, 2; generative organs, 1); site not stated, 1. Ruhräh in 1899 collected all the cases at that time reported throughout the world, and presented the following table: Total, probably counting several twice, 1,094; head and neck, 604 (56 per cent.); digestive tract, 233 (20 per cent.); pulmonary, 164 (15 per cent.); skin, 26 (20 per cent.); doubtful, 63 (6 per cent.).

Infectiousness.—It is not believed that the disease is communicated from one person to another, or from animals to man, as a rule; but in a discussion before the Chicago Surgical Society, Dr. Carl Wagner related that one of the pupils of Professor Sacchi, Surgeon-in-Chief of the Doges' Hospital, Genoa, Italy, having opened an actinomycotic abscess, touched his nose before he had disinfected his hands. His nose became infected, and he succumbed in a short time to fulminant actinomycosis.

The pus in actinomycoctic abscesses is usually of limited quantity and has some of the characters mentioned as present in the sputum in pulmonary cases. In Knox's case it is described as "thick, tenacious, yellowish-green in color, and very offensive in odor."

Pathology.—The presence of the ray-fungus in the tissues causes proliferation of round cells about the focus, resulting in a nodule. The central cells undergo granular or fatty degeneration, and more or less liquefaction results, while the cells toward the periphery of the nodule partially organize. The process is similar to that observed in tuberculous and tertiary syphilitic lesions, except that in actinomycosis the tendency to the formation of extensive granulation-tissue masses is greater. If the virulence of the infection is extreme, and especially if pyogenic infection is superadded, there will be more liquefaction and pus-formation, and less partly organized tissue. On the other hand, an uncomplicated infection of feeble virulence in tissues having a high degree of resistance will be followed by but little destruction, while a comparatively large amount of granulomatous tissue will result, which may form tumors of considerable size. Thus two types may be recognized—the inflammatory and the neoplastic. The former is most commonly observed in man, the latter in cattle. The neoplastic type is much more amenable to treatment. Actinomycosis spreads by direct continuity irrespective of anatomical structure (and by the blood).

The prominent pathological characteristics of the affection are briefly: 1. A tendency to great cell-proliferation, with little suppuration. 2. A disposition to spread toward the surface and to gain entrance into the blood-current. 3. The presence of yellow granules (Bell).

Bell and others have found the ray fungus on microscopic examination in cases in which no granules were present; and Bevan records a case in which the pus contained small bodies similar to those observed in actinomycosis, although on microscopic study the tumor was found to be epithelioma, and the supposed granules were found to be "pearly bodies."

Treatment.—The therapeutic problem may be stated as follows: A local infection due to the ray fungus is to be combatted. The germ causes a localized granuloma somewhat similar to that due to inoculation with the virus of tuberculosis or syphilis, and like these the affection tends to spread locally as well as to involve distant parts. Under such circumstances the proper course to pursue is clear.

Complete removal of the infected area by the knife or curette would be ideal. Unfortunately, this is impossible in most cases, as important or vital structures would have to be sacrificed. Whenever feasible, however, this radical procedure should be adopted. In all other cases in which the lesions are accessible to surgical attack, the infected area should be freely incised, diseased tissue removed by the curette as far as possible, and free drainage secured.

In 1885, Thomassen reported that potassium iodide had a curative influence on actinomycosis. This observation appears to have been confirmed by the experience of many surgeons. Unquestionably, however, it has entirely failed to exert the slightest effect in a number of cases, so that it cannot, in any sense, be looked upon as a specific. Bell's statement appears to be correct. He says: "The value of the iodide varies. In some cases it seemed to give marvelous results; in others it appeared to have no effect."

Bevan believes that the most effective treatment when the lesion is not accessible to surgical measures is a combination of potassium iodide internally, and the *x*-ray locally. The explanation is offered that the *x*-ray sets free nascent iodine in greater amount than would otherwise occur. Ochsner calls attention to the necessity of administering large doses of potassium iodide, and speaks of giving as much as a dram three times a day before improvement began. He also points to the fact that veterinarians interrupt the administration of the iodide for about a week in order to give the spores an opportunity to develop, as they seem to resist the treatment. He cites an instance in which he ordered 90 grains three times a day for four days, then intermitted for three weeks; then repeated the dose. An obstinate case of actinomycosis of the face was thus cured after 30 grains had been given three times a day for a month without any effect. Ochsner believes that so long as abscesses are not present, patients invariably recover. Baracz states that he brought about recovery in nine consecutive cases by injecting 20 per cent. solution of silver nitrate into the tissues around the lesion. The injections cause the formation of a connective tissue wall around the disease, which is thus circumscribed and held in check, and he believes the silver kills the germs.

Pulmonary Actinomycosis.—In many of the reported cases the infection appears to have taken place through the mouth. The majority of patients suffered from adenoids, decayed teeth, pyorrhea alveolaris, catarrhal lesions, etc. It is quite probable that these conditions favor the lodgment and development of the germ, whereas a healthy mucous membrane might resist its invasion, and the disease thus be averted.

Hichens divides pulmonary actinomycosis into four varieties: (1) Bronchitic, (2) bronchopulmonary, (3) pleuropulmonary; (4) miliary or hemic. Karowski recognizes but two forms: (*a*) Catarrhal, in which the germ becomes established on the surface of the bronchial mucous membrane, resulting in a chronic catarrh of the bronchi, with actinomyces in the sputum; and (*b*) destructive, which passes through three stages: (1) The germs penetrate the deeper layers of the bronchial walls, producing a destructive peribronchitis. The symptoms of this stage are indefinite; the condition may be mistaken for a beginning tuberculosis, but the absence of tubercle bacilli and the presence of actinomyces in the sputum will establish the diagnosis. In addition, the lesion is likely to be below the clavicle, whereas in tuberculosis it is usually apical. (2) The fungus has reached the pleura, causing a hemorrhagic exudation, which is attended with the usual physical signs of fluid in the pleural cavity. If not relieved by operation, the accumulation may discharge spontaneously, either through the skin or the diaphragm. (3) Metastatic deposits form in different parts of the body. In this stage the patient presents symptoms of general septicemia, and rapidly succumbs to the increasing toxemia.

There appear to be no typical symptoms. In many cases there is a history of a period of depressed vitality during which the patient was lethargic and easily fatigued. Anemia and emaciation sometimes follow. The temperature remains normal or is but slightly elevated in most cases, but mild febrile attacks occur in some instances. The pulse is persistently increased in frequency, but less so than in tuberculosis. The febrile attacks were sometimes followed by the development of "congested throat"; and later by bronchial catarrh and expectoration. In some cases the sputum has had no offensive or characteristic odor. The discovery

of the mycelium in the sputum is essential in making a diagnosis.

In many cases the sputum seems to have been somewhat characteristic. In Wynn's case it "was abundant and had a feculent odor." In Hichen's case "it was thick, tenacious, not nummulated, and of a peculiar color, resembling pale anchovy sauce. On being spread on a plate or glass, minute whitish-yellow bodies, about as large as half a pin's head, were observed." Bevan has observed that it "has a distinctive odor, suggesting that of freshly turned earth." As reported in Henry's case, it was "abundant, very thick, viscous, extremely offensive, yellowish-green in color, and contained numerous yellowish granules of about the size of a pin's head." A specimen was sent to Dr. J. F. Hodgson, who reported: "The sputum is characteristic of actinomycosis of the lungs. The granules contain the fungus of actinomycosis. Filamentous forms are present, club-shaped bodies being absent. The filaments stain well with Gram's method. Numerous pus cells and pyogenic cocci are present."

There are no pathognomonic symptoms upon which a diagnosis may be made. In the catarrhal form the symptoms will be those of bronchitis, such as might occur in the early stages of tuberculosis. A careful examination of the expectoration should clear up the case. The same comment applies to the pulmonary and pleural forms. The presence of the ray fungus in the lesion must be demonstrated to justify a diagnosis of actinomycosis.

Actinomycosis often evinces itself as a chronic empyema. A diagnostic point in favor of actinomycosis is that when one opens what appears to be an empyæma necessitatis, expecting to find a large cavity and quantities of pus, one finds no proper cavity at all, and only a small quantity of pus that oozes from a spongy tissue.

As regards the situation of the lesion, it is much more often basal than apical. Israel went so far as to say that it always began at the base, but Hichens shows that this is not the case. Illich found that among fifty-eight cases of pulmonary actinomycosis, the disease had begun in the upper lobe in nine instances. It must also be remembered that pulmonary tuberculosis may begin at the base. Nevertheless, a basal situation is a distinct point in favor of actinomycosis. Excavation and hemoptysis are rare in pulmonary actinomycosis.

Pain, even of a severe character, is common in actinomycosis when the disease has spread to the pleura and neighboring tissues. Pleuritic pains are, of course, not uncommon in tuberculosis, but in the latter they do not exhibit the same persistency and severity.

The temperature in actinomycosis is more irregular and generally less elevated, and does not exhibit in so marked a degree the hectic type so common in tuberculosis.

The tuberculin reaction has been observed by Illich and Friedrich in cases of actinomycosis as well as in those of tuberculosis. As a minor point, it may be observed that the lymph nodes are but rarely involved in actinomycosis. Furthermore, it must be remembered that pulmonary actinomycosis and pulmonary tuberculosis may coexist in the same patient. Two such cases have been recorded by Littledale and Eichhorst (Hichens).

Adami suggests that when actinomycosis is suspected, some of the discharge from the affected tissue should be collected and cleared by weak caustic potash, and smears made from the deposit. In this way it is possible to find the scattered threads.

Pulmonary actinomycosis is usually fatal. Illich was inclined to believe that death occurred in every case. Naussac places the mortality of the pleuropulmonary form at 75 per cent., and of the bronchopulmonary form at 72 per cent. As Bevan has shown, it is not safe to consider a patient cured because the lesion appears to have healed, as relapses are not uncommon after apparent recovery. Karowski states that cases of pulmonary actinomycosis in which operation has been performed successfully are extremely rare, but they would certainly be more frequent if an early diagnosis were possible.

Wynn found the average duration of the disease about ten months. In a few cases cure has been reported, but such a result cannot be expected with any confidence, as the affection appears to be only a little less fatal than streptothricosis of the brain or liver, from which, according to Acland, no case of recovery has been recorded. The case reported by Wynn is especially interesting, as it adds one more to the number of infections that apparently have been successfully treated with a specific vaccine prepared from the infecting organism.

In the pulmonary cases, the lesion is, as a rule, not accessible to surgical intervention until the later stages, when the disease has spread widely in all directions, or has even been carried to distant parts. Therefore, if actinomycosis of the lung is detected early, as it usually can be by careful microscopic examination of the expectoration, the administration of potassium iodide, in addition to appropriate hygienic measures, would appear to be indicated. By the time the pleural deposits have occurred, and abscesses of the chest wall have appeared, the disease has reached an incurable stage.

Knox reports the case of a boy 15 years of age, in whom the mycelium was found in the sputum, and who gained 28 pounds in weight from December 6th to the following April, after the removal of adenoids, and the continued internal administration of potassium iodide. There was a corresponding improvement in the general condition and in spirits. A second case in the same family seemed equally benefited by a similar course of treatment.

Oil of eucalyptus has been employed by some surgeons, and Ruhräh cites a case reported by Butler, in which cure appeared to be effected by eucalyptus oil in spray and in capsules. This treatment has been employed also in conjunction with the internal use of potassium iodide.

As v. Baracz' method of administration of silver nitrate by hypodermic injection is inapplicable to cases involving the lung, he recommends intravenous injections of colloidal silver as advised by Credé in the pulmonary form of the disease.

The most striking recent contribution on the treatment of pulmonary actinomycosis is the report by Wynn of a case involving the lung and the liver, successfully treated by a vaccine prepared as follows: Agar cultures of actinomyces less than forty-eight hours old were taken, the growth scraped off, sterilized, and dried for one hour at 60° C. It was then ground in an agate mortar with normal saline solution containing 10 per cent. of glycerin. The vaccine was standardized by weight, 1 c.c. of the emulsion containing 1 mg. of "actinomycotin." This was diluted a thousand times, and the dose was 0.001 mg. of the solid substance.

The case thus treated was that of a boy, aged 14 years, admitted to the General Hospital, Birmingham, under the care of Professor Saundby, on account of troublesome cough, abundant, offensive expectoration, and pain and swelling of the left side of the chest. The lower half of the left chest, anteriorly and laterally, below the fourth interspace, was absolutely dull on percussion. Breath sounds and vocal resonance and fremitus were absent over this area. Posteriorly, resonance was impaired and moist râles were heard. Just below and outside the left nipple there was a rounded swelling, the most prominent part corresponding with the sixth interspace. The swelling was red, tender, and fluctuating. A diagnosis of empyema pointing through the chest wall was made.

Under chloroform anesthesia, the swelling was incised and about eight ounces of most offensive pus obtained. An inch of the seventh rib was removed. There was thus opened a ragged cavity extending upward toward the axilla, and apparently in the lung. The pus contained large numbers of small granules, which proved to be actinomyces. No other germs were present in the pus. The sputum contained the actinomyces, in addition to cocci and bacilli, but no tubercle bacilli were present. After the operation, on December 19, considerable discharge of pus took place through the drainage tube. This gradually lost its fetid odor. The sputum remained abundant, frothy, and offensive. Coarse râles were heard all over both lungs. The temperature for the first week was irregular, with evening rises to 99° and 99.5°; the pulse rate was between 100 and 120, and the respiration, which was between 32 and 36 on December 20, fell to between 20 and 24 by the end of the week. On December 28 the patient was transferred to the Jaffray Suburban Hospital.

The temperature from December 28 to January 8, the date of the first inoculation, was pyrexial, showing evening rises to 100°, and once to 102.3°. With the rise in temperature the rate of respiration increased to between 28 and 34, the pulse remaining between 100 and 120. The patient now looked and felt extremely ill, the cough was troublesome, and there was an abundant discharge from the drainage tube; the sputum was also considerable in amount. The day following his removal to the Jaffray Hospital he complained of pain in the region of the liver, and this organ was found to extend downward to within 1 inch of the umbilicus, and to be tender on pressure; the spleen also could be felt. It seemed probable that the operation had resulted in autoinoculation, with extension of the infection to the liver. The organisms in the pus and sputum were still active, and grew readily on culture media.

On January 3 the opsonic index was estimated at 0.3, and on January 7 at 0.5. On January 8 the first inoculation of 0.001 mg. of "actinomycotin" was given. Twenty-four hours later the negative phase was apparently over, as the index had risen to 0.7, and by January 16 it was 1.2. The patient had a good night after the inoculation, and in a few days the cough became less troublesome, and the sputum and discharge of pus diminished in a remarkable degree. The temperature dropped to normal the day following the inoculation, and remained normal for three days. On January 12 the discharge had so diminished that the drainage tube was removed; a slight irregularity of temperature occurred for a day or two.

On January 18 a second inoculation of 0.001 mg. was given, and on January 21 the temperature fell to normal, and afterward remained so. The respiration had decreased to between 22 and 24, and the pulse rate to between 96 and 108. The patient was allowed to get up for a short time on January 19. Inoculations of 0.001 mg. were given on February 11 and 25 and March 11 and 27—six inoculations altogether being given.

The opsonic index was estimated at intervals, the highest point reached being 1.7. A negative phase was never observed to last more than twenty-four hours, and the positive phase reached its maximum between the eighth and tenth days. Generally the temperature taken a few hours after an inoculation showed a slight fall, but on one occasion there was a rise to 99.2°.

Wynn was not disposed to attach too much importance to the actual figures given for the opsonic index, as the difficulties in the way of making a satisfactory emulsion were great; but the difference between the films, made from preparations with his own serum, and those made from preparations with the patient's serum, was marked before inoculation was begun. Afterward there was no doubt that the patient's serum had a much higher opsonic power than Wynn's, and with practice the difficulties of technique were largely overcome and a fairly accurate count made. The improvement in the patient's condition after inoculation was most marked. There was no sputum a week after the first inoculation, the cough had disappeared by January 22nd, and the sinus closed rapidly, the discharge by the first week in February being exceedingly little. Attempts were made on several occasions to grow the organism from the pus, but these were unsuccessful after the second inoculation. There was a steady increase in weight from 4 st. 8 lbs. (64 lbs.) on December 29, to 5 st. 8 lbs. (78 lbs.) on February 4, and on leaving the hospital on March 27 the weight was 6 st. (84 lbs.), gain of 1 st. 6 lbs. (20 lbs.) in three months. The moist sounds in the lungs had disappeared and examination on the day before leaving the hospital showed some flattening of the left side of the chest in the lower axillary region, slight dullness on percussion, and a large area below the angle of the left scapula over which cavernous breathing was heard. This cavity was quite dry and no moist sounds were heard over it or elsewhere. The liver had slowly decreased in size until it could not be felt below the ribs. It was evident that the condition had left behind thickened pleura with a large cavity in the lung. There was no sputum, and only occasionally a dry cough. On April 26, 1907, the patient was shown to the members of the Pathological and Clinical Section of the Birmingham Branch of the British Medical Association. He then had not received an inoculation for a month and looked well and robust. No other treatment besides that described was given, except from January 11 to 18, when 10 grains of potassium iodide were administered three times a day.

The patient was seen subsequently at intervals of about a month as an out-patient. He continued well and was free from pain or cough, except for a slight attack of bronchitis during the first fortnight in December, 1907. He was seen for the last time on February 20, 1908. There was then more flattening of the chest at the left base; the cavity was smaller and no moist sounds could be heard; occasionally he had a dry cough, but there was no sputum and the breath was not offensive.

The liver and spleen could not be felt. His weight was then 6 st. 3 lbs. (87 lbs.). No inoculations of "actinomycotin" had been given since March 27, 1907.

It will be important in the future to determine whether a vaccine prepared from one of the easily grown species, or from a stock of laboratory culture, will have any effect upon an infection caused by another species of streptothrix. In this connection it is worth while recalling that temporary benefit was found in Ziegler's case of severe actinomycosis of the head and neck after injections of "bacterial protein" obtained from staphylococcus aureus, and in Billroth's case after tuberculin injections.

As this is the only case treated by this method, so far as reported, it is cited in some detail. Being a single observation, further confirmation is needed before a definite opinion can be given. It is to be hoped that additional proof will be speedily forthcoming.

Case.—J. R., male, 36 years of age, married, a worker in furs for 23 years, applied to the Polyclinic Hospital on July 28, 1906, in the service of Dr. Eshner, complaining of pain in the left side of the chest intermittently for five months, but worse and persistent in the preceding five weeks. There was also pain in the left shoulder. Breathing was painful and difficult and there was dyspnea on exertion. The breath was fetid and the tongue heavily coated. There was no cough or expectoration. The appetite was lost and the bowels were constipated. Sleep was poor. The man was weak, although there had been little or no loss of weight. He was 5 ft. 3 in. in height and weighed 123 lbs. There was no headache, no edema, no derangement of micturition. The urine was free from albumin and sugar.

The patient was born in Russia, but had lived in the United States for 16 years. He related that his parents, as well as a brother, were living and well. Another brother had died insane and a sister had died in confinement. There was no family history of tuberculosis, malignant disease, heart disease, or kidney disease.

The man had had measles, mumps, and chickenpox in early life, but he denied venereal disease, and he had no knowledge of a previous attack of pleurisy or pneumonia. He did not drink tea or coffee, but was in the habit of taking a small glass of whiskey before breakfast; he smoked but little. He had been married for 16 years. Five children were living and well; twin children had died, one from measles and the other from diphtheria. His wife had had no miscarriages.

On physical examination the action of the heart was found to be rhythmic and the sounds were clear. The percussion note was impaired at the base of the left chest, the breath sounds were feeble, and vocal resonance was diminished. It was at first thought that this condition was the remains of a previous pleurisy. The distress in the left side of the chest persisted, and in a short time tenderness developed in the splenic region and was increased by the ingestion of food. Later, tenderness became localized over the seventh and eighth ribs on the left side of the chest in front. The man was steadily losing weight and became lachrymose and easily agitated. By September 18 he had become reduced to 117 lbs. Movable dulness was detected at the base of the left chest, in addition to other signs of the presence of fluid in the pleural cavity. The possibility of malignant disease of the pleura now presented itself, and the patient was admitted to the Polyclinic Hospital, where, on September 20, the chest was aspirated and 27 ounces of turbid, straw-colored fluid were removed. The area of abnormal dullness on percussion diminished, and the breath sounds became audible in the affected area. A trace of albumin and a few granular casts were now found in the urine.

A second aspiration was performed on October 4 and 13½ ounces of thick, stringy, turbid, reddish fluid were removed. This was found to be slightly alkaline, loaded with albumin, free from sugar, containing a few mononuclear leucocytes and pneumococci, but no tubercle bacilli.

The symptoms grew progressively more aggravated, and sweating set in, while the physical signs underwent little change. On December 15, 6 or 8 ounces of fluid were removed from the chest by aspiration, with little or no relief. Chills occurred and the finger nails became curved.

Dr. J. H. Musser saw the patient in consultation on January 11, 1907, and advised resection of a rib or aspiration. Accordingly, the patient was again admitted to the Polyclinic Hospital. Aspiration was attempted, but no fluid was obtained.

On January 29 Dr. L. W. Steinbach resected about 1¼ inches of the seventh rib in the midclavicular line. When the pleura was incised a small amount of pus, perhaps 3 ounces, having an offensive odor, escaped. Exploration with the finger disclosed pleural adhesions, but the source of the pus could not be discovered. A culture was taken, but no report of the result was made. The patient improved somewhat and was discharged from the hospital on February 12.

Subsequently the man grew worse again, and he was admitted to the Hospital of the University of Pennsylvania, February 22, in the service of Professor J. William White. The following notes were taken by Dr. E. L. Eliason, resident surgeon:

"The man complains of pain in the lower part of the chest on the left side, shortness of breath, fever, and loss of weight and strength. Temperature, 99.1°; pulse, 108; respiration, 28. He is emaciated, pale, phthisical-looking, emotional, and nervous. Pulse full and strong; breath offensive; tongue coated; teeth poor; eyes bright and restless; skin dry, pale, and pearly.

"Inspection of the chest shows a marked decrease in the respiratory excursion on the left side, especially below the fourth rib in the anterior axillary line. The interspaces are bulging below this level and there is slight edema of the surface.

"Percussion elicits a flat note over the entire left side of the chest below the lower border of the second rib in front; the fourth rib in the anterior axillary line; the seventh rib in the posterior axillary line, and just below the spine of the scapula posteriorly. The dull area is stationary on change of posture. No egophony or cracked-pot sound can be elicited. On palpation, tactile fremitus over the entire surface is greatly diminished. Whispering pectoriloquy is present posteriorly at the fifth rib. Auscultation reveals absent or distant breath sounds and vocal fremitus over the dull area. Resistance is also markedly increased to the percussing finger. Above this area the percussion note is apparently normal, but many moist râles are heard.

"The right lung at the apex shows impaired resonance, bronchovesicular breathing, increased vocal and tactile fremitus and moist râles. Posteriorly at the base near the spine, Grocco's sign of a triangular dull area seems to be present.

"The heart dullness is pushed up and merges into the other dull or flat area. The heart sounds are clear, but somewhat distant; the apex beat is not palpable. No friction sounds or murmurs are heard. Rotch's sign and Ewart's second rib sign are absent.

"There is a wound of the left chest about the sixth rib in the midclavicular line, the result of a recent operation. There is marked pain in the posterior axillary line at the base of the chest. The patient has a troublesome, paroxysmal cough. There is tenderness over the dull area anteriorly from the scar down to the costal border. The abdomen is apparently normal. The leucocytes number 12,640 in the cu. mm. The urine has a sp. gr. of 1,024, is acid in reaction, and contains no albumin, no sugar, and no casts, but some mucus."

It was supposed that the man's condition would be improved by better drainage; hence the wound in the chest was enlarged and thoroughly explored on the 26th, but no pus was found. The aspirating needle was introduced at five or six different points but without finding any pus.

The opinions of those who examined the patient were divided. The evidence pointed to the presence of empyema or of greatly thickened pleura. On March 2 the leucocyte count was 13,520. The wound was still discharging slightly.

On the 13th, further exploration seemed indicated and a portion of the seventh rib was removed. Careful digital examination was made, but no pus was found. No cavity existed, but the finger could be passed in all directions through a soft, friable tissue that bled freely. The condition suggested a soft round-cell sarcoma or a proliferative pleurisy. The section of rib removed appeared to be diseased.* After this exploration the upper wound discharged pus more freely.

On April 1 increased swelling and edema were noted in the midclavicular line about the eighth rib. This was incised and a small amount of pus escaped.

On the 11th a fullness had appeared in the posterior axillary line between the seventh and tenth ribs. There was no redness or heat in the skin. Beneath this area breath sounds, as well as the vocal and tactile fremitus, were diminished. The three wounds already made were discharging pus, but the physical signs did not improve.

Over the right chest, at the ninth rib posteriorly, and in the postaxillary line, there was a swelling that appeared as though something were pushing the entire chest-wall out. There was dullness over this area and increased tactile and vocal fremitus and distant breath sounds were noted. The liver dullness was pushed down in front to the seventh rib, in the midclavicular line.

On May 1 the granules characteristic of the ray fungus were observed in the pus. Microscopic examination confirmed the presence of this organism.

The patient showed increasing emaciation; respiration was shallow and painful. The upper wound in the anterior axillary line was discharging a large amount of pus and the lower one rather less, but still a large amount. Considerable bleeding from the wounds followed the withdrawal of the packing; there was great tenderness and swelling of the sterum at the level of the second rib. An opening was made in this situation on May 5 and a great deal of thick, gelatinous pus, full of sulphur-like bodies, escaped. No organism was present except the ray fungus (Dr. Gildersleeve). The discharge from all the wounds contained the sulphur bodies in large numbers.

Potassium iodide was now ordered in heavy doses and iodine was used locally in the abscesses.

On the 15th it is noted that the area over the last three ribs extending to the spine on the left side posteriorly, which had been painful and tender for a month, showed fluctuation. On incision, a large quantity of fetid pus, of a brownish color, was discharged. Sulphur bodies were present in great numbers. The cough, which had been persistent, was now accompanied by bloody expectoration.

On the 20th another sinus opened spontaneously at the junction of the sixth costal cartilage with the sternum.

On the 22d it is noted that the sulphur bodies from all the wounds were less numerous. The cough had increased; the suptum was purulent, but did not contain blood; the swelling of the ribs on the right side had disappeared. The patient appeared to be improved for a few days, but became weaker again.

On the 25th the iodide was stopped, as it was not well tolerated by the stomach, and subsequently soluble iodin was administered in sherry wine. It was well borne in doses of twenty minims three times daily. By June 12 the sulphur bodies were seldom observed in the pus from any of the wounds. The leucocytes numbered 13,800 in the cu. mm.

The patient grew progressively worse; weakness was extreme: chills occurred irregularly, followed by profuse sweats; the liver showed marked enlargement downward, extending three fingers' breadth below the ribs in the nipple line, and jaundice became marked. Death occurred June 20.

The foregoing case is a typical example of the pleuropulmonary form of actinomycosis. The points of especial interest are: The slow and insidious onset, signs of pleural effusion with an unusual history and course, peculiar character of the aspirated fluid, especially that obtained at the second aspiration, increasing symptoms in spite of the withdrawal of the fluid, the small amount of pus obtained on resection of a rib in the presence of pronounced dullness and the failure of all further explorations to discover any collection, the presence within the chest of soft tissue through which the finger passed readily, the multiple lesions, appearing one after another, the characteristic discharge containing the so-called sulphur granules, the slight degree of fever, progressive loss of strength—and death.

*Dr. George P. Müller kindly examined the portion of rib removed and reported as follows: Specimen, section of rib. Pathological diagnosis, osteomyelitis. Description of specimen: The specimen is a section of bone, apparently of rib. Upon one side an osteophyte, osteoma, or callous formation has taken place. Microscopic section shows an acute inflammatory process within the bone. The Haversian canals are dilated and many of them are filled with an inflammatory exudation consisting of polymorphonuclear leucocytes and blood. The blood-vessels are universally dilated.

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ACTINOMYCOSIS OF THE CHEEK FOLLOWING INJURY BY A DENTAL INSTRUMENT; RECOVERY.

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Miss L. O., aged 15 years, who had been in good health, consulted her dentist on November 1, 1900. While filling one of the upper molar teeth on the right side, the dentist accidentally let the instrument slip and it penetrated the cheek, causing a slight injury from which there was a little bleeding, not sufficient, however, to prevent the filling of the tooth. A week later the patient felt a slight elevation and hardness at the spot of injury on the inside of the cheek and consulted me. My first impression was that it was a swelling of the papilla at the mouth of Steno's duct, such as occasionally occurs in some persons. The induration, however, remained and seemed to be increasing in size during the next three weeks. On December 3 the patient's mother discovered a slight purplish spot on the outside of the cheek opposite the growth within and on examination I found that the whole thickness of the cheek was occupied by a resilient mass that seemed attached to the skin on the outside and the mucous membrane within. Dr. J. William White, who was consulted, advised incision on the inner side, and we then discussed the possibility of actinomycosis on account of the appearances of the growth on the outer side. At the operation, the mass was found to be of uniform, pinkish color with no sign of softening or breaking down within. Portions of the tissue were sectioned and were found to be made up of round cells which suggested an inflammatory process or sarcoma. No actinomyces were discovered. Though drainage with gauze was maintained on the inside, the growth extended outwardly and soon an abscess-like projection formed beneath the skin at the side of the purplish area of discoloration. The danger of extensive involvement of the skin now led to a second operation, which was an incision at the place where the growth pointed externally. A small amount of broken-down yellowish material was obtained and portions of the growth were removed. In the latter, after a number of sections were studied, actinomyces bodies were detected. The patient had in the meantime been given increasing doses of potassium iodide on account of our suspicions of actinomycosis after the first appearance of the purplish discoloration and external projection. Another abscess-like formation developed on January 15 and was opened on January 18. Increasing doses of potassium idodide, up to sixty grains daily, were given without materially influencing the progress of the growth. So far as could be seen the process was advancing in spite of the free openings inside and out. At this time, on the suggestion of Dr. A. C. Wood, a change of the local treatment was made, diluted tincture of iodine being used in each of the incisions or sinuses. Almost immediately there was a manifest improvement in the condition and within a fortnight the whole area of infiltration had resolved. Subsequently the external and internal incisions healed and complete recovery followed. The patient never suffered any recurrence and is now (1910) in good health.

The case is of some interest on account of the suggested etiological bearing of injury and also because the local effect of iodine seemed to play an important part in the cure. Whether or not some factor additional to the local injury was concerned in the etiology was not determined.

DIABETES MELLITUS—A SYMPATHETIC NEUROSIS RATIONALLY TREATED WITH ELECTRICITY.*

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Diabetes mellitus, an affection in which the predominating symptom is an excessive flow of saccharine urine, is *per se* only a symptom of perverted function of one or a group of organs of the "digestive" tract.

The voluminous literature on diabetes mellitus with its amount of theoretical deductions based upon physiological experiments, as well as clinical observations, throws little light on its etiology, pathology, or real character. The still obscure etiology and pathology of diabetes mellitus suggests but little definite statement relative to either and the object of this paper is to indicate in a general way its nervous origin and its rational treatment with electrotherapy.

Notwithstanding the fact that this disease has been known for centuries (Hirsch claims that the Hindoos recognized this disease several centuries ago as "the disease of sweet urine"; and in a Cingalese treatise of the fifteenth century it is called "Madu Mehe" or "Honey Urine") our therapeutic knowledge of diabetes mellitus has not advanced very far, and our diabetic cases are treated to-day in the same manner that they were treated years ago. That is: elimination of carbohydrates from the diet, with opiates, strychnine, and atropine which produce temporary elimination of glycosuria but do not prevent its reappearance with the cessation of diet and drugs.

It is the purpose of this paper to describe a treatment in the light of clinical experience extending through twenty years. This treatment has been followed for the last five or six years with fairly good results in a large number of cases.

Assuming that diabetes mellitus has its beginnings in a disturbance of nerve energy supply to the "digestive system" and a consequent perversion of function of the digestive glands, it is but logical that the treatmtent should be directed primarily to the nervous system.

Men like Pavy, Eckhard, Schiff, Arthaud, and Butte, Klebs, Hansen, Mering, and Minkowski, Lepine, Rosenbach, Foster, Burton, and Thierfel-

*Read at the meeting of the Tri-State Medical Association at Richmond, Va., on February 15, 16, and 17 1910.

der, contributed largely to the physiological experiments on diabetes mellitus. And a multitude of other physiological experiments, such as tying the accessory branch of the portal vein, so as to make the whole of the abdominal blood pass through the liver; compression of the aorta or portal vein; irritation of the liver with a needle or electrode, and also a number of drugs, as strychnine, salicylic acid, phosphoric acid, turpentine, and corrosive sublimate, all prove, that, no matter by what physiological process glycosuria is produced, whether by injury to or irritation of the nervous system, hyperemia of the surrounding vessels of the liver must be induced.

The hypothesis of glycosuria at the present time is based upon vasomotor paralysis of the splanchnic area, the nerves of which, in health, keep the blood-vessels of the liver in a state of tonic contraction; and when injured, these vessels dilate and permit a greater afflux of arterial blood into the portal vein without its becoming deoxygenized.

Tyson sums up the entire matter in the following manner: "Among the experimental irritations in addition to the puncture of the floor of the fourth ventricle which produces glycosuria by reflex action, are injuries of the cerebral lobes of the cerebellum, optic thalamus, cerebral peduncles and even the static nerve and brachial plexus. Finally, there is no reason why an inhibitory reflex action should not originate in the sympathetic nerve itself. When we remember that this nerve is both sensory and motor in function and the inhibitory influence to which the heart's action is subject, is accomplished through the sympathetic as a sensory nerve, and the pneumogastric as a motor, there is no reason why similar results may not be brought about by the sympathetic alone. This being the case, we need not ascribe the glycogenic phenomena to a direct, stimulant action of the irritant upon the vasomotor nerves of the liver, but may suppose a sensory influence to ascend one set of sympathetic filaments, and an inhibitory influence to descend through another.

A word or two about the sympathetic nerves. The sympathetic system comprises two principal parts: The gangliated cords and the plexuses with their associated ganglia. The component elements of the plexuses and, indeed, of the entire sympathetic system, are the ganglia and the nerve fibers. The gangliated cord (truncus sympatheticus), one of a symmetrically placed pair of gangliated trunks situated anterior or lateral to the bodies of the vertebræ begins in the head and extends through the neck, thorax, and abdomen to the lower portion of the pelvis, where it terminates by the cords forming a loop, situated anterior to the coccyx and containing the coccygeal ganglion or ganglion impar. The plexuses (plexus sympathetici) are a series of more or less distinct collections of groups of nerve cells (ganglia) and fibers, the most important of which are the cardiac, the pulmonary, the esophageal, the solar, the pelvic, and the suprarenal.

The solar or the epigastric, the largest of the series, supplies all the viscera in the abdominal cavity and is in communication, due to its great network of nerve fibers, with the most important plexuses in the thoracic and abdominal cavities. It is subdivided into two important portions, (1) the semilunar ganglion, (2) the celiac plexus.

A ganglion may or may not be connected with a spinal nerve, but it is always linked by association cords with other ganglia. Other communicantes are the rami communicantes, which are divided into two groups, the white and the gray rami communicantes. The white rami communicantes are composed almost exclusively of the visceral branches of certain of the spinal nerves which use the sympathetic system as the pathway by which they arrive at their destination. The fibers arising from the anterior root are called the splanchnic efferent fibers and those from the posterior root the splanchnic afferent. The splanchnic afferent fibers furnish motor impulses to the unstriped muscles of the vessels and viscera, and secretory ones to the glands of the splanchnic area; they also convey motor impulses to the heart. The splanchnic afferent fibers are the sensory fibers of the splanchnic area and pass by way of the posterior roots into the spinal cord. The gray rami communicantes are bundles of axones of sympathetic neurones which pass from the gangliated cord to each one of the entire series of spinal nerves. The association cords are the longitudinally disposed bundle of fibers comprising the interganglionic portion of the gangliated cord.

From this short anatomical résumé, we see that, although the supply of the thoracic, abdominal, and pelvic organs constitute an important part of the duty of the sympathetic nerves, it is by no means their entire concern: the innervation of the involuntary muscles of the vessels and of the skin, and of the glands throughout the entire body being likewise their task, they follow the course of blood vessels to meet their obligations to the structure within the body and by way of the rami communicantes join the somatic spinal nerves, which they accompany to all parts of the body, to the vessels, skin, and glands outside of the body cavities.

From all this, it is evident that we have in the sympathetic nervous system, due to the free communication between its ganglia and the cerebrospinal nerves and vagi, a medium by which the remotest as well as the nearest, the deepest as well as the most superficial parts of our body are reached and controlled, stimulated, excited, irritated, anesthetized, and calmed by the same set of nerves originating from the same plexus.

From the aforsaid (a short review of the physiological and chemical deduction and the anatomical résumé of the sympathetic) we know that glycosuria following the hyperemia of the surrounding vessels of the liver is induced either (1) by injury or irritation of some nerve of the cerebrospinal system that stands in direct or indirect communication with the sympathetic system; or (2) by injury or irritation of the filaments or ganglia of the sympathetic system direct. Reasoning from this standpoint it is plain that if we can relieve the hyperemia so induced, we will restore physiological balance and correct the function of that part of the nervous system which induced the hyperemia.

Searching through the literature on diabetes mellitus I fail to find anything, as far as treatment is concerned, that would indicate even a suggestion to relieve the hyperemia around the vessels of the liver. And to accomplish this I know of no better method of treatment than acting through the sympathetic system by application of the proper modalities of electricity. We are all aware of the therapeutic value of electricity in general and of its modalities in detail. Physiologically I can only repeat what I have said in my paper on electro therapy, that both high potential and frequency cur-

rents are Nature's own remedy and are incomparable stimulants, affecting nutrition and metabolism of the tissues, inducing a renewed vasomotor tone, awakening cellular activity of dormant organs, sending stimulus into the deep ganglia and through them exercising a reflex action upon the centers of the cerebrospinal and sympathetic systems. They are strongly indicated where penetrative action is required in order to remove deep-seated infiltration, congestion or stasis.

Hence to treat diabetes mellitus I selected the high potential and high frequency currents. Both currents are best indicated from pathological standpoints in disturbances due to errors of nutrition. The therapeutic value of polarity of electricity, which I explained in my paper on electro therapy* is followed through all modalities of electricity.

In the case of diabetes mellitus I use the indirect positive spark or brush with the negative insolation or the same polarity in high frequency effleuve. The treatment of diabetes mellitus by these two currents appears to me both reasonable and scientific, for if we study carefully the successive phenomena in this disease we would find the pathological changes taking place so rapidly that it is very often astonishing and even marvelous to both patient and physician. Both currents, high frequency and potential, differ very little as far as therapeutic indications or effect are concerned. The high frequency is more pleasant to the patient than the static, due to the absence of pain with high frequency, but requires more seances.

In diabetes mellitus the current is applied over the epigastric region directly over the celiac plexus, semilunar, and splanchnic ganglia, directing the current from left to right. The application should be given from ten to fifteen minutes, in sufficient intervals to prevent the patient becoming exhausted. The patient usually, after the treatment feels the sedative effect and usually experiences a gentle restfulness beginning with a pleasant glow over the entire body, breaks into light and warm perspiration, with a pleasant tired feeling, and usually falls asleep. After a short treatment the predominating symptoms of diabetes mellitus subside little by little. The polyuria, excessive thirst, or hunger are decreasing and the sugar is diminishing in quantity. The general nutrition is improving, good spirits and vitality show through every action and the patient feels the improvement himself with every treatment. The usual time required is from six months to a year or a year and a half to accomplish a cure.

During my early treatment (in the latter part of 1903 and early part of 1904) I met with a great many failures and reverses, but I attributed them, as I will show later, to my adherence to the carbohydrate-free diet theory. As soon as I abolished this theory and with the help of the spinal test which I applied freely, out of 144 cases I have only 62 cases without any results, and this was more due to the negligence and lack of attendance on the part of the patients. And even these 62 cases, almost all of whom were treated for periods of from three weeks to three months, have improved, showing a diminution in percentage of sugar, decided relief in polyuria, excessive thirst, and hunger. Some have even gained in weight. A good many of them failed to follow out the treatment on account of financial or other similar embarrassments. While to my personal knowledge I have had no deaths from diabetic coma, I do not wish to say that such may not have occurred. But if so, then it was after they passed from being under my care.

To locate the seat of nervous irritation I use a test which I call "the spinal test." I use it in a great many nervous diseases as I do in diabetes mellitus. While the test is not up to perfection and needs a great deal of improvement, it has served me in many a case to clear up an obscure diagnosis. In cases where the nerves were irritated the results were best and quickest. The test is very simple. Applying a long and broad wet pad made of linen and cotton, the kind described by me in a recent article,* covering the active thoracic and abdominal part of the body, you place your patient on top of it, face downwards, having previously attached the positive pole of the direct current to it, the negative pole being attached to an electrode covered with a wet sponge or cotton. The small galvanic current of not more than 5 milliamperes suffices for the test. Pass the wet electrode on both sides of the entire length of the spinal column several times and, remarkable to say, a few minutes after removing the electrode, well-defined, red spots appear, which in a short time tend to become more vivid and sometimes assume a bluish hue. These spots will, in diabetic cases usually appear in the dorsal region and preferably on the right side.

Permit me to cite a few cases in support of my statement, and in proof of the test:

Case I.—Mr. M. J. D., contractor, age 58. Had diabetes mellitus for 12 or 14 years, and had been under the treatment of many physicians. Voids normal amount of urine. Specific gravity, 1022: sugar, 4 per cent. Spinal test was applied, and red spots appeared on right side of sacrum. All the spots were within an area of two inches. At the end of one year and three months treatment, no sugar, no albumen, gained about 15 or 20 pounds. Test applied. No indication of red spots anywhere. Within a month of being discharged he went to Cuba. He got an attack of diarrhea lasting three or four days, and was treated by surgeon on boat coming back to New York. The diarrhea continued for a week. He was treated by the family physician. When he became debilitated, he was advised to go to Saratoga, but came back in two weeks, having lost 15 to 20 pounds. He called at my office the day after his arrival from Saratoga. Examination of urine proved no sugar. Examination of feces showed a high amount of undigested milk, casein, and fat. Spinal test applied. Red spots appear on the sacrum and were quite prominent. Lower abdomen was treated daily with static and high frequency and three days afterward the bowels were perfect. Within a month he was again restored to good health. The last time the urine was examined was January 28, 1910. No sugar, no albumin. He had gained in weight possibly ten to twelve pounds and passed a high insurance policy. From this report and the spinal test we conclude that (1) the original irritating cause of glycogenic hyperemia in this case was located or at least reflexed in the sacral region. (2) That were it not for the restored metabolism and also restored function of the nerves in the glycogenic area the neurotic enterocolitis would have proved fatal; the usual consequence in those cases being diabetic coma and death.

Case II.—Mrs. B., superintendent of large establishment, was brought to me in 1896 (at that time

*The American Journal of Dermatology, October, 1908.

*New York Medical Journal, February 18, 1905.

at the age of 26) by her husband for sexual apathy. On examination no special features except that she voids 340 ounces of urine a day and suffers from an extreme thirst, also once in awhile with hunger. The specific gravity of the urine was 1026. Showed 6½ per cent of sugar. She is extremely nervous and up till 1904 was treated by me to the best of my ability according to the advice received from my teachers, text-books and colleagues. While I administered the medicine, she religiously took it, and while she did not improve much, she did not become worse. In 1904 I started to treat her with electricity and previous to this I applied the spinal test. She was one of the first patients that I treated thus in 1904. This showed the extravasation spots around the lumbar region. She was treated with static electricity and within a year or so there was no sugar in the urine, the thirst diminished, and the polyuria disappeared. The woman gained in weight and even the obstacle of which her husband originally complained was overcome.

Case III.—Child, two years seven months old. Infantile paralysis of lower limbs. Rigidity of muscles and joints. No relaxation of knee or ankle joints. No reflexes. No muscular power in hands. Neck from seventh vertebra and up strongly bent so that the chin pressed against the breast and child forced to look up from under eyebrows when desiring to look upwards. Mother complained that the child suffers thirst. "He can drink all the time." With this there was polyuria. Mother complains that she has to change diapers every ten or fifteen minutes. Voids more than 2½ ounces at one micturition, and if mother's statements be correct, rate amounts to ten ounces per hour, if not more, and to 240 ounces in 24 hours. On examination urine shows specific gravity of 1028. Sugar 6 per cent. Upon the spinal test being applied, red spots appeared on both sides of cervical region between the third, fourth, and fifth vertebræ, showing the extravasation points. Was treated daily for one month, special attention being paid to chest, neck, and extremities. Within three weeks rigidity subsided. Child can draw up its legs and extend them. Started to creep. When placed on the floor stands flat on its feet. Coordination improved. When given a chocolate candy puts it in his mouth. Says "Mama." Neck greatly reduced in curvature. Child looks almost straight forward. Thirst and polyuria greatly diminished. Due to statement of mother that the child is too heavy for her to carry such a long distance (she lives in Brooklyn) and thanks to the remark of a kind colleague who said that the child was an idiot, treatment was discontinued. Had no chance to reexamine urine or to reapply test.

The theory of carbohydrate-free diet is based upon the idea that the saccharine and amlaceous foods fail to be consumed in the economy of the body, not being oxidized in the blood as they should be. Hence if these foods be excluded from the diet the symptoms of glycosuria will disappear. Careful observers and clinicians like Osborne, Crofton, Labbe, Eccles, Goodhart, and Falta report unsatisfactory results from carbohydrate-free diet in diabetes mellitus. They cite cases of diabetic coma directly due to the carbohydrate-free diet, claiming that the body "being deprived of carbohydrates continuously must necessarily consume itself or starve in order to supply the missing unit."

Some good observers and clinicians advise the administration of fats, others do not, and look upon it with suspicion. Fats used with carbohydrates can be taken in large quantities without any disturbance in digestion. I usually advise sweet butter and sour cream to be taken with the meals in possible larger quantities than usual. Other fats given alone, and in large quantities, induce very often a marked indigestion.

We listen to the advice of good men advising a diet of starch and sugar. Another group of equally good men advise giving no starch or sugar. Both groups consist of sincere observers. What is to be done? Physiological chemistry is the basic fact and it is our business to find if possible the influences that restore to the normal the physiological chemistry of the cell, or what is inclusively termed cell metabolism.

Diet.—As to the rules of diet they are as follows, providing the idiosyncrasy of the patient demands special instruction: The diet must be a mixed and nutritive one. Eat slowly. Masticate your food thoroughly. Partake of a small meal at a time. Better six or eight small ones than two or three large ones. Abstain from all carbonized liquors, like champagne, beer, ale, ginger ale, and even carbonized water. If liquor must be drunk use whiskey or good brandy, diluted with plain water. I advise a great deal of cooked vegetables and fruit, cooked cabbage, spinach, cooked apples, prunes, and tamarinds.

Case IV.—July, 1906. Paul N., aged 48. No thirst, no polyuria. Voids 70 ounces a day; 3½ per cent. of sugar. Specific gravity 1029. There was no wasting. Loss of sexual desire. Was treated with high frequency and static. No special diet. March, 1908, discharged cured. No sugar. Sexual desire restored.

Case V.—January, 1905. C. S., female, 28 years old. Complained of polyuria, thirst and wasting. Specific gravity of urine 1030, 4½ per cent. sugar. Suffered with pruritus vaginæ and under the arms. High frequency and static electricity. Magnesia sulphate solution baths. December, 1906, discharged cured, gained 18 pounds. No special diet.

Case VI.—March, 1907. Fred W., aged 56 years, retired, noticed that he used to pass urine oftener than usual. Thirst and bulimia. Had urine examined in a laboratory; 64 ounces in 24 hours. Specific gravity 1028. Sugar 2 per cent. Trace of albumin and casts. Treated with high frequency and static electricity. July 15, 1907, voids 48 ounces in 24 hours. Specific gravity 1024. No sugar. Trace of albumen, no casts. I advised trip to Europe. He came back in September, when urine showed no sugar. Was treated for other complications. No special diet.

Case VII.—January, 1908. John L., age 16 years, voids 320 ounces in 24 hours. Specific gravity 1030. Sugar 4½ per cent. Height 5 ft. 8, weight 96 pounds. Six months ago fell in an air-shaft. Excessive thirst, no hunger. Treated as previous case. No special diet. May, 1909, discharged cured. Gained over 30 pounds.

Case VIII.—January, 1908. Katie D., 34 years old, married, with three children. She had had one miscarriage, but mensturated regularly. Was operated in the latter part of 1906 for small ovarian tumor. Lost over 40 pounds in the last 6 months. Voids 240 ounces in 24 hours. Specific gravity of urine 1028. February, 1910, no sugar, no polyuria, no special diet.

Case IX.—September, 1909. Carrie K., 12 years old, tall, very poorly nourished, exceptionally bright in school; weighs 83 pounds; tuberculous history

on both sides of the family, although neither father nor mother are sufferers of phthisis. Suffers with diabetes mellitus for the last two years. Voids between 120 to 140 ounces of urine in 24 hours. Specific gravity 1026. Sugar 4 per cent. No albumen. The treatment consisted of physical exercise in fresh air and expansion of chest and deep breathing ordered. High frequency and static electricity. January 28, 1910, has gained 14 pounds, no sugar in the urine, voids 80 to 85 ounces in 24 hours. Still in treatment. No special diet.

As to drugs I will say that I do not use many. Opium, strychnine, and atropine or its compounds are usually used. But we should not use drugs in diabetes mellitus in a general way. Their only possible justification is to meet symptoms.

Physical exercise is of great importance. Breathing exercises with chest expanded, at an open window, first thing in the morning, or in the open air during the day, is imperative. But the exercise as well as playing at games must be advised and regulated by the attending physician with due regard to the circulation and not carried on to overfatigue.

Warm baths before going to bed and a sponge with a solution of magnesium sulphate three or four times a week. Cold baths only in large plunges or in the sea during the hot part of the day when the patient can exercise by swimming.

In conclusion I wish to say that diabetes mellitus should be placed on the list of curable diseases. The other complications, such as nervous, pulmonary, thoracic, digestive, and genitourinary, should be treated secondary to diabetes mellitus. Never use the knife in diabetes mellitus. Electricity is Nature's own remedy in diabetes mellitus; the sooner applied, the quicker the result. But, and this I must emphasize, the one who applies it must be one who thoroughly understands its potentiality and its modality.

Let me make a summary statement. Back of all that has been written relative to this nutritional disorder, so-called diabetes mellitus, lies the primary and vital fact that we are dealing with disordered cell metabolism which has its origin in a disadjustment of the *ego* to its environment, what the world calls worry.

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THE PRINCIPLES AND TECHNIQUE OF THE WASSERMANN REACTION.

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As almost all the valuable literature that has appeared in the last few years, dealing with the Wassermann reaction, has dealt principally with the use, value, and scope of this test as a means of diagnosing syphilis, and as the result of an extensive review and study of the subject involved it is thought not to be amiss to write this paper, the purpose of which is to set forth only, in detail, the principles underlying this reaction and the technique employed. Considering the fact that the use of this reaction for the diagnosis of syphilis is increasing daily, and its specificity and great value confirmed by many authorities, it is hoped that this paper will be of aid in making those who are but little familiar with the reaction, more familiar, and as an encouragement to those who may have hesitated to undertake the performance of the test on account of its apparent difficulty.

It has been a long established fact, discovered by Belfanti and Carbone[1] that an animal of one species acquires a specific lytic power when injected with the washed red blood corpuscles obtained from an animal of another species. For convenience, we will call the immunized animal "B" and the animal whose blood was used for immunizing "B," "A." The lytic power acquired may be expressed as the power of "B's" blood serum (hemolytic amboceptor) to hemolyze (lake) or rendering transparent, an opaque suspension of "A's" blood corpuscles. This lytic power may be explained as being due to and dependent upon "complement" which is present in all normal blood serum and capable of being destroyed (inactivated) by heating the serum to 56° C., and the immune body (hemolytic amboceptor) which is present in the blood serum of the immunized animal and not capable of being destroyed (inactivated) at 56° C. Complement is thermolabile (destroyed by heat) and the immune body, thermostabile (not destroyed by heat).

The laking of the blood is due to the immune body (hemolytic amboceptor) combining with its specific red blood corpuscles in the presence of complement. In the reaction the complement is said to be "fixed" and hemolysis (laking of the blood) occurs.

Bordet and Gengou[2] showed that in the same manner as specific immune bodies (hemolytic amboceptors) are produced in animals injected with the blood of an animal of another species, by the injection of bacteria (or albuminoid substances), immune bodies (amboceptors) are produced in the injected animal which will combine with the specific bacteria (or albuminoid substance) and complement which is contained in any normal serum.

This principle was used by the above investigators to determine the nature of an infection. It was done by mixing the inactivated serum (complement destroyed) of the infected animal with the supposed causal bacteria (antigen) and then adding complement (fresh normal blood serum). If the immune body is present in the serum of the animal it will unite with the bacteria (antigen) and complement

(in normal serum), thereby fixing the complement. Now, if to this some blood corpuscles plus its inactivated specific hemolytic serum be added, hemolysis (laking of the blood corpuscles) will not occur on account of the complement being previously fixed. Should the blood serum of the animal not have contained the specific immune body, the complement would not have been fixed in the first place and the blood would have been hemolyzed (laked). The laking of the blood would then indicate a negative reaction (absence of immune body), whereas, if the immune body was present no laking occurs and indicates a positive reaction.

It can be readily seen that the foregoing experiments permitted the demonstration of immune bodies (antibodies) as well as the substances which cause them (bacteria, etc.).

It is the above reaction which Bordet and Gengou called "reaction of fixation" (fixation of complement), that the Wassermann reaction is based upon. The reaction that takes place, in the case of syphilitics is, the fixation of complement is caused by the specific antibody contained in the syphilitic's blood serum, combining with the antigen (emulsion of liver obtained from a syphilitic fetus which contains the causal organism of syphilis, the *Treponema pallidum* in large numbers), and thereby fixing the complement and preventing hemolysis.

Wassermann, Neisser, and Bruck[3] were the first to describe a means of diagnosing syphilis based upon the above principles (fixation of complement). These investigators came to the conclusion that the blood serum of syphilitics contains an antisubstance (immune body) to the cause of syphilis. The experiment that brought them to this conclusion was as follows: They found that a mixture of a watery extract of liver, obtained from a syphilitic fetus and the blood serum of a syphilitic person would fix alexin (complement), whereas a mixture of normal serum or of serum from other diseases and the extract of syphilitic liver did not fix complement. The originators, in their experiments used as antigen the syphilitic liver of a fetus. This was used on account of the abundance of the causal organism, the treponema pallidum, present.

Landsteiner, Müller, and Plötzl,[4] Levaditi and Yamanouchi,[5] and other investigators found that an alcoholic extract of either syphilitic or normal liver would give the same reaction as an emulsion in normal salt solution of syphilitic liver obtained from a fetus such as used by the original investigators. Porges and Meier[6] demonstrated the value of lecithin as antigen, while Landsteiner proved the value of an alcoholic extract of guinea-pig heart as antigen. These investigators have compared the value, as antigen, of a watery extract of syphilitic liver, an alcoholic extract of normal liver and pure lecithin, the results only confirming the fact that they are equally efficacious.

From the above investigations, which have been confirmed by many workers, may be concluded that the Wassermann reaction is due to certain bodies in the blood serum of syphilitic persons that display a marked affinity for lipoids and in particular, lecithin. Many workers now use, as antigen, an emulsion of licithin or guinea-pig heart, in place of the watery emulsion of the liver obtained from a syphilitic fetus as described by the originators of the reaction; the advantages being that lecithin and guinea pig's heart are always on hand and alcoholic extracts are more stable than watery extracts.

The necessary materials and their preparation:

1. Antigen (*a*) (original Wassermann); the liver of a syphilitic fetus is cut up into very small pieces and an emulsion made of it by shaking it up very well with normal salt solution (0.85 per cent.) in the proportion of one (1) part of the liver to five (5) parts of the salt solution. After the shaking is completed, the supernatant liquid is removed and clarified by centrifugalization, after which the clear liquid is pipetted off, one-half of one per cent. of phenol added to it and stored on ice for use.

(*b*) If lecithin is to be used as the antigen, it is prepared as follows: Make up a solution of pure lecithin in alcohol; of this alcoholic solution, a quantity equal to 0.1 gms. of lecithin, is added to 100 c.c. of normal salt solution. This is also stored on ice for use.

(*c*) Guinea-pig heart extract is prepared as follows: The heart is rubbed up very fine in a mortar (containing ground glass) with absolute alcohol in the proportion of one (1) gram of the heart to 25 c.c. of absolute alcohol. It is then heated to 60° C. for an hour, filtered through filter paper and kept in the refrigerator ready for use.

As the strength of the antigen will vary in different preparations, it must be standardized before being used. It should be of such strength that the quantity used will not hemolyze 1.0 c.c. of a 5 per cent. suspension of washed lamb's blood corpuscles in the presence of 0.2 c.c. of a known positive serum, 0.1 c.c. of complement, and 2 minimal units of the hemolytic serum. The unit is determined as follows: A series of test tubes are prepared, each containing the same quantities of the reagents mentioned above and varying amounts of the antigen. The usual technique is followed and the unit determined by the quantity of antigen that inhibited hemolyses. After this determination the same antigen must be tested with a known negative serum used in place of the positive serum and using double the unit of antigen. This double unit should not inhibit hemolyses of the blood cells. The unit being determined, the antigen is so diluted that 1.0 c.c. will contain the unit.

2. Antibody: The blood serum or cerebrospinal fluid of the spyhilitic person. A sufficient quantity of the patient's blood is collected from the lobe of the ear or finger tip, in any sterile vial (best in a Wright's capsule), aseptic precautions, of course, being observed. The blood is then centrifugalized and the serum used. The spinal fluid is obtained in the usual manner by lumbar puncture.

3. Complement: The normal blood serum of a guinea-pig. A guinea-pig is bled to death each day, as the serum loses its complementing value if kept over twenty-four (24) hours. The blood is defibrinated, centrifugalized, and the serum used. If stored, it should be frozen.

4. Hemolytic serum: The blood serum of a rabbit that has been injected with washed lamb's blood corpuscles. The rabbit is immunized as follows: The lamb's blood is first obtained, best by cutting its ear and allowing 10 c.c. of blood to run into 30 c.c. of a 1 per cent. sodium citrate solution in normal salt solution. (This will prevent the blood from clotting). It is then centrifugalized, the supernatant fluid pipetted off, and the blood corpuscles washed with normal salt solution by repeated centrifugalization and dejection of the supernatant fluid. Five c.c. of the washed blood corpuscles are injected into the rabbit five (5) or six (6) times

at repeated intervals of five (5) days. On about the tenth day after the last injection, blood is taken from the rabbit, centrifugalized, and the serum used. Before using this serum, it is necessary to test its power after being inactivated (heated for three-quarters of an hour at 56° C. to destroy complement). The test is made to determine the minimum quantity of the serum that will hemolyze 1 c.c. of the 5 per cent. suspension of lamb's blood corpuscles, with 0.1 c.c. of complement (normal guinea-pig serum). Various quantities of the serum to be tested are put in a series of test tubes with 1 c.c. of the suspension of lamb's blood corpuscles and 0.1 c.c. of the complement in each tube. The tubes are put in the incubator at 37° C., for an hour and then examined to determine the smallest quantity of serum that produced hemolysis. (The proper quantity is usually 1 c.c. of a 1 in 2000 dilution, in normal salt solution. The quantity necessary for the reaction is two minimal units, so 1 c.c. of a 1000 dilution is used for the reaction.) The dilution used should never be lower than 1:1000. If it happens to be lower it will be necessary to give the rabbit a few more injections of blood corpuscles, before using its serum.

5. Lamb's blood corpuscles: 5 c.c. of defibrinated lamb's blood is collected and washed with normal salt solution in the same way as the blood for the injection was washed, then a 5 per cent. suspension made in normal salt solution.

The antigen, the patient's serum, and the hemolytic serum must be inactivated (to destroy complement) before using, by heating them for three-quarters of an hour at 56° C. The serums should be inactivated as soon after obtaining them.

The antigen, antibody (patient's serum) complement, and hemolytic serum should each be so diluted with normal salt solution that 1 c.c. of the dilution will contain the necessary quantities needed for the reaction.

Technique for performing the reaction: Into a test tube place 0.2 c.c. of the antigen, 0.2 c.c. of the patient's serum (antibody), and 0.1 c.c. of the complement. Incubate this at 37° C. for three-quarters of an hour and then add to it 1.0 c.c. of the solution of hemolytic serum, containing two minimal doses and then 1.0 c.c. of the 5 per cent. suspension of lamb's blood corpuscles. Now, incubate the whole for two hours, place in the refrigerator over night, and then note if hemolysis has occurred. If the antibody of syphilis is present in the suspected blood serum, hemolysis will not occur because the complement is "fixed" to the immune body by the aid of the antigen and the reaction is positive. Should the suspected blood serum not contain the specific antibody, hemolysis will occur because there is no immune body to "fix" the complement, therefore causing the hemolytic amboceptor (hemolytic serum), by the aid of the red corpuscles, to fix the complement, producing hemolysis and the reaction is then negative.

The substances employed are subject to many external influences, and it is, therefore, necessary to control their action. The controls made are necessary in order to demonstrate that none of the employed substances alone "fix" the complement, and that the occurrence of either a positive or a negative reaction, when testing a suspected serum, is due to and dependent upon, only to the fixation or nonfixation of the complement by means of the immune body, present or not present in the suspected serum, and the specific antigen.

	Test-Tube Number	Antigen 1:5 Dilution	Suspected Serum, 1:5 Dilution	Known Positive Serum, 1:5 Dilution	Known Negative Serum, 1:5 Dilution	Complement, 1:10 Dilution	Standardized Hemolytic Amboceptor, Containing 2 Minimum Hemolytic Doses (Usual Dilution = 1:1000)	Washed Lamb's Blood Corpuscles, 1:20 Dilution	Proper Results After Being Overnight in the Refrigerator	The Purpose of the Controls
						Incubate at 37° C. for forty-five minutes and then add the following:			The fluid in all the tubes are filled up to the same level by the addition of 0.85% sodium chloride solution. Incubate at 37° C. for two hours and then place in the refrigerator over night.	
*The Test and Controls for the Suspected Serum	1	1.0 c.c.	1.0 c.c.	.....	.....	1.0 c.c.	1.0 c.c.	1.0 c.c.	Positive = no hemolysis Negative = hemolysis.	The test proper of the suspected serum.
	2	"	0.5 c.c.	.....	.....	"	"	"	Pos. = trace hemolysis. Neg. = comp.	A quantitative control of the suspected serum's power in the above reaction.
	3	.....	1.0 c.c.	.....	.....	.....	"	"	No hemolysis.....	To prove that the suspected serum is inactivated.
The Test and Controls for the Known Positive Serum	4	1.0 c.c.	.....	1.0 c.c.	.....	1.0 c.c.	1.0 c.c.	1.0 c.c.	No hemolysis.....	The test proper of the known positive serum.
	5	"	.....	0.5 c.c.	.....	"	"	"	Trace hemolysis.....	A quantitative control of the known positive serum's power in the above reaction.
	6	.....	.....	1.0 c.c.	.....	"	"	"	Complete hemolysis.	To prove that the immune body of itself will not "fix" the complement.
	7	.....	.....	0.5 c.c.	.....	"	"	"	" "	A quantitative control of the immune body's power in the above reaction.
	8	.....	.....	1.0 c.c.	.....	.....	"	"	No hemolysis.....	To prove that the known positive serum is inactivated.
The Test and Controls for the Known Negative Serum	9	1.0 c.c.	.....	.....	1.0 c.c.	1.0 c.c.	1.0 c.c.	1.0 c.c.	Complete hemolysis.	The test proper of the known negative serum.
	10	"	.....	.....	0.5 c.c.	"	"	"	" "	A quantitative control of the known negative serum's power in the above reaction.
	11	.....	.....	.....	1.0 c.c.	"	"	"	" "	To prove that the known negative serum of itself will not "fix" complement.
	12	.....	.....	.....	0.5 c.c.	"	"	"	" "	A quantitative control of the known negative serum's power in the above reaction.
	13	.....	.....	.....	1.0 c.c.	.....	"	"	No hemolysis.....	To prove that the known negative serum is inactivated.
Antigen Controls	14	1.0 c.c.	.....	.....	.....	1.0 c.c.	1.0 c.c.	1.0 c.c.	Complete hemolysis.	To prove that the antigen of itself will not "fix" the complement.
	15	"	.....	.....	.....	.....	.....	.....	No hemolysis.....	To prove that the antigen of itself will not hemolyze the red blood corpuscles.
	16	.....	.....	.....	.....	.....	1.0 c.c.	"	" "	To prove that the antigen will not act as complement.
Hemolytic System Controls	17	.....	.....	.....	.....	1.0 c.c.	1.0 c.c.	1.0 c.c.	Complete hemolysis.	To prove that the "hemolytic system" reacts properly.
	18	.....	.....	.....	.....	"	.....	"	No hemolysis.....	To prove that the complement of itself will not hemolyze the red blood corpuscles.
	19	.....	.....	.....	.....	.....	1.0 c.c.	.....	" "	To prove that the hemolytic serum is inactivated.

*These three tests are to be made for each suspected serum.

The following table presents the tests and controls to be made. The technique employed is as already mentioned, and graphically arranged in the table on page 960.

The quantity of antigen used for the reaction may have to be either increased or decreased. The controls will indicate when a change is required and the proper quantity necessary is determined by the method given under the preparation of the antigen.

GRAPHIC EXPLANATION OF THE DIFFERENT REACTIONS THAT HAVE BEEN MENTIONED.

1. Complement (normal serum) + hemolytic amboceptor (serum of immunized animal) + suspension of red blood corpuscles = hemolysis (the complement is fixed and the blood is laked).

2. Hemolytic amboceptor + suspension of red blood corpuscles = no hemolysis as there was no complement to be fixed which is necessary to produce hemolysis.

3. Antibody (immune serum) + antigen (specific for the antibody) + complement = fixation of complement.

4. Antibody + antigen + complement, incubated three-quarters of an hour (complement is fixed) + hemolytic amboceptor + suspension of the specific red blood corpuscles = no hemolysis. The antibody, by the aid of the antigen, "fixed" the complement and so prevented the hemolytic amboceptors from combining with it (complement) and thereby preventing hemolysis. This is the reaction that takes place in positive cases of syphilis, due to the presence of the antibody (immune body).

5. a. [Antigen + suspected serum, containing no antibody (any normal serum) + complement incubated three-quarters of an hour] + b [suspension of specific red blood corpuscles + hemolytic amboceptor] = hemolysis. There was no antibody present in the suspected serum to "fix" the complement ("a" reaction) so that the hemolytic amboceptor fixed it and thereby produced hemolysis ("b" reaction). This reaction takes place in suspected negative cases, due to the absence of the antibody.

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THE TREATMENT OF PROGRESSIVE SCOLIOSIS.

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Scoliosis comes on insidiously and is painless. Often the parents are not even aware that their child is in this condition. When the deformity is discovered, it has usually progressed so far as to make it beyond remedy. I have had cases in which the curvatures were so advanced that some of the vertebræ were ankylosed, yet the parents were ignorant all this while that their child had anything wrong with its spine. I hope to interest the Boards of Health on behalf of a routine examination of school children's backs. The physicians of the Boards of Health examine children for diseases or defects, but the back, which is the seat of scoliosis, a deformity which is widespread and serious and comes on at school age, is left to take care of itself. The result is that scoliosis is permitted to progress and is recognized here in the United States only when one shoulder becomes depressed enough or the angle of the scapula becomes sufficiently prominent to be noticeable through the child's clothes. We still leave the early diagnosis of scoliosis in the hands of the mother, teacher, and dressmaker.

In Switzerland and Germany routine examinations of the school children's backs are made by competent orthopedists and prophylactic measures are promptly instituted in suspicious cases. They are so enthusiastic in those countries over the result of prophylaxis in scoliosis that, as they say in one of their official statements, "It is a question whether in the entire domain of medicine and surgery prophylaxis has ever done as much good as prophylaxis in scoliosis."

Fig. 1.—The "creeping" exercise. The patient by making alternate wide semicircular sweep with his arm and bringing his knee forward to his chest forces the vertebra to bend to its extreme capacity and to twist and rotate to its fullest extent.

But as far as static scoliosis is concerned, the patient can still be benefited by treatment. The suspending and correcting machines break up vertebral adhesions, while gymnastics increase the tone of the system, build up muscles, and develop the elasticity of the spine. What is important in these cases, especially from a cosmetic standpoint, is that we can teach the patient to stand straight and carry himself correctly.

I have seen Professor Schantz get good results in chronic cases from his method of forcible correction. Nevertheless, in the static variety the main deformity remains during life. A glance at the pathological picture will convince us that this result is inevitable in chronic scoliosis. In these specimens we see that some of the vertebral ligaments are ossified while many of the intervertebral cartilages have disappeared altogether. The vertebræ are distorted, their bodies are atrophied on one side, hypertrophied on the other side, ankylosed into one twisted column, and a number of the spinal muscles which are stretched and compressed by the convexity become attenuated, and replaced by fibrous or fatty tissue. It is, therefore, obvious that no treatment can restore to the normal a spinal column which has undergone such radical organic changes. The hope, therefore, of good results depends upon prophylaxis, and failing in prophylaxis, the good

results depend upon the measures which stop the progress of the deformity. The structural changes of scoliosis which occur in the spinal column and the thorax are the result of the pressure of the superincumbent weight upon displaced vertebræ. Whenever bones become displaced from their normal position, structural changes always occur. Another example of structural changes is the ankylosis with altered shape of the tarsal bones that follows the displacement of the tarsal bones in flat feet.

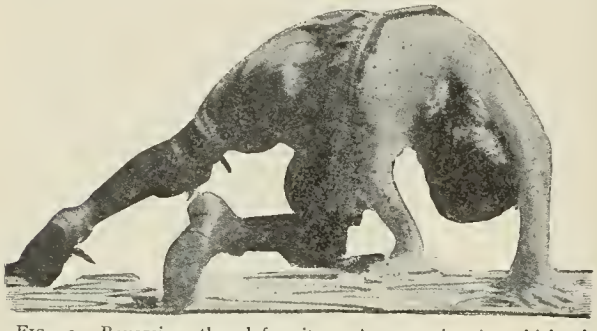

Fig. 2.—Reversing the deformity. An exercise in which the patient forces the fallen-in ribs to bulge out and widen the rib spaces while he presses the convexity inward and forward.

Structural changes follow rapidly when young bones are displaced. I can recall cases of incipient scoliosis where the vertebræ in the curvatures were free and not adherent and the spines straightened completely when the patients lay down. In an astonishingly short time, in two weeks or a month, I would find that some of the vertebræ in the curvatures had already become ankylosed and the spines did not straighten completely when the patients lay down. We have learned the same truth of the rapidity with which structural changes form in the young from displaced vertebræ through our experiments on animals. This was done by curving the spines of puppies and holding them in plaster-of-Paris casts. In three weeks permanent scoliosis was produced in some of these puppies.

In every case of scoliosis there is a period which is characterized by the formation of curvatures. This period may be short, as in the case of the mild types, or protracted as in the severe types. The tendency towards the formation of curvatures during the progressive period is apt to be obstinate and often goes on in spite of the treatment with gymnastics and corsets. To stop this tendency is the most difficult problem with which we have to contend, and at the same time the most important part in the entire question. When the progressive tendency of scoliosis is stopped successfully and promptly, the patient will remain straight or relatively straight, while failure dooms the spine and thorax to deformity.

Fig. 3.—The same as Fig. 2, when the move is to the opposite side.

The fact that thousands of new recruits are added to the army of scoliosis every year in spite of the treatment of even competent men with gymnastics or corsets, or the combination of gymnastics and corsets, and the further fact the treatment of progressive scoliosis has undergone a change in the methods of some orthopedists since Professor Klapp gave us his excellent system of gymnastics, are my only excuses for writing upon this subject.

The old theories of scoliosis, the "ligamentous", the "osseous", and the "muscular", or any other theory that pointed to the weakness of a single structure of the spinal column, have been exploded by recent investigation. Unbalanced chest muscles, one side pulling stronger on the vertebræ than their opponents, empyema, a short limb, all may be causes of scoliosis. Still these factors are only predisposing causes, for often these conditions exist in children a long time without ever producing scoliosis. Clinically, we know that patients with scoliosis often have anemia and diminished vitality. Of the few cases of early scoliosis that have come to autopsy, we have learned that the cancellous tissue of the vertebræ is less tough than in the normal vertebræ; also that the intervertebral discs are more gelatinous, the vertebral ligaments less elastic, and the spinal muscles more atonic than in normal children of corresponding age. Scoliosis occurs in animals, fishes, and fowls, which has led some observers to conclude that scoliosis was not due to the erect position. Nevertheless, scoliosis in the lower vertebrata is rare while in men it is widespread, and this points to the erect position as being the main factor in the cause of the deformity. The latest report of Lou-

Fig. 4.—Correcting the deformity. The patient corrects the deformity by pressing the convexity inward and forward.

sanne shows that of the three thousand school children examined, scoliosis was present to some degree in 24.6 per cent., or about one-fourth of the total number.

In men the spinal column has the additional function of weight-bearing. A spinal column made up of soft vertebræ, inelastic ligaments, and atonic muscles naturally is weak and has little supporting power. It cannot efficiently support the head, the arms, the chest, and its contents, with the result that the spine bends and twists. All movable and flexible columns upon which there are weights heavier than they can support, bend, and twist. This is the law of mechanics. The weight forces the column into a stronger position, and it is a fact that bent and twisted columns are stronger and have more supporting power than the straight columns.

In examining a patient with scoliosis I frequently elicit a history that he had in his early life some form of disturbed nutrition, either due to lack of food or improper food. This must have diminished the nutrition of the vertebræ. In a careful examination of patients with scoliosis, I have found evidences of delayed bone ossification in other parts of the body beside the vertebræ, such as slight bowlegs, knock-knee, flat feet, or nodes.

Our methods of education are also at fault. For years the child is deprived of fresh air, sunshine,

and exercise at the very age when they are necessary in nutrition. The spine is strained and fatigued by hours of sitting. All this and the additional fact that with approaching puberty the head, the arms, the chest, and its contents increase in size, is sufficient cause for the rotary deviation of the spine.

Fig. 5.—Unwinding the deformity. One of the many valuable table exercises is where the patient is strapped down by the pelvis and his trunk poised in the air. He then concentrates his mind on certain groups of muscles and forces them to unwind the deformity.

In the treatment of progressive scoliosis no corsets, casts, or braces should be worn. No vertebræ can grow if they are prevented from bending. The function of the vertebræ is to bend and slightly rotate, and the exercise of this function is the stimulus to the growth of the vertebræ and to the hardening process of their cancellous tissue. The artificial supports immobilize the spine and interfere with the function of the vertebræ. We all know how quickly the muscles atrophy if the cast is worn even for a short time. This atrophy, however, is not limited to the muscles, but extends also to the vertebræ, intervertebral cartilages, ligaments, and fasciæ. The harm that results to the spine and chest from the confinement of supporting apparatuses is only compensated by the calisthenics which these patients usually practise. The corset, to actually hold the spine, must be laced tight, and the suffering produced by the wearing of a tight corset is often unbearable. In order to ease this suffering, parents usually compromise with the patients by lacing the corset a "little loosely," with the result that the corset loses its supporting power and becomes only an additional weight that the spine is forced to carry. The danger of the corset is that it lulls the parents into a sense of false security and creates the belief in them that their child is wearing something that is actually curing her. This tends to make them neglect the gymnastics, etc., which are the essential elements in the treatment. In Klapp's experiences the patients who are treated with supporting apparatuses are apt to suffer from excoriations, and the discomfort produced by the wearing of apparatuses often robs them of their appetite. They also suffer from "air hunger," for all apparatuses limit chest expansion and partly shut off the patients' breathing. These various tortures soon aggravate the usual existing anemia, and the sallow complexion of the scoliotic who is being treated with apparatus is familiar to every orthopedist. The counterpressure of the apparatus upon the ribs of the curvature causes the ribs, which are usually soft in this condition, to bend at an angle, with the result that patients who have worn apparatus for a long time often have a hideous angle which is situated at the junction of the lateral and posterior walls of the convexity.

The corset may prevent deviation of the spine, but it does not prevent the deforming process going on within the spinal column, nor does it always prevent the rotating and twisting of the spine. "It is a noticeable fact," says Klapp, "that the worst cases of scoliosis that I have seen had a history of long treatment with supporting apparatuses."

My experience has taught me that rest to the spine from the pressure of the superincumbent weight is essential in the treatment of progressive scoliosis. Clinically we know that the scoliotic spine is a weak spine and is not able to support the superincumbent weight. Take for example a case of incipient scoliosis. With the patient in the erect position, the spine curves. Let the patient lie down, the pressure of the superincumbent weight is removed and immediately the spine straightens by itself. These patients always complain of feeling tired and have frequently an irresistible desire to lie down. I have always interpreted this symptom as a protest on the part of nature from continuing to carry the burden of the superincumbent weight upon the weak spine.

In treating progressive scoliosis the sunniest and the best ventilated room in the house should be selected and the floor be kept dust-clean by frequent washing. Protectors made of thick felt and leather should cover the patient's knees, for the patient spends a great deal of time in crawling around the room. If the patient is not embarrassed, crawling should be practised in the city on the roofs and in the country on the lawns. The patient should study his lessons in a recumbent position and sleep on a scoliosis bed. An effort should be made to build up his strength by fresh air, sunshine, nourishing diet, stimulating baths, massage, etc., in order to hasten the toughening process of the cancellous tissue of the vertebræ. Experience has shown that Professor Klapp's system of horizontal exercises is best. In my practice, however, I supplement Klapp's exercises by some that I have taken from the clinics of Professors Hoffa and Lorenz. The clumsy child with flabby muscles can be converted into an athlete, capable of executing the necessary acrobatic trunk movements. The time allowed the patient to assume the erect position is from two to eight hours, diminished or increased, according to the progress of the lesion. Professor Klapp has tried this system of treatment in its various modifications for some time in a large number of patients, with surprisingly gratifying results. Several orthopedists have told me that this system of treatment may be good enough for the Continent, where time is no factor, but that it would not do in America. Here the parents are loath to interfere with the child's education. They prefer to have a corset made and send the child to the gymnasium after school hours. My experience, however, has been that at least the intelligent parent is willing

Fig. 6.—Trunk exercise. The patient is strapped by the shoulders. He then contracts the trunk muscles, bulging out the concavity and forcing in the convexity.

to give up a great deal provided the treatment actually benefits the child. The prolonged recumbency prevents the pressure of the superincumbent weight on the soft vertebræ and the gelatinous discs and prevents it from straining the soft parts of the spinal column. As soon as the vertebræ have hard-

ened and the cartilaginification of the discs has been promoted, the muscles built up, and the tendency of scoliosis arrested, the patient is gradually allowed to return to his former mode of living.

The advantages of the horizontal exercise as compared with the erect are as follows: 1. It gives a wider range to the excursions of the vertebræ. A person walking keeps his spine fairly stiff, while animals, on the contrary, move their vertebræ freely. A cat by turning abruptly can bend its spinal column into a bow. The movements of the vertebræ increase its growth and stimulate the toughening process of its cancellous tissue. They convert the gelatinous cartilage into normal cartilage and increase the size and elasticity of the vertebral ligaments. It is, therefore, important that the range of the excursions of the vertebræ be increased to its full limit. This is best accomplished by the horizontal position when the pressure of the superincumbent weight is off the vertebræ and the trunk muscles relaxed.

2. It gives a wider amplitude of muscular contraction. The acrobatic horizontal exercises force the muscles to contract and to relax to their fullest physiological limit. Children who have practised the Klapp system for some time have their spinal muscles developed to a thick mass which is as hard as steel.

3. It tends to restore the muscles to their normal length. The muscles of a convexity are stretched, that of a concavity contracted. Abnormally contracted or stretched muscles do not increase in size or strength with exercise. The horizontal position straightens the spine in the incipient stage, and thus the muscles are restored to their normal length.

4. It gives the vertebræ relief from the pressure of the superincumbent weight.

In following this line of treatment which Professor Klapp has suggested, I know I am taking over to myself the prejudices and criticisms which were leveled against him; but to my mind no prejudice is too bitter, no criticism too severe, no régime that the patient has to endure too irksome, no amount of interference with the patient's education for a limited time too much, for the price of a straight spine.

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THREE YEARS OF RABIES IN INDIANA.

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For the past three years an epidemic of rabies of no small proportions has existed in Indiana. Beginning with a few sporadic cases in 1906, the disease has spread to almost every section of the State. The epidemic seems to have reached its height in the summer of 1908 and now appears to be abating somewhat, although the danger is still far from being past.

The records of the State Bacteriological Laboratory contain data concerning this epidemic, which while necessarily incomplete will give some idea of the extent of the disease and the financial losses it has caused. It is doubtful if the laboratory records really show half the damage actually done by rabid dogs.

From December, 1906, to December, 1909, the brains of 260 animals were examined, of which 157, or 60 per cent., were found to contain Negri bodies.* The number and kinds of animals affected were as follows: 135 dogs, 8 cats, 9 hogs, 4 cows, 1 sheep. The number of heads received and especially the relative number of positive results varied largely with the amount of excitement among the people in a given community. Between May 1 and August 31, 1909, 63 brains were examined, of which only 21, or 33⅓ per cent., were positive. The small per cent. of positive results during this period—only a little more than one-half the average per cent. for the entire three years—is due largely to the fact that in May, 1909, a woman died in Indianapolis with what was said to be hydrophobia. The case was given wide newspaper notoriety, particularly in the central part of the State. Persons who had been scratched by the teeth of an overplayful dog, or licked by an unduly friendly pet, became panic-stricken, killed the animal at once and sent its head to the laboratory for examination, although it had not shown the slightest symptom of any disease.

During the entire year 1909 we examined the brains of 151 animals. Of these 63 contained Negri bodies. The number received during each month is shown in the following table:

	POSITIVE.	NEGATIVE.	TOTAL.
January	7	8	15
February	2	11	13
March	7	4	11
April	6	5	11
May	6	16	22
June	8	11	19
July	5	8	13
August	2	7	9
September	4	6	10
October	4	4	8
November	6	6	12
December	6	2	8
Totals	63	88	151

From the entire State only two positive brains were received at the State laboratory in 1906; 11 in 1907; 81 in 1908; and 63 in 1909. During the summer of last year—the hot season in which many of the laity still believe dogs may develop rabies spontaneously—we received only 11 positive brains. It is this decline in the number of positive cases during the summer months that seemed to warrant the statement made in the beginning, that the epidemic seems to be abating. And yet, even this apparent improvement can hardly be taken at its face value. It is discounted by the fact that many cases are never examined microscopically at all and therefore never get into the records. For instance, between March 11 and August 2, 1909, we received four positive dog's heads from Mishawaka, while a local newspaper (*South Bend Times*) reported at least five other cases in Mishawaka diagnosed rabies clinically that were not sent to the laboratory at all. Several of these had been bitten by dogs which had been proved to have rabies by microscopic examination.

For purposes of convenience the Indiana State Board of Health has divided the State into three sanitary sections, the northern, central, and southern sections including the respective thirds of the State. From the northern sanitary section 26 positive brains have been received; from the central, 107; and from the southern, 24. Positive brains have been received from 40 of the 92 counties of the State—from 9 of the 31 counties of the northern

*All examinations made before December 1, 1908, were done by Drs. T. V. Keen and J. B. Rucker, former superintendents, and Dr. Helene Knabe, formerly acting superintendent of the laboratory.

section; from 18 of the 33 counties in the central section; and from 13 of the 28 counties of the southern section. Up to the beginning of 1909 the northern section had suffered much less than the southern. During last year this condition was reversed.

Local epidemics have been a prominent feature of the general one. On November 1, 1908, we received from Bedford, Lawrence County, the head of a dog which was proved to have rabies. Following this there came positive heads from Bedford on December 15, 1908, January 20, 1909, February 13, 1909, and two on February 25, 1909. March 11, 1909, we received a dog's head from Mishawaka and found Negri bodies in the brain. A series of cases (five of which were collected from the *South Bend Times*) then occurred in Mishawaka as follows: March 26, March 31, May 4, May 17, June 9, June 23, and August 2.

The records of the laboratory show that at least 128 humans have been bitten by rabid animals. This probably does not include one-half of the persons actually injured. But even this number taking Pasteur treatment, at an average cost of one hundred dollars each, furnishes no small item of expense to the citizens of the State. In addition to this, the mortuary statistics of the Indiana State Board of Health show that in the three years 1906 to 1908 inclusive there were 13 deaths in the State said to have been due to hydrophobia. The diagnosis in none of these cases was verified by microscopic examination of the brain after death.

It has not been possible to collect accurate data in regard to the number of live stock that have died of rabies. A number of farmers have lost heavily, hogs furnishing the largest number of victims. A township trustee in the northern part of the State in the early autumn stated that if the demand for reimbursement for stock killed by rabid dogs kept up, the fund for that purpose—the so-called dog tax—would soon be exhausted.

The method used at this laboratory for the diagnosis of rabies in animals is that described by Dr. D. L. Harris.[1] The technique is as follows: Thin, uniform smears are made by pressing a small piece of the hippocampus major between two slides. Place the smear without drying in methyl alcohol for one minute. Wash off the alcohol in water. Stain for three minutes in a saturated alcoholic solution of eosin which must be at least two months old. Wash in water. Stain for eight seconds in a fresh solution of Unna's methylene blue. Wash in water. Differentiate in ordinary alcohol until, when examined under the low power of the microscope, the large brain cells appear a translucent blue, the nuclei a deep blue, and the red blood cells a coppery red. For uniform decolorization the smear should be kept in constant motion while in the alcohol, and should not be allowed to dry while being examined with the microscope.

In using this stain it should be remembered that the smear is affected by two colors, both of which dissolve out in the process of differentiation. The secret of success is to have both elements of the stain present in the smear in such proportion that when the differentiation is complete, each will have the proper degree of intensity. The length of time given above for each solution works satisfactorily but can be varied from in accord with the principle just stated. The Negri bodies stained by this method are quite distinct, and the examinations are much more satisfactory than with either of the other two methods tried at this laboratory.

In cases in which the dog has bitten some human and we are unable to find Negri bodies, a guinea-pig is injected subdurally with an emulsion of the suspected brain. In only two cases has the biological test been positive when the microscopic examination was negative. One of these was in the case of a dog suffering from what was diagnosed clinically dumb rabies. On September 4, we received from Dr. Whitestine, a veterinarian of Huntington, Ind., the head of a dog thought to have had the dumb form of the disease. In this we found a few tiny intracellular bodies that had the characteristics of Negri bodies. They were sharply defined and contained, as a rule, a single central brownish granule surrounded by a narrow pink zone of cytoplasm. These bodies were too numerous and too uniform in appearance to be artifacts and the case was pronounced positive. No guinea-pig was injected with this brain. On October 10, we received from Dr. Whitestine the heads of two dogs affected in the same manner as the one received a month previous. After a careful examination no Negri bodies could be found. A guinea-pig was injected subdurally on October 13 with an emulsion of one of these brains, and died on October 25 with the typical symptoms of rabies in a guinea-pig. Dr. Whitestine informs me that a number of other dogs in Huntington have been similarly affected but their heads were not sent to the laboratory. An epidemic of dumb rabies is so rare that this instance is worth recording.

No systematic, State-wide effort has been made to stamp out the epidemic of rabies. In several instances, when conditions have become extremely bad, as in Mishawaka in the summer of 1909, the local authorities have taken the matter in hand and have enforced a muzzling ordinance more or less thoroughly. This sporadic method has not proved effective in dealing with the general epidemic, and has not often worked satisfactorily in the purely localized ones. This has been due chiefly to the difficulty of enforcing the ordinance. Many dogs went unmuzzled in spite of the law and the muzzled animals were thus placed at the mercy of the unmuzzled ones who frequently took a savage delight in attacking their helpless fellows.

At the last session of the State Legislature an act was passed giving the State veterinarian "the power to order and enforce the restraint or muzzling of all dogs in a locality where a case of rabies has occurred, the extent of the locality and the duration of the restraint or muzzling to be determined by him." Even this has not proved effective largely because many cases do not come to the knowledge of the State veterinarian,[2] and the law contains no clear penalty for disobeying his orders.

It is to be hoped that the next Legislature will make possible a general and thorough enforcement of a muzzling ordinance for at least two years. If this is done the history of rabies in Great Britain where, by rigid enforcement of a muzzling law throughout the kingdom, the number of cases of rabies was reduced from 672 in 1895 to none in 1900, may be repeated in Indiana. This disease has been so thoroughly stamped out of Great Britain that professors in English medical colleges are said to have been compelled to import material from America last year to demonstrate the Negri bodies.

REFERENCES.

1. *Journal of Infectious Diseases*, 1908, V, 566.
2. Dr. W. E. Coover, the State Veterinarian, informs me that in 1909 62 cases of rabies in dogs and 53 in livestock, 2 of them being horses, came to his knowledge. These cases are not included in the statistics given above.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, June 4, 1910.

ROBERT KOCH.

IN the death of Robert Koch scientific medicine has lost its greatest figure since Pasteur. In saying this we do not forget Lister and the countless thousands who owe their lives to-day to his work and teachings; but Lister's work was practical, not pure science, although his discoveries, made before Koch's time, were those of a genius and could not have been made at that time by any but a genius. Koch's labors, however, have made it possible for such work to be done by any man of ordinary ability and industry. Koch's fame rests largely upon his discovery of the tubercle bacillus and in a lesser degree upon the discovery of the bacillus of cholera. But these discoveries need not have been made by him; they could and would soon have been made by others after he had shown the way. His real title to fame rests upon the development of the science of bacteriology which, as we have said, made possible all the other discoveries, his own and others', in the domain of this science.

We often hear the complaint made, though not so often now as formerly, that this country is handicapped in scientific work by the niggardliness of the government in not building and equipping laboratories and providing salaries and pensions to enable men of ability to give their whole time to scientific labors, and writers often point to Germany as a model which we might follow with benefit. But Koch suffered all his life from being a servant of the Government. The premature announcement of his discovery of tuberculin was forced from him by his government superior who thought it would give éclat to the Berlin International Congress; and time and again he was sent hither and yon, to the interruption of some work of possibly far-reaching importance, at the suggestion of the Emperor or of the Health Ministry, because it was thought the new work would reflect credit on the Fatherland. Had Koch been at the head of some privately endowed institute in America, free to pursue his investigations in his own way and along his own lines, he would undoubtedly have accomplished far more than he did, and might possibly have made other discoveries of incalculable benefit to the world.

Great as Koch was and lasting as his fame will be, he really accomplished less of immediate practical value than some other less gifted men. The discovery of the tubercle bacillus has had but little influence over the therapy of the disease, for the sanatorium treatment was begun thirty years before the cause was discovered by Koch; the discovery of the comma bacillus had no practical results until it was learned how the bacillus gained entrance into the organism; and while the diagnostic value of tuberculin, in bovine tuberculosis, is incalculable, its practical therapeutic value in human tuberculosis is still questioned. His work in Africa on the tsetse fly and sleeping sickness added little to what the English investigators had already discovered. But this detracts in no way from the fame that is a great man's due. He was the founder of the scientific method of bacteriological research, the work of a veritable genius, and fell short of what he might otherwise have accomplished only because his work was hampered by his lay superiors in the Gesundheitsamt. Those of our profession who are urging the creation of a Health Department in our central government, without the proviso that its head shall always be a medically trained sanitarian, should ponder a while on the case of Robert Koch.

THE SENSE OF RESISTANCE IN DIAGNOSIS.

WHILE to the student taking his first tentative steps in the paths of physical diagnosis, the auditory sense is an indispensable agent in interpreting the results of percussion, to the man of long experience the actual hearing of the sounds produced by the impact of the finger becomes of less and less importance, and many skilled diagnosticians are capable of drawing accurate inferences from percussion in surroundings so noisy that hearing is impossible. This change is due to the gradual development of the tactus eruditus, to the appreciation of the sense of resistance felt by the finger lying on the chest or the abdomen. The value of the tactile sense in percussion has in recent years become more and more widely recognized by clinicians, and during the past decade certain clinical teachers have been laying greater and greater stress upon the sense of resistance, and many have largely discarded percussion, placing more reliance upon the elicitation of the sense of resistance by palpation, both for outlining thoracic and abdominal organs and for recognizing consolidations and effusions in the lungs and pleural cavities.

Perhaps the most enthusiastic of the advocates of palpation in thoracic disease, and the man who has given the method the greatest publicity is Pottenger of California, who has recently collected the results of his observations, reported during the past year in the MEDICAL RECORD and other American medical journals, and has given a clear and concise exposition of the subject in the *Deutsche medizinische Wochenschrift* for April 21, 1910, his article being immediately followed by another, by Wolff-Eisner of Berlin, enthusiastically confirming his findings. Besides laying stress upon the case with which the outlines of solid organs and consolidation can be made out by noting the sense of resistance offered to light palpation in the intercostal spaces, a method

the accuracy of which has been thoroughly established by various clinicians for a number of years, Pottenger lays emphasis upon a second and even more important feature of palpation of the thorax. From the study of a large number of cases, chiefly of tuberculosis, he has found a characteristic of the intrinsic and extrinsic muscles of the thorax, somewhat similar to that of the abdominal wall in acute abdominal infections, namely, that an acute inflammation in an organ causes spasm in the overlying muscles. This manifests itself not only in the density of the intercostal muscles over the diseased area, in the restriction of motion on the affected side, but also in cases of acute apical diseases in an easily palpable spastic condition of the scaleni, the sternocleidomastoids, and the other muscles of the neck. Furthermore, while this spasm is marked in association with an acute process, it does not appear with a latent or healed one, in such cases there being at times some muscular induration, but no actual spasm.

These various points in thoracic palpation will probably add somewhat to the difficulties of the student, to whom the sense of resistance, for some time at least, appears to be a myth evolved in the mind of his teacher. To the man, however, who has educated his fingers, the ability to feel through the chest wall is a thoroughly useful art, especially valuable when dealing with children with whom percussion is too often a signal for vociferation. If the second feature of the work, the spasm of the muscles of the chest and neck, proves to be as accurate in the differentiation of acute and latent diseases in the apices of the lungs as Pottenger and Wolff-Eisner believed it to be, Pottenger's discovery must be accepted as a valuable addition to the means of diagnosis of early tuberculosis.

THE PHILOSOPHY OF A PHYSICIAN.

The retranslation of Ernst Baron von Feuchtersleben's "Zur Diätetik der Seele" by an American* calls to mind a character of singular beauty, serenity, and gentleness. Feuchtersleben was born in Vienna in 1806, took his M.D. at the University in 1833, and in an incredibly short time became Professor of Medicine there. His success as a practitioner and teacher and his love of philosophy led him to deliver what are said to be the first lectures in any language on the subject of medical psychology. These lectures were immensely popular, so popular indeed that those professors who were unfortunate enough to have classes of their own at the hour when Feuchtersleben held forth found their benches empty of listeners. It is said that jealousy thus engendered was in part responsible for the severe criticism and contumely to which the sensitive author was subsequently subjected which finally brought about his resignation from the Faculty and his retirement to private life. However this may be, the Diätetik is the typical German classic on mental healing, and something more than forty editions attest its excellence in its field. Hufeland in his "Makrobiotik" had concentrated the various currents of thought of the preceding centuries relative to the value of suggestive therapy, and Kant, the illustrious philosopher, following up this pioneer work, had written a brief essay on "that faculty of man's soul through which, by a mere act of willing, a mastery over our marked sensations may be gained." But it remained for Feuchtersleben to clarify the atmosphere and reduce the chaotic mass of data to something like a working system. We see therefore that the so-called "movement" in America is little more than an echo of the essentials which had existed for many years throughout the Prussian empire. Several passages in the Diätetik are strongly reminiscent of Emerson's essay on "Compensation;" for example, "In the entire realm of nature there exists no advantage without a defect, no profit without a loss, no ascent without a fall, no discord without harmony." There is also now and then a glimpse of that rare combination of wit and wisdom which so endeared Oliver Wendell Holmes to all his readers: ". . . Everybody thinks himself entitled to ridicule the doctors. Old women (and young ones, too) dabble in our art, and pass judgment on us. . . . Their ranks are reinforced by the hypochondriacs, who feed on the poison which they suck out of medical books, and which they get rid of only to wish that it might kill the doctors. . . . Hypochondria consists not only in conjuring up imaginary ailments, but in dwelling too much on those that are real. . . . We may learn through the writings of careful medical observers that anger acts on the bile-ducts very much like an emetic by increasing or altering the secretions." Feuchtersleben's love of truth seems to have rivaled that of the physician-poet Keats—"There is," he says, "but one morality, truth, and but one depravity, falsehood. . . . And genius is in the last analysis the power to be true. . . . There is no strength without truth; and without truth there is no charm."

Feuchtersleben was a devoted lover of medicine, both as a science and as an art, and what he thought as a philosopher he practised as a physician. He demanded the highest ethical and scientific standards, and drew constant inspiration to this end from the works of Marcus Aurelius and Epictetus. His qualities both of mind and heart are well worthy of study and emulation by the physician of to-day, and no one who reads what he has written understandingly can fail to derive therefrom much mental and spiritual satisfaction.

*Health and Suggestion, by Ernst Baron von Feuchtersleben. Translated and edited by Ludwig Lewisohn, M.A. New York: B. W. Huebsch, 1910.

Diaphragmatic Respiration for Heart Disease.

It is a fairly well recognized fact that to obtain the best results in the treatment of chronic heart disease, one must pay especial attention to the functional activity of the organs more or less remote from the primary seat of the disease and proportionally less attention to the heart itself. Muscular activity is carefully regulated; the greatest pains are taken to maintain bowel regularity; a diet is prescribed which will not produce flatulence, and a proper activity of the kidneys is striven for. In the *Deutsche medizinische Wochenschrift* for April

7, 1910, Rumpf of Bonn calls attention to still another bodily function and its relation to cardiac competency. For several years this author has been observing the two types of respiration, and the effect of each upon the size and action of the heart. According to his observations every respiration produced by elevation of the chest wall tends, by the increased negative pressure generated, to dilate the cardiac cavities, especially the auricles. Diaphragmatic respiration, on the other hand, with the thorax held immobile, acts in a different manner. The lung, following the diaphragm downwards, presses upon the heart from above and the side, the organ assumes a more erect posture and tends to be contracted rather than dilated. The contents of the abdomen are pressed upon; the veins and lymphatics therein are compressed, while those of the thorax are dilated and the circulation is materially aided, and the reduced abdominal pressure during expiration further aids by refilling the splanchnic vessels. Such are the physiological premises as propounded by Rumpf, the inferences from which he considers to be obvious. Thoracic respiration, causing further dilatation of the already overdisturbed heart, is a dangerous procedure, while breathing of the abdominal type is an aid to circulation and tends to reduce cardiac dilatation; *ergo* all patients with heart disease should breathe with the diaphragm exclusively. The theory appears at first glance to be plausible. How it would work out in practice is another matter.

Lesions of the Nervous System in Cerebrospinal Meningitis.

The nervous symptoms ascribed to cerebrospinal meningitis and its sequelæ are numerous and varied. Some of the so-called sequelæ are in reality the results of an accompanying encephalitis, which may indeed begin the trouble, to be followed by the meningeal inflammation and its characteristic symptoms. To cortical inflammation are generally due blindness, deafness, and many of the mental troubles that follow the disease, and the sclerotic process which results from the encephalitis may go on progressing for life. H. Claude and P. Lejonne, in the *Gazette des Hôpitaux*, for March 21 and 24, 1910, state that the symptoms due to the affections of the nervous centers are mistaken for complications or sequelæ. The inflammation is propagated along the vessels so as to attack separate areas reached by certain vessels, and thus the symptoms are spread about in the cortical centers. Disturbances of the reflexes and the Babinski sign are manifestations of the cortical irritation. But these signs are often masked by the meningeal symptoms. The authors give interesting observations in which these facts are shown to be true, autopsy demonstrating the existence of the cerebral lesions in one case. The authors have caused an inflammation in dogs by injections of chloride of zinc under the meninges, and got as result a hemorrhagic meningitis and vascular lesions in the gray matter near by, some of which was not directly adjacent to the meninges. Only those conditions should be denominated sequelæ of the meningitis which are caused by the organization of the soft meningeal exudate and its transformation into fibrous tissue. The cortical lesions resulting from this process cause mental troubles, motor troubles, sensory troubles, flaccid or spastic paralysis, ataxia, and troubles of the organs of sense.

News of the Week.

The International Association of Medical Museums held its third stated meeting at Washington, D. C., May 3 and 4, 1910. The following officers were elected: *President,* Prof. A. S. Warthin, University of Michigan, Ann Arbor, Mich.; *Vice-Presidents,* Prof. G. Sims Woodhead of Cambridge, England, Prof. Souchon of Tulane University, New Orleans, La., and Prof. J. Ludwig Aschoff of Freiburg, Germany; *Councillors,* Prof. W. G. MacCallum, College of Physicians and Surgeons, New York, Dr. D. S. Lamb, Army Medical Museum of Washington, D. C., Prof. Le Count, University of Chicago, Ill., Prof. F. F. Wesbrook, University of Minnesota, Minneapolis, Minn., Prof. P. G. Woolley, University of Cincinnati, Prof. W. Ophuls, San Francisco, Cal., and Dr. George Whipple, Baltimore, Md.; *Secretary-Treasurer,* Dr. Maude Abbott, McGill University, Montreal, Canada; *Assistant Secretary,* Dr. W. W. Francis, McGill University, Montreal, Canada; *Editorial Board,* Prof. J. Ludwig Aschoff, Prof. J. G. Adami, McGill University, Montreal, Canada, Major F. F. Russell, Army Medical Museum, Washington, D. C., and Prof. W. G. MacCallum. The establishment of a European section was decided upon, and the secretary was empowered to write to Dr. J. Ludwig Aschoff of Freiburg, Germany, asking him to take charge of its organization. The next meeting will be held in Chicago, in 1911, on the day preceding the meeting of the Association of Pathologists and Bacteriologists.

International Dairy Federation Prize.—A prize of 500 francs has been created by the International Dairy Federation for the best work presented in response to a question of scientific or technological character proposed by the permanent Bureau of the International Dairy Federation. A prize will be awarded at each succeeding International Dairy Congress. Papers in competition should be printed or typewritten and may be written in French, German, or English. They should be forwarded in fivefold copy. The papers should reach the Secretary-General of the International Dairy Federation at least three months before the date fixed for the session of the International Dairy Congress. In case no paper should be deemed worthy of the prize, the corresponding amount may be carried over to the next meeting as a second prize if expedient. The question submitted for the next congress is: "To determine by latest experiments, made at least in part on the human subject, the comparative nutritive value of raw milk and cooked milk (pasteurized, sterilized, or desiccated). In case of an advantage in favor of raw milk, to determine the rôle that the enzymes of the milk play in nutrition." Papers should be forwarded to the Secretary-General of the International Dairy Federation, 23 Rue David Desvachez, Brussels-Uccle, Belgium, not later than April 1, 1911.

Student Riots in Paris.—Much trouble has been experienced recently by the members of the Faculty of Medicine of the University of Paris as the results of riots among the students. The cause of this is the determination on the part of the undergraduates that the method of examining for appointments to the hospitals be changed. When Professor Landouzy addressed the students a few days ago and stated that the authorities were resolved to observe traditions, he was egged by the audience. In order to maintain order police and soldiers have been sta-

tioned at the building of the Faculty of Medicine.

The American College for Girls in Constantinople has undertaken a series of public lectures upon hygienic subjects to which Turkish men and women are invited, this being possible for the first time since the régime of the New Turk party began. The lectures were given by Turkish physicians educated in Germany and France, and covered such subjects as the prevention of typhoid fever and tuberculosis, the hygiene, food, and contagious diseases of children, the education of girls from the standpoint of physiology and hygiene, and the sanitary care of the house. The expected opposition to the health crusade was not met, and the lectures were received with gratitude and enthusiasm.

The Ex-Shah of Persia, according to a dispatch from Odessa, has taken up the study of medicine. He expects after some preliminary work to enter the University of Odessa.

Wood Alcohol in Liquor.—A number of arrests have been made in New York recently of liquor dealers who have been discovered selling liquor containing wood alcohol. Two prisoners were fined recently and the cases of several others were put over under the expectation that the United States Government will take steps against the wholesalers who sold the liquor to the saloonkeepers.

Smallpox in Harlem.—Four cases of variola were discovered recently in the Harlem district of New York City. The first case was in a colored porter on a private car who had just returned ill from Mexico. The cases were close together, and all those exposed were vaccinated by the Board of Health.

The Board of Inebriety Bill has been signed by Mayor Gaynor.

The Rockefeller Institute for Medical Research announces the appointment of Mr. Jerome D. Greene, Secretary of the Harvard College Corporation, as superintendent of the Institute and its new hospital.

The Cancer Commission of Harvard University has published a report of a meeting held on April 13, in which it calls attention to the need of a special hospital for inoperable cases of cancer to be directly under the control of the commission, and unassociated with any other hospital. The purpose of the proposed hospital would be to bring the laboratory workers into close touch with human patients, and to give to incurable cases of cancer the benefits of any new discoveries which hold out hopes of effecting a cure. The plan proposes the building of a hospital of twenty-four beds on the grounds of the Harvard Medical School.

The Jefferson Medical College has purchased the building formerly occupied by the Pennsylvania College of Dental Surgery at Eleventh and Clinton streets, Philadelphia, and will utilize it for laboratory purposes.

Bequest to Hospital.—By the will of the late Estelle P. Melville of Philadelphia, wife of Rear Admiral Melville, the sum of $15,000 is bequeathed to the Episcopal Hospital for the endowment of free beds to be known as the Anna Virginia Polis Bed, the Melina S. Polis Bed, and the Estella S. Polis Bed.

Philadelphia Tuberculosis Hospital.—The following physicians have been appointed to the visiting staff of the tuberculosis hospital recently opened by the city at Ryberry: Dr. Ward Brinton, Dr. Samuel Rhoads, Dr. A. C. Morgan, Dr. Daniel M. Hoyt, Dr. E. J. G. Beardsley, Dr. J. V. C. Roberts, Dr. J. Clinton Foltz, and Dr. J. Willoughby Irwin.

The Yale Medical School.—Dr. Herbert E. Smith, for twenty-five years dean of the school, has resigned. Dr. George Blumer, professor of theory and practice of medicine, will succeed him as dean.

"The American Journal of Physiologic Therapeutics" is a new journal which has made its first appearance with the May number, under the editorship of Dr. Henry R. Harrower of Chicago. The scope of the journal includes hydrotherapy, dietetics, spondylotherapy, massage and manual movements, electrotherapy, radiotherapy, phototherapy, and vaccine and serum treatment. The editorial offices are at 72 Madison street, Chicago, Ill.

The Medical Library Association will hold its thirteenth annual meeting at the Southern Hotel, St. Louis, June 6 and 7, 1910. The *President* of the association is Dr. John H. Musser of Philadelphia, and the *Secretary* is Miss M. R. Charlton of Montreal, Canada.

New York Academy of Medicine.—Professor E. Grawitz, Professor of Pathology at the University of Berlin, will deliver an address before the New York Academy of Medicine on the evening of Thursday, October 6, 1910, on "The Definition of Pernicious Anemia and Its Treatment." Prof. Grawitz will speak in English.

The Iowa State Medical Society held its annual meeting in Des Moines, May 20, 1910, and elected the following officers: *President,* Dr. M. N. Voldeng of Cherokee; *Vice-Presidents,* Dr. W. G. Egloff of Mason City, and Dr. H. A. Minassian of Des Moines; *Secretary,* Dr. V. L. Treynor of Council Bluffs; *Treasurer,* Dr. W. B. Small of Waterloo; *Councilors,* Dr. C. A. Boice of Washington, Dr. G. E. Crawford of Cedar Rapids, Dr. G. C. Moorehead of Ida Grove.

The State Medical Association of Texas, meeting at Dallas, May 12, 1910, elected the following officers: *President,* Dr. John T. Moore of Houston; *Vice-Presidents,* Dr. A. B. McReynolds and W. A. Harper of Austin; *Secretary,* Dr. Holman Taylor of Fort Worth; *Councilors,* Dr. D. R. Fly of Amarillo, Dr. W. A. King of San Antonio, Dr. H. J. Hamilton of Laredo, Dr. James A. Hill of Houston, Dr. A. C. Scott of Temple, and Dr. L. Y. Turner of Daingerfield; *Delegates to the American Medical Association,* Drs. W. B. Russ of San Antonio and J. S. Turner of Dallas.

Obituary Notes.—Dr. George Frederic Barker, Emeritus Professor of Physics in the University of Pennsylvania, died at Philadelphia, on May 24, at the age of 75 years. He was graduated from the Albany Medical College in the class of 1860. In 1863 he was elected professor of chemistry in Wheaton College, later professor of chemistry in the Western University of Pennsylvania, and still later assistant professor and then professor of physiological chemistry and toxicology in Yale University. He was elected to the chair of physics in the University of Pennsylvania, in 1872, serving until 1900. He was a member of many learned societies.

Dr. Edwin Forrest Preston of Amityville, L. I., died at his home, May 26, 1910, aged 70 years. He was a graduate of the New York University Medical College in 1870.

Dr. Anneillio Preziosi of Stamford, Conn., died May 23, 1910. He was a graduate of the College of Physicians and Surgeons of Baltimore in 1909.

ROBERT KOCH.

IN MEMORIAM.*

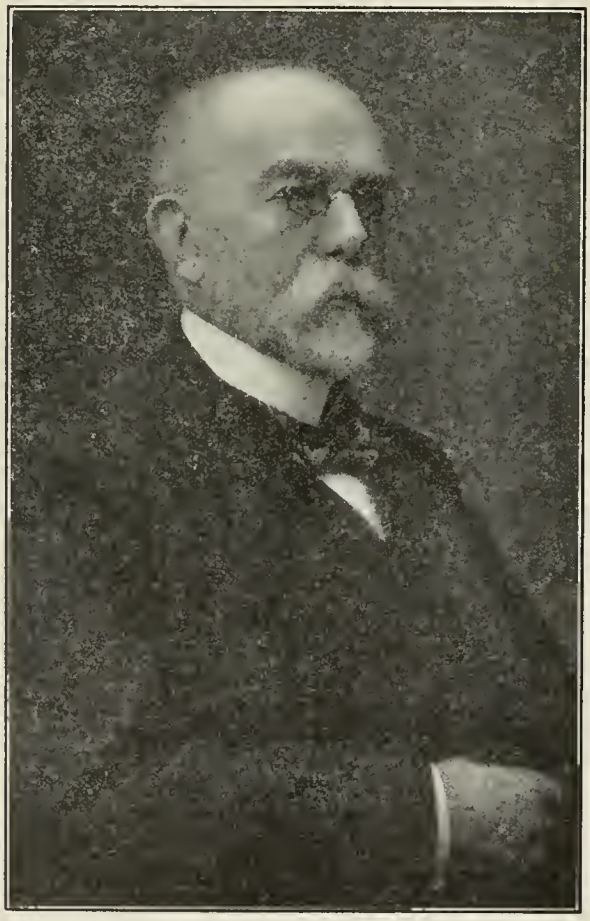
By S. ADOLPHUS KNOPF, M.D.,

NEW YORK,

PROFESSOR OF PHTHISIOTHERAPY AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

I DO not believe that I can begin my task to-day in the capacity of a teacher of phthisiotherapy without first paying a tribute to the greatest of all teachers in tuberculosis science. Robert Koch, the discoverer of the bacillus of tuberculosis, died yesterday afternoon (May 27) from a cardiac affliction at Baden Baden, whither he had gone in search of health. I know that you will gladly pause with me in our usual work for a few moments to listen to a brief account of the life of this man whom we all acknowledge to have been the greatest figure in modern medical science.

Robert Koch was born of well-to-do parents in Klausthal, Germany, December 11, 1843. After



finishing his preliminary education, he studied at various universities in Germany. Prior to his graduation at Goettingen, in 1866, he distinguished himself as the winner of a prize essay on an anatomical subject ("The Nerve Ganglions of the Uterus"). His first epoch-making discovery was that of the spores of the anthrax bacillus in 1876. His monograph on "Researches in the Etiology of Surgical Infections" in 1878 is still considered a standard work. Then came that great immortal discovery of the bacillus of tuberculosis in 1882, the discovery of the comma bacillus of Asiatic cholera in 1883, and the discovery of tuberculin in 1890. His more recent works on tropical malaria, sleeping-sickness, typhoid fever, and on the differentiation of bovine and human tuberculosis, are most valuable contributions to our knowledge of these diseases.

Few men have traveled as much and as far as Koch in order to be helpful in the combat of endemic and epidemic diseases. In 1883, at the time when a fearful epidemic of cholera decimated the population of Egypt, he went thither to study the causes and prevention of the disease. In civilized countries we are now in a position, by early and accurate diagnosis, quarantine, proper hygiene, and sanitation, to reduce the mortality from cholera to a minimum, and we owe the victory over this once so prevalent and fatal plague to Koch. Because of his extraordinary thoroughness as a bacteriological diagnostician, hygienist, and sanitarian, the German Government availed itself of his services every time there was a local epidemic of a serious infectious disease anywhere in the Empire.

*An address delivered May 28, 1910, prior to the commencement of the usual Saturday clinic on pulmonary diseases at the New York Post-Graduate Medical School and Hospital.

In the year 1906 Koch extended his researches far beyond his native land, going to South Africa, East India, and later on to German East Africa. In Africa he was able to discover a vaccination method as protection against the rinderpest. He studied the bubonic plague and other tropical diseases where they were endemic, and wherever he went he instituted such prophylactic and sanitary measures as to bestow lasting benefit on regions which were formerly devastated by seemingly unconquerable diseases and plagues.

Without minimizing any of the great master's discoveries or scientific labors, I do not believe I commit any error in saying that the communication which he made, on the evening of March 24, 1882, before the Physiological Society of Berlin, entitled, "The Etiology of Tuberculosis," was his most important contribution to medical science. When we bear in mind the sociological aspect of the disease whose etiological factor and primary cause were revealed to the world in this communication, well may we say that the 24th of March of 1882 was a "red-letter-day," to be forever remembered in the annals of medical history and human progress. Thanks to Koch, tuberculosis can be considered today a preventable disease. It was he who showed us where to find the cause of this scourge of mankind, and how to combat it. Because Koch taught us that the infectious agent—the tubercle bacillus—was alone responsible for the disease, and could be found in the pulmonary secretions of the consumptive, and that, if carelessly deposited, the dried and pulverized sputum containing the germ could be inhaled and ingested by others, producing the disease anew, we have virtually become masters of what was once considered not only the most prevalent, but the most fatal affliction of man and beast. Through the discovery of the tubercle bacillus alone Koch has made mankind his everlasting debtor. When today, as is the case in some localities in America, in England, and in Germany, the mortality from tuberculosis has been reduced to well-nigh half of what it was prior to Koch's discovery and isolation of the tubercle bacillus, the saving of life, the lessening of physical suffering, this diminution of the social misery which accompanies all diseases of the masses, is all due to Robert Koch. The financial

gain which has accrued to countries and communities which have followed Koch's teachings regarding the prophylaxis of tuberculosis in man, by preventing costly invalidism, saving countless valuable lives, and retaining them as bread-winners and useful citizens, is beyond human calculation. By his discovery of tuberculin he has added an invaluable agent to our methods of early diagnosis of tuberculosis in man and beast, and given to our armamentarium in tuberculotherapy a very important remedy. Through the tuberculin test in cattle the weeding out of tuberculous animals has been made practical and an incalculable benefit bestowed upon animal industry and the dairy business; and possible sources of tuberculous transmission from beast to man have been reduced to a minimum. The same may be said of Koch's discoveries regarding anthrax and rinderpest. The vast and inestimable good this one man has been able to bestow upon mankind by his scientific labors will forever remain unique in the history of human possibilities.

The life of Robert Koch should serve as an inspiration, not only to us who are his humble disciples, but to all mankind. The motto of his first scientific communication was "nunquam otiosus" (never idle), and he had adhered to it up to his altogether too early death. In scientific research, in constant work to combat disease and make mankind healthier and happier this great man found his reward.

Honors and distinctions of all kinds have been bestowed upon Robert Koch. The German emperor made him recently a privy councillor with the title of Excellency. He was honorary professor of the University of Berlin and had honorary titles from many German and foreign universities. He was an honorary member of nearly all the great scientific societies of the world, including the New York Academy of Medicine and the German Medical Society of New York. He had been decorated by nearly all the monarchs of Europe and also by the Emperor of Japan. He was awarded the Noble Prize for physiology in 1905.

Those of us who have had the privilege of having been his pupils or having met him, will recall his dignified appearance and the thoroughness with which he discussed any subject, and the firmness with which he defended any theory or fact which he thought right. On many occasions he has paid tribute to the thorough antituberculosis work done in America and particularly in New York, and has held up New York City as a model to other countries in this respect. In a recent letter to me he paid a tribute to our nation at large by saying: "The American people seem to me particularly susceptible to popular antituberculosis education."

You will pardon me if I express here in conclusion my personal feeling on the loss of this great man, for on more than one occasion have I received kind and encouraging words from him for my modest labors. Let us then remember him with gratitude, look upon him as the great master and leader, and strive to emulate him by doing our best as physicians and men, and when the time comes—and it must come some day—when through your labors and through our children's labors and through better social conditions, tuberculosis as a disease of the masses and as an endemic affliction will no longer be with us, the name of Robert Koch will stand out as the one man who had shown us the way to victory.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

KING EDWARD'S DEATH—PLACENTA PRÆVIA AND CESAREAN SECTION—CEREBRAL TUMOR REMOVED—WEBER-PARKES PRIZE ANNOUNCED FOR 1912—HEALTH EXHIBITION—COST OF LUNATIC ASYLUMS—OBITUARY.

LONDON, May 13, 1910.

THE news of our national bereavement reached you as soon as it did a large number of people on this side. We know this from the messages of condolence, sympathy, and mourning which so promptly arrived. To the general public here King Edward's death seemed more startlingly sudden than it really was on account of his activity up to the last. Moreover, he had quite recently recovered from a bronchial catarrh, and the rumor that he had taken a fresh cold, started by his not meeting the Queen on her arrival on Thursday, did not attract as much attention as it otherwise might have done. Accordingly an immense number of people only learned that the King was really ill on opening their morning papers on that fatal Friday morning. The bulletin was, of course, understood by medical men, though the public were less able to grasp its significance. The second one clearly indicated danger, but so rapid a fatality was not thought of. In my own room doctors expressed grave apprehensions; one spoke of the emphysema which it was known to many existed; so, too, pneumonia was held to be probable. Glycosuria was the suggestion of another, and all knew of the strenuous life led by the King and his past illness. Nevertheless, the shock was great to read the next morning that the end had come that very night.

The official authorized report of the last illness was published yesterday, signed by Sir F. Laking, Sir J. Reid, and Sir D. Powell. It shows that on Tuesday they were anxious that the King should rest; but he kept up and gave audiences, though in the evening he admitted that he felt ill, and during that night he had severe attacks of dyspnea. On Wednesday morning his temperature was 99° and the pulse 90, but he again gave audiences. At the evening consultation there was fine crepitation, "imperfect entry of air at both bases and the right side of the heart was embarrassed." On Thursday there was no improvement; dyspneic attacks and increased cyanosis threatened cardiac failure. That evening the first bulletin appeared after it had been submitted to and modified by His Majesty. The Friday morning's bulletin spoke of "grave anxiety," and the third issued in the afternoon said the "condition is now critical." In fact, consciousness had then begun to fail and "never completely returned." The end came after "a prolonged period of perfect calm."

The place of cesarean section in the treatment of placenta prævia was freely discussed in the Obstetrical Section *apropos* of a paper by Dr. Henry Jellett. He thought the usual idea of the mortality of the condition was rather exaggerated, for out of 138 cases at the Rotunda only five died, and of these four were either moribund from hemorrhage or in a state of advanced sepsis on admission. They were treated by polar version. Only three conditions make this impossible; (*a*) rigid undilated cervix; (*b*) where after rupture of membranes the uterus has contracted upon the fetus; (*c*) where the presenting part is fixed in the pelvic brim. Having dealt with each of these, he concluded there was no place for cesarean section in non-complicated placenta prævia. What was really required was an advance in our methods of treating the collapse of hemorrhage and of the shock and of combating infection.

Dr. Macnaughton Jones, president, had taught his students that the two most important methods were bipolar version and plugging. He compared recent statistics by Moncalvi, Pinard, and Krönig, and they all seemed to show that cesarean section could very seldom, if ever, be called for. The accessory conditions must be carefully considered in judging of statistics.

Dr. Herbert Spencer had only seen one case in which he thought it justifiable; but it would be in very rare cases of central placenta prævia at or near full term with undilated rigid cervix. He refers to Krönig and Selheim's twenty-six cases of cesarean section without a death.

Dr. Champneys held that in these cases the child must take its chance. The best obstetrical weapons were nature's—in these cases bipolar version.

Dr. C. E. Purslow said efficient plugging gave good results. Post-partum hemorrhage was a danger against which cesarean section would not guard, unless the uterus was removed at the same time.

Dr. Armand Routh agreed with Dr. Jellett that in ordinary cases there was no place for cesarean section, although it might be justifiable in rare instances with rigid cervix undilatable.

Dr. Gow had performed the operation in one case, both mother and child surviving. When post-partum hemorrhage occurred it might be from lacerations produced in extracting the child.

Dr. W. S. A. Griffith had done cesarean section once, mother and child both living. It was only when there was great danger to both, as well as difficulty, that the operation could be justified.

Mr. Litler Jones, at the Liverpool Institution on the 28th, showed a patient from whom he had removed a cerebral tumor weighing over four ounces. Paralysis of left arm and leg, with twitching of toes, had been present seven months before the operation. Also double optic neuritis and slow cerebration. Mr. Jones operated in two stages and much relief followed the first. He was able to differentiate the tumor from the cerebral substance by palpation. There was profuse hemorrhage from the longitudinal sinus, but this was controlled by plugs of gauze gradually replaced by smaller ones. A fracture of the neck of the femur from a fall has since been sustained, but the patient has gained strength again, the optic neuritis has disappeared, and the normal mental condition returned. Dr. Glynn called the growth hemendothelioma. Mr. Parker approved operating in two stages and thought the plan had contributed to the good result.

The Royal College of Physicians announces that the next award of the Weber-Parkes prize of 150 guineas and a silver medal will be in 1912, and the adjudicators have selected as the subject of the essay "The Influence of Mixed and Secondary Infections Upon Pulmonary Tuberculosis in Man, and the Measures, Preventive and Curative, for Dealing with Them."

The second Municipal and Public Health Exhibition has been open all this week, closing to-morrow. It is thought to be an advance on the first, though that was very successful. Numerous exhibits of daily utility and object lessons of what is being done by municipalities for promoting health and sanitation have been the features of the undertaking. Conferences of and addresses to delegates from local authorities have been held in the afternoons and popular lectures given in the evenings.

The annual report of the Asylums Board, issued this week, shows diminished expenditure, though the daily average of inmates in its establishments was in excess of the previous year. The saving amounts to over £44,000—a most satisfactory statement for the ratepayers. During 1909 the admissions to the fever hospitals were 22,646, the deaths 1,035. In the imbecile asylums 7,724 had been under care. The removals by the board's ambulances numbered 47,613, of which 5,952 were found to be non-contagious.

In reference to the cost of asylums, those of the County Councils do not compare well with those of the Metropolitan Board. A protest was raised on Tuesday at the Surrey Council. Sir John Brunner declared that the extravagant cost of lunatic asylums was a growing scandal. Palatial buildings had no curative effect on the inmates—rather were an oppression on their minds. It was mockery to take people from narrow and confined quarters and keep them in cold-looking, stately buildings. People accustomed to living at an expense of £30 per head were being provided for at a cost of £300. As to those above the pauper class, they ought not to be maintained at the cost of the ratepayers. Their friends would not let them if their names were made public.

The death of Major K. M. Cameron, R.A.M.C., from tetanus, after a cycle accident in which he received a slight cut on his knee, necessitated an inquest, held at the Cambridge Hospital, Aldershot, in which he died, and to which he was surgeon. He was previously staff surgeon at the Indian headquarters. He served in the Northwest frontier operations in 1897, being attached to the Tirah expedition, receiving for his services in the campaign the medal and two clasps. He was sent to South Africa in 1899 and took part in the operations in Natal and in the defense of Ladysmith. Later he was in the Transvaal and was mentioned in dispatches, received the Queen's medal with four clasps and the King's medal with two clasps. Major Cameron was only 41 years of age. He was buried on Wednesday with military honors at Aberdeen, of which he was a native.

The death of Dr. Gordon-Stables occurred on the 10th inst., within a few days of reaching his seventieth year. He was better known as a writer of tales for boys than as a doctor. He had published above 150 and was commonly called the "boys' novelist." He graduated M.D. and C.M. at Aberdeen in 1862. He joined the Naval Medical Service, from which he was invalided after nine years. He then traveled in Africa, India, and America, and took part in two Arctic expeditions. For the last twenty-five years he has been utilizing the material of his travels for the amusement and instruction of succeeding generations of boys.

Lieutenant-Colonel J. A. Anderson, M.D., has died in France at the age of 65. He took the L.R.C.S.I. and the M.D.R.U.I. in 1866 and entered the Army Medical Service the following year. He served in the Zulu campaign, 1879-1880, and was at the battle of Ulundi, was mentioned in dispatches, and recived the medal and clasp. He retired in 1887.

Dr. James Morris, Medical Officer of Health of Dunfermline, died on the 2d inst., aged 84. He qualified at the Glasgow faculty in 1849 and celebrated his jubilee in practice in 1899, when he gave interesting statistics of his career to the many friends who offered him their congratulations. Among other figures he told them he had been at 5,000 births, and among these he had 1,000 consecutively without a death. He had given chloroform to 10,000 persons without any accident. He was then attending the fifth generation of some of his patients. He continued to attend some until a few months ago, when his wonderful health began to fail.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

THIRD INTERNATIONAL CONGRESS OF PHYSIOTHERAPY—NECROLOGY—HENNEQUIN, GREHANT.

PARIS, April 3, 1910.

PHYSIOTHERAPY is the study of treatment of disease by means of physical agents. Two congresses have been held, one six years ago at Liège and one three years ago at Rome. The third congress was opened on March 29 under the active presidency of the President of the Republic of France. Received by Professor Landouzy, Dean of the Faculty of Medicine of Paris and by the secretaries of the congress, Vasquez and Zimmern, and surrounded by the official delegates of the various foreign Governments which participated in the congress (England, United States, Brazil, Denmark, Chili, Bulgaria, Belgium, Germany, Hungary, Italy, and Greece), the President of the Republic opened the congress by an eloquent address. After having thanked the participants for their presence and welcomed all the strangers, President Fallières noted the importance of the rôle of physician and hygienist when they aid in preserving the entire country against epidemics which menace it, and which are arrested by wise measures initiated by them. Landouzy pronounced a discourse of high philosophical value, demonstrating the great importance of physiotherapeutic studies. The conception of the forces of nature made to serve as aids in therapeutics for an effective combat with sickness and old age should be the glory of the congress.

The President of the Republic then opened the important physiotherapeutic exposition which had been installed in the halls of the Faculty of Medicine. This exposition comprised at once a retrospect in which was shown all the resources of the art of healing in the form of natural agents which have been made use of since the earliest civilized times. The Greeks and Romans knew quite well and put into practice the usefulness of exercises, frequent baths, and life in the open air. Besides this, the modern physiotherapeutic exposition was divided into four classes: First, thermal stations; second, instrumentation of physiotherapeutics, electricity, massage, radiotherapy, thermotherapy, etc.; third, alimentary régime, dietetic products, hygienic institutes; fourth, all the works that have been written on physiotherapy.

Among the most important communications we notice that of Marcel Labbé on the "Dietetic and Physiotherapeutic Treatment of Obesity." The production of obesity always results from an excess of the ingesta

over the outgo of the organism; its treatment necessarily implies the increase of the outgo beyond the ingesta. This result is obtained by lessening the foods taken and increasing the energetic and calorific outgo. It is not necessary to grow thin suddenly; the reduction to be sought should be 200 to 300 grams per day, and the foods chosen should be such that they satisfy the appetite while they nourish as little as possible. The physical treatment of obesity includes gymnastics or moderate exercise, both regular and progressive. The life should be active, in the open air, and in a cold climate.

Talliens of Lausanne advocated fruit cures, in which grapes, lemons, and strawberries are utilized. Linossier, Vichy, also advocated the grape cure, which modifies the urinary secretion, increasing it in amount and in elimination of the mineral elements. The grape cure increases the appetite, favors intestinal exchanges, and has a tonic stimulant action upon the heart. The lemon cure gives good results in articular and muscular rheumatism. Dechlorurization has been used with the best effects by Widal of Paris, who was the creator of the dechlorurization method. In the practice of this method the daily use of the scales is of great service. Alimentary dechlorurization causes no damage to the organism, even if it is prolonged for months.

The treatment of deep cancers by radium has been studied by Dominici and Chéron of Paris. Thanks to the new perfection of the technique in the employment of a closed metallic tube with thick walls as a container for the radium salt, we may make use of the ultra-penetrating rays. This new apparatus is valuable for the treatment of deep tumors, being placed in the pathological spaces by introducing the tube into the thickness of the growth by a surgical procedure, which may be done by puncture, transmission, or rotation. Considerable amelioration can be obtained in cancers of the uterus, vagina, or rectum. From the discussion that took place it appeared that to-day we recognize radium as having a curative activity that is very important; it may act well in cases in which the *x*-rays have failed.

The comparative climatic influence of the sea and the mountains was presented by William Huggard of London. Mountain climates are stimulating and exciting. They are characterized by lowering of the temperature and lessened humidity of the air. Marine climates have the reputation of being sedative and calming, but there is nothing absolute in this matter, the factors being variable. The climate at the seaside has sometimes the characters of the land around, and sometimes of the sea. Hirtz of Paris demonstrated the sedative action of moderate altitude and lakes.

The alimentary régime for the tuberculous was studied by Rénon of Paris. Systematic, blind, obstinate superalimentation often gives lamentable results. The alimentary ration of each patient should be established according to the balance of his nutritive needs. Labbé and Vitry of Paris have vigorously demonstrated the uselessness of a régime too highly nitrogenous for the tuberculous. Leven drew the attention of his colleagues to the dyspeptic coughs which may be mistaken for tuberculosis.

Electrical treatment of infantile paralysis has been studied by Zimmern and Bordet of Paris. In infantile paralysis electrization is necessary, but it is necessary to adopt the technique of progressive electrophysiology.

The Congress of Physiotherapy ended on Saturday, April 2. In the closing session Landouzy thanked the strangers who had given their aid and announced that, as a result of the deliberation of the committee from each nation, the next Congress of Physiotherapy would be held at Berlin in two years, under the presidency of Professor His, with the aid of the German Government. His then took up the thread and in an address as delicate as it was perfectly given in French, invited the attendants of the congress to come to Berlin in two years, that is in 1912. The shorter interval between the congresses is necessitated by the occurrence of the International Medical Congress at London in 1913.

Surgery in France has just lost her most authoritative representative on the treatment of fractures by traction apparatus. Alone, without family, seeking neither place nor honor nor money, Jules Hennequin had never an ambition except to learn, to investigate for others, and to do good. He was a member of the Surgical Society for fifteen years, and was very sensible of the high moral recompense which was given him by the masters of surgery in Paris in making him their colleague, simple practitioner as he was, yet learned, patient investigator, and able inventor. The work of Hennequin is known to all the present generation, and his apparatus for fractures is described in every surgical treatise. His name has years ago traveled beyond our frontiers, and his death will awaken regret beyond the borders of the oceans. Member of the Surgical Society, Laureate of the Institute of the Academy of Medicine of the Faculty of Paris, he leaves numerous works, excellent apparatus, and the remembrance of a noble heart and a soul whose elevation was only measured by his modesty.

Grehant, professor of histology of the Museum of Natural History, director of the Laboratory of Research of the "Ecole de Hautes Etudes," member of the Academy of Medicine, died at the age of 72 years of a long and painful malady. His studies on the poisons of the air, the gas of the blood, oxide of carbon, finally the collection of his physiological researches, have given important results which have modified in many points the scientific theories, admitted, and have had important results, such as the experiments with reference to firedamp.

Progress of Medical Science.

Boston Medical and Surgical Journal, May 19, 1910.

Frequency and Dangers of Fibroid Tumors of the Uterus.—From the records of the Boston City Hospital E. B. Young analyzes the cases recorded at the institution up to January 1, 1910. His conclusions are as follows: (1) Fibroids of the uterus occur in from 7 to 16 per cent. of all adult females and in from 7 to 22 per cent. of all over thirty-five years of age. (2) The age at which fibroids giving rise to symptoms which demand their removal are most commonly encountered is shown by American statistics to lie between thirty-five and forty-five and by German figures between forty and fifty. (3) Fibroids may in the main be divided into three groups: (a) Fibroids of considerable size, nearly all of which produce symptoms; (b) fibroid polyps and submucous fibroids, which project markedly into the uterine cavity; (c) small and painless fibroids. (4) In fibroids of considerable or of large size complications and degenerations dangerous to life occur in at least 10.5 per cent., and for this reason alone the routine removal of all such tumors is indicated. (5) In submucous tumors and polyps, necrosis occurs in over 43 per cent. and the excision of all such growths is therefore indicated. (6) Small and symptomless fibroids are absolutely innocuous and of such frequent occurrence that they may be safely let alone. Such tumors, however, when met with in the course of operations for other conditions should be removed when feasible because there is always the possibility that they may increase in size.

Treatment of Constipation.—The views of M. V. Tyrode are expressed in this paper. He reviews the physiology of the gastrointestinal tract and traces the various foodstuffs out to their ultimate disposal. He then discusses treatment under the headings of diet, exercise, and baths, mental therapeutics and medicines, general and local. He says that the old division of these cases into atonic and spastic appears to him meaningless. The real question is, "Is there any inflammation in the gastrointestinal tract?" and ninety-nine times out of one hundred there is. In such cases the rational treatment is not to further irritate an inflamed mucosa by harsh cathartics nor by any rough diet, which will scratch the inflamed mucosa by vegetable residues, but rather to soothe the inflamed tissues and to allow healing by sparing them further irritation. His general idea of diet is to exclude all fibrous vegetables, salads, and fruits, graham bread and rough cereals, smoked and salted meats, also excess of salt, spices, acids, tea, and coffee. Most cases should take considerable outdoor exercise. Systemic abnormalities should be corrected with the proper remedies. We should try to add to the diet non-irritant substances which are with difficulty absorbed and have such a consistency as to keep the feces from hardening and losing their proper amount of water. Valuable for this purpose are fats with a low boiling point, as olive oil and cream, and also liquid petroleum. Another ingredient which is absorbed with difficulty and makes a soft jelly in the intestines by withholding water is agar-agar. In his own experience liquid petroleum has proved the more successful. If some additional laxa-

tive is necessary he prefers the heavy oxide of magnesia given either in capsules or stirred in milk after meals.

The Statistics of Cancer in Massachusetts for the Year 1905.—This study has been made by W. F. Whitney, who finds that in the State in question the deaths from cancer for each million persons living over thirty years are increasing at an average rate of 120 every five years; that this rate of increase is not uniform and that an abnormally low rate is immediately followed by a very high one. His findings are presented in tabulated form. There seems to be little doubt now, he says, of a steady increase, which cannot be explained by improved registration and more careful diagnosis. Furthermore, the possibility that we were at the crest of a "cancer wave" in 1895 has not been realized.

New York Medical Journal, May 21, 1910.

Possibly a Way for Cure of Seminal Vesicle Infection, with Case Reports.—Three cases are reported by C. E. Barnett, in which treatment with autogenous vaccines was employed. They indicate that the bacterins are beneficial and, comparing the stock with the homologous ones, the writer thinks that the autogenous are the ones of choice, for the degree of virulence will be equalized in each individual subject. The mixed infection will also be counteracted. While it takes many cases definitely to prove a given point, he is convinced of the value of this point of the treatment showing at least a possibility of removing the infection in the vesicle, even of removing pathologically changed tissue left behind. He believes that it would be wise for urologists to add autogenous bacterins to their armamentarium in their fight against vesicular infection.

Sensitization in Cancer.—J. W. Vaughan lays down the following rule: Any foreign protein injected into the tissues of a living animal sensitizes that animal to that protein so that a second injection of a sufficient quantity of the same protein after a similar lapse of time is fatal to that animal. When we attempt to apply this subject of specific sensitization to cancer we are confronted by a problem slightly different than is the case in foreign proteins. If we believe that the cancer cell is the active parasite itself, then we are dealing not with a foreign protein but with an altered autogenous protein, and the fact that the body cannot be sensitized to its own body cells must be taken into consideration. While the amount of work that I have been able to do upon this subject during the past three years has not been of sufficient volume to arrive at any definite conclusion concerning this fact, yet one case has progressed remarkably well under the use of the residue from a large round-celled sarcoma obtained from a different patient, who herself has been but little benefited by the use of the autogenous residue. In contradistinction to this is the undoubted fact that a few cases of malignant disease have retrogressed and entirely disappeared. This can best be accounted for by stating that the body, in splitting up the cancer cell, has formed a sufficient percentage of specific ferment to take care of the entire number of cancer cells present. Again, cancer cells are altered normal cells, and hence might be classed as foreign proteins.

Three Years' Experience in General Practice with Bacterial Vaccines.—G. H. Sherman considers this subject in connection with appendicitis, diseases of the respiratory system, acute articular rheumatism, subacute and chronic rheumatism, arthritis deformans, vertigo, staphylococcus infections, and eczema. Illustrative cases are given under each of these headings. He says that in all his experience he has had cases in which no results were obtained, but none in which any bad result could be attributed to the vaccines. An important point in the use of these vaccines is that the earlier they are used in the course of an infection the better the results. They should be used as primary, not as last-resort remedies. As long as physicians try everything else first and use bacterial vaccines as a last resort, disappointments will be met with. As a whole, the author's experience with bacterial vaccines has been eminently satisfactory. The achievements of regular medicine and aseptic surgery in preventing disease and relieving human suffering cannot be questioned. Isolation and disinfection have suppressed and even eradicated contagious disease. Sanitary regulations of water and food supplies have been of inestimable value in preventing cholera, typhoid fever, and other diseases. The discovery that the mosquito conveys the organism causing yellow fever and malaria has brought these diseases under control where they were once most prevalent. Bubonic plague has been traced from the flea of the rat to man, and is being prevented by destroying the rat. Diphtheria, one of our most fatal diseases, by the early and liberal use of diphtheria antitoxin has become one of the most easily cured, but the diseases caused by the pathogenic bacteria most about us, the diseases caused by the pus group of cocci, has been least amenable to our treatment. Here is where bacterial vaccines come in as a new hope.

Bacterial Treatment of Malignant Disease.—H. A. Duncan gives the summaries of the histories of ten cases. The results were as follows: Cancer of the rectum, inoperable, cured, normal condition after ten months; cancer of uterine body, cured, no trace after seven months. These cases did not occur in the author's practice. The following did: Inoperable cancer of the cervix uteri, no improvement; cancer of breast with metastases to femur and clavicles, no improvement; pimple on the cheek, epithelioma, cured; cancer of liver, no improvement; cancer of rectum, no improvement; sarcoma of rectum, no improvement; cancer of rectum, indefinite; cancer of breast, no improvement; inoperable cancer of cervix uteri, another similar case, no improvement; still another, no improvement. Given a patient in which the general health has not been interfered with, where all the resisting powers approximate the normal, there is no reason why the index to some particular organism such as the *Micrococcus neoformans* should not be raised by correct therapy. In three cases of advanced carcinoma the index was markedly improved after the sloughing mass had been removed. A study of the index to other organisms than the *Micrococcus neoformans* in such cases would help to determine whether this resistance is general, due to improved systematic conditions or specific in the case of the *Micrococcus neoformans* alone. If it proves specific there is but one conclusion to be drawn, viz., that the *Micrococcus neoformans* is a causative factor in malignancy. Again, given a case in which the patient is rapidly succumbing to the disease, we would expect her body resistance to weaken to any one or all microorganisms. So it cannot be argued that because a cancer patient has a low index to *Micrococcus neoformans* the *Micrococcus neoformans* has any direct connection as a causative factor.

Journal of the American Medical Association, May 22, 1910.

Preparetic States.—C. L. Dana holds that certain cases of paresis may yield to specific treatment if thoroughly used in the earliest stages. He is led to repeat his statements because they have been misunderstood, some having jumped to the conclusion that he had held that fully developed paresis could be cured, and also because his view as to the essential unity of nervous syphilis and parasyphilis had been confirmed by the discovery of the spirochete and the evidence of its activity by the Wassermann and other tests. He points out the unreliability of the distinctions which have been attempted to be made between paresis and cerebral syphilis. It follows that if there is an essential underlying unity between true paresis and "leutic neurasthenia," "pseudoparesis," "nervous syphilis," and what he calls the "preparetic state" there is no reason to suppose that if we can cure one we cannot also forestall or even cure the others. It has been his experience to see a number of cases which confirm this view, and he puts on record the final history of the five cases he reported five years ago, and adds a number of others. These show that what he is apparently justified in calling incipient paresis may be sometimes arrested or even cured. If the history, he says, of cases of paresis could be traced back in all instances to the first beginnings, he believes that in a good many instances proper medical treatment might have kept them in check. The onset of a parasyphilis, Dana says, occurring in persons who have had infection, takes place in the following different ways: "1. Acute symptoms of syphilitic exudates in the brain, ending promptly or later in paresis, or ending in cure, with or without mental symptoms, or ending in some deterioration with final serious cerebral vascular changes. 2. Acute mental symptoms, maniac or melancholic, ending in cure or paresis. 3. Tabetic and paretic symptoms, ending in taboparesis or in tabes with arrest of paresis. 4. Insidious mental and physical deterioration ending in paresis." The above conditions may or may not end in paresis, depending on treatment, the constitution of the patient and the intensity of the infection. Often

they go on till nearly every symptom of paresis appears and even then may be arrested. This is what he means by the cure of early paresis.

Hypertension.—J. L. Miller reports results of his studies of high blood pressure, his observations having been confined to the direct effects on systolic blood pressure of sweating and venesection, and the various vasodilators. In most of his patients the urinary findings pointed to interstitial nephritis, but this was not always the case, and, as that condition may sometimes exist without urinary symptoms, no attempt was made to classify the nature of the hypertension etiologically. The Stanton sphygmomanometer with a wide armband was used throughout and several trial readings were made before putting the patient to the test to avoid emotional disturbance. Care was also taken to select patients who could have gained no tolerance of the drugs employed and these latter were also first tested by animal experiment. The conclusions are given as follows: "1. In moderate doses active preparations of nitroglycerin and sodium nitrite temporarily reduce the blood pressure in the majority of cases of hypertension. 2. Erythrol tetranitrate causes a more prolonged reduction in blood pressure than nitroglycerin or sodium nitrite, but so frequently causes severe headache that its clinical value is much impaired. 3. Headache after any vasodilator does not mean that we are getting the physiologic effect in the sense that the blood pressure is reduced, as the headache may appear independently of any change in pressure. 4. A patient's blood pressure may be decidedly affected by one of these vasodilators and uninfluenced by another. 5. Occasionally the blood-pressure of patients with marked hypertension may show very marked fluctuations without apparent cause. 6. A sweat reduces hypertension less than a moderate dose of vasodilators. If sweats are given daily, a rather marked reduction of pressure lasting throughout the day is observed not infrequently. When the sweats are discontinued the blood pressure soon returns to its previous level."

The Father of the Pharmacopœia.—J. M. Eager gives an account of Dr. Lyman Spalding, who was the originator of the United States Pharmacopœia. He was born in Cornish, N. H., in 1775. His father was a soldier in the Colonial and Revolutionary Wars. In 1797 he graduated from Harvard Medical School and for three years afterward assisted Dr. Nathan Smith in his lectures on chemistry and materia medica in the then newly established Dartmouth Medical School. In 1799 he settled for practice at Walpole, N. H., but removed in a few months to Portsmouth, where he remained until 1812, taking a post-graduate course of four and a half months, however, in Philadelphia, and one month in the College for Physicians and Surgeons in New York, in the year 1809. He was also post surgeon at Fort Constitution, Portsmouth, for ten years, from 1802 to 1812. Later he was professor of anatomy and president of the Fairfield, N. Y., Medical School, later incorporated as the College of Physicians and Surgeons of the Western Division of New York State. His connection with the Fairfield school continued until 1817, but in the later years he settled in New York. He broached the plan of a national pharmacopœia in 1817 and surrounded himself with a sufficient corps of collaborators, he himself being chairman of the committee on publication. In this work he journeyed between New York, Boston, Philadelphia, and Washington. The Pharmacopœia appeared August 15, 1820, having been printed, both in English and in Latin, under the title of the Pharmacopœia of the United States of America, and was announced as issued by the authority of the medical societies and colleges. Immediately on the completion of the Pharmacopœia he proposed before the New York Medical Society a revision of the code of ethics, but before he could accomplish this, in the spring of 1821, he suffered an accidental injury which ultimately caused his death on October 30 of that year. His demise occurred at Portsmouth, where his relatives lived. Before his time the London and Edinburgh Pharmacopœias were in use in this country, together with special works valid in certain States of the Union.

Nonspecific Urethritis.—Joseph Hume says that there are two types at least of nonspecific urethritis: 1, acute in character, following sexual congress after a regular incubation period, running a well-marked clinical course, and favorably influenced and easily cured by proper treatment; the other chronic from the beginning, sometimes following exposure like the other, but with an irregular incubation period, with urethral lesions which from their pathologic picture must have taken months or years to develop, and showing no tendency toward self-limitation, being resistant to treatment and sometimes incurable. The former class he calls cohabitative, sexual, or infective urethritis; the latter autoinfective or autogenous, both forms being nonspecific. The former class is comparatively infrequent, and has a tendency to a slightly longer incubation period than true gonorrhea, the infection being milder in character. A case is reported. In 11 cases the infecting organism was studied. In 5 cases Gram-positive cocci alone were noted; in 5 cases bacilli alone were found, 4 Gram-positive, 1 Gram-negative, the latter being the colon bacillus. The other has not been recognized by name. In one case the staphylococcus was also present. The other form is probably not often observed until some suspicion arises, and then it is found to be not new at all. It is frequent in medical students, as has been observed by Waelsch. Hume seems to consider a long foreskin as an etiological factor in these conditions, as rendering the urethra less resistant to infective organisms. The prognosis of this autoinfective type is not so favorable. There is often a well-developed localized fibrosis in the urethra and the prostate is often infected. It is best treated by circumcision, prostatic massage followed by intravesical irrigation and hot rectal douches if the prostate is involved. In many of the cases the patients are made neurasthenic without recognizing the cause. The preexistence of such conditions naturally influences the course of true gonorrheal infections and may account for the perniciosity of some first cases. Cases of this kind are also reported, and tabulated statements showing the contrasted clinical pictures of the two forms are given. Many of them are not of a sexual origin and will explain the origin of many cases of obscure prostatic or vesicular infection. The practice of circumcision should be encouraged as a means of preventing autogenous urethral nonspecific infection.

Tonsils and Adenoids.—J. W. Jervey argues for the normal function of the tonsils, the swelling of which he considers to be often purely a compensatory hypertrophy. The majority of cases of recurrence of quinsy he has observed have been with the so-called submerged and ragged tonsils. These call for operation, which, however, he thinks, is too frequently done in case of the swollen or protruding tonsils which often cause no trouble. In the case of adenoids also he says a small growth in Rosenmüller's fossa is more potent for mischief than a much larger one in the vault or posterior pharyngeal wall not causing obstruction or irritation. In the absence of the latter he never removes a growth in the vault or posterior wall, but he always sees that the fossæ are clear. If the tonsils were always as bad as some seem to think, they ought to have disappeared in the course of evolution by this time.

The Wassermann Reaction.—W. J. Heimann proposes a method of reporting the Wassermann reaction similar to the blotting-paper hemoglobin test. We have determined what intensity of color in hemoglobin represents 100 per cent., and have reconstructed our conceptions of weaker concentrations by numbers accordingly. He describes the Wassermann test and says that the gradations between the two extremes of total binding of the complement and total hemolysis are infinite; every man has his own system of recording them. He uses graduated centrifuge tubes and, counting total hemolysis as zero and 1/20 c.c. of erythrocytes in bulk, or the maximum amount as 100, by comparing the volume of surviving erythrocytes according to the scale and recording the result in per cent., one immediately has a quantitative idea of the reaction. Thus if 1/40 c.c. of erythrocytes are left the reaction is 50 per cent.; if 1/30 c.c., 66.6 per cent. He gives a table showing the advantages of this method in actual practice and describes the appearances in a test tube in which the reaction has been made after from sixteen to twenty-four hours have elapsed. With a negative reaction we have a clear wine red fluid; in a strongly positive test the red cells lie heaped at the bottom and above them the fluid is pure white. If the test be positive but weaker, the cells are below and the supernatant fluid containing dissolved hemoglobin is pink, salmon-colored, deep red, etc., according to the amount of hemoglobin in the solution. The weaker the reaction the deeper the intensity of the fluid and the smaller the number of corpuscles. These differences, expressed mathematically, become definite and objective instead of subjective and vague, as they have been heretofore. To procure the results in the table, he obtained the re-

action by introducing 1 c.c. of washed sheep erythrocytes in a 5 per cent. suspension and 1 c.c. of a solution of rabbit serum of known hemolytic titer, the rabbit having been immunized to the aforesaid red corpuscles. After sixteen hours he shook up the contents of the tube, centrifuged for two or three minutes by electricity, and noted what part of 1/20 c.c. of corpuscles remained and calculated the percentage.

The Lancet, May 14, 1910.

A Case of Blackwater Fever.—The history of this case under the care of D. G. Marshall was that of a man who had lived in Africa, returning later to Edinburgh. He had had several attacks of malaria, all slight, while in Africa, and a few months after his return a severe attack, lasting six days, after which he began to improve. He presented the usual features of this disease, which offered the not unusual feature of occurring some time after the man had returned from a malarial environment. During the slight attacks in Africa he had taken but little quinine. The author says that, concerning the influence of this drug in setting up his severe attack, it is to be noted that, having felt out of sorts for a few days, during which time he was probably suffering from the disease, he took a large dose of quinine and developed in a few hours a high temperature with hemoglobinuria. On previous occasions the drug had cut short the febrile attacks and it is impossible to avoid thinking that repeated chills and the large dose of quinine were the active agents in setting up the severe attack. There is much difference among the profession in regard to giving more quinine in such patients. Some regard it as curative, others as dangerous. The author finds the safest course to follow is a middle course, according to the following rules: (1) If malarial organisms are found in the blood, the remedy should be given. (2) If the parasite is not found in the blood or if there is any doubt, as, for example, where the microscopic examination is impracticable, the drug should not be given. Following these rules in his own case, as examination for the parasite in the blood was negative, the remedy was not given. When it is used the hydrobromate or dihydrochloride should be preferred, as the ordinary sulphate often produces hemoglobinuria. The remedy should be employed in fractional doses.

Modern Methods of Delivery in Contracted Pelves.—E. H. Tweedy says: (1) Induction of premature delivery is never advisable. (2) Perforation is not permissible unless the child is dead. (3) Turning should never be employed as a treatment for contracted pelves, but may still be performed for complications of labor, such as prolapse of the cord when associated with contractions of the first and second degree. (4) In the greater degrees of contraction time should not be wasted in an attempt to obtain natural delivery. (5) On the other hand, in lesser degrees ample time should be given the woman to enable her to deliver herself if possible. Eight or ten hours may be necessary for the moulding of the head and intervention should not be considered until there are evidences of maternal or fetal distress. Once fetal signs of distress are evident, there should be no delay in delivery. (6) High forceps should never be applied until all arrangements are perfected for an operation to enlarge the pelvis. It is, in the author's opinion, a pity to proceed to the latter expedient until forceps have been tried tentatively. It must be confessed that they occasionally accomplish their purpose under the most unfavorable circumstances. Finally in these, as in all other obstetric operations, the best results cannot possibly be obtained if rubber gloves are not worn.

The Occurrence of Acetonuria in Cases of Infectious Disease.—A. Harris says that there is no satisfactory explanation to account for the formation of acetone in the body. It occurs much more constantly in diphtheria and scarlet fever than in typhoid—occurring in most of the two former and in only about one-third of the latter. According to recent authorities the acetonuria of fevers is to be attributed to the acidosis accompanying partial or complete deprivation of food. If this explanation is correct, it seems strange that in a disease like typhoid, in which there is a diminished absorption of food, as shown by the condition of the tongue, diarrhea, and pyrexia, acetonuria should only occasionally be met with and then only at the beginning of the disease. On the other hand in diphtheria and scarlet fever acetone is almost invariably present even in the mild cases in which, as there is little disturbance of digestive functions, a fair amount of carbohydrate food can be given. That pyrexia has little to do with acetonuria is shown by the fact of its occurrence in many cases of diphtheria in which no rise of temperature has been noted. In an institution under the direction of the author it has been found that in the two diseases mentioned the more severe the type, the larger the amount of acetone in the urine and the longer the period it remains therein. In a mild case of diphtheria it usually disappears about the seventh day; in a severe case it may persist until the thirteenth. In the so-called "vomiting" diphtheria, which is always fatal, the reaction is not more marked than usually happens in a severe case. There is no increase in the amount at the time of vomiting. The presence of acetonuria may be of diagnostic value in differentiating between the two diseases and ordinary sore throat, being much less common in the latter.

British Medical Journal, May 7 and 14, 1910.

Some Practical Points in the Treatment and Clinical History of Early Syphilis.—W. Coates relates an interesting series of cases, the particulars of which must be studied by those interested. He speaks especially of the curability of the disease, the relapsing chancre, late relapses, early diagnosis, the imprudence of starting treatment before a positive diagnosis of syphilis is made, etc. The author says that the inability to find the spirochetæ in a primary lesion is not conclusive evidence of the absence of the disease, and that the serum test—Wassermann's—is not at the present time to be relied upon, if negative, to determine the nature of a sore or to guide the practitioner in its treatment. The author has seen several cases of syphilis occur without a sore. He advocates the use in suitable cases of mercury atoxylate, of which he was, he admits, at first afraid, but finds that it has a wonderfully immediate influence on intractable symptoms, and so far as he has noted no ill effects. In his experience the intramuscular injection of the soluble mercurial salts appear to cause more pain and depression than do other remedies. Inunctions and the iodides have served him well, especially in "melting away" those large abdominal masses called tuberculous, which he regards as oftener due to hereditary syphilis so frequently seen in children. Injections of gray oil have also been used by him with remarkable benefit. All cases may not do well on the mercurial ataxylate, and it remains for the future to show in just what class of cases its employment is especially indicated.

The Principles of Treatment in Gastroptosis.—In reviewing the various plans of treatment of this condition, R. Hutchison calls attention to the use of local moist heat for hyperesthesia of the stomach, in the form of poultices or fomentations and whenever there is general epigastric tenderness. Such means may be employed during the first week of the rest cure. Gastric sedatives are also of service here. The matter of artificial support is of secondary importance. Gastric supporters probably do not push up displaced organs, but such support gives relief from these feelings of sinking, emptiness, and exhaustion, which are among the most bitter complaints of patients, but these complaints are probably due to lessened intraabdominal tension and a tendency to a pooling of the blood in the splanchnic area when the erect position is assumed. The best belt is a firm abdominal wall and our efforts should be directed toward restoring its tone and to thickening it by the deposition of a substantial layer of subcutaneous and extraperitoneal fat. As regards the development of the abdominal muscles reliance must be placed upon massage and the practice of abdominal exercises. In regard to abdominal belts, the ideal one is yet to be invented. It must cause pressure from the lower part of the abdomen upwards and somewhat backwards. In the pendulous belly of stout subjects this is quite easy, but most patients with gastroptosis are thin with prominent iliac bones, which tend to carry off the pressure from the hypogastric region, where we most wish to apply it. The problem is a purely mechanical one, and the use of a suitable pad helps to overcome it, but the results leave much to be desired. Three things should not be done, patients with gastroptosis should not be over dieted, their stomachs should not be washed out, and they should not be operated on.

Diagnostic Value of the Leucocytosis Occurring in Whooping Cough.—H. T. Ashby says that in a fair number of cases the number of leucocytes was estimated and in every case in which this was done there was a leucocytosis of between 15,000 and 30,000 white cells per c.mm. The number of white cells in children suffering

from bronchitis and other non-febrile diseases was also estimated, but only in rare cases did the numbers reach such a height as in the cases of pertussis. The results confirm those made by Froelich along the same lines. The leucocytosis is itself a valuable aid in the diagnosis of the disease. In examining the blood of a child with pertussis the preponderance of lymphocytes over the polymorphonuclear cells is at once marked, and in nearly every-case which had a well-marked whoop the lymphocytes formed about 60 per cent. of the total white cells, the rest of the white cells being made up of polymorphonuclear cells with an occasional eosinophile cell. The excessive lymphocytes were nearly all of the small variety, but there was at the same time a greater proportion of large lymphocytes than is found per c.mm. in normal blood and in some cases these cells amounted to 10 per cent of the lymphocytes present. This excess of lymphocytes was the case in patients who had not yet reached the spasmodic or whooping stage of the disease and also in mild cases when it was difficult to make a diagnosis from the history as given by the parent.

The Knife and Its Point.—A. C. Cressy commends the use of knives with a blunt point. The blunt point prevents undermining of the tissues and there is no punctured vessel in the course of the incision because the ends of the incision slant to the wound instead of away from it. In dissecting the surgeon cannot scratch, but must cut. In the removal of glands he cuts with the edge and blunt dissects with the back and has no fear of puncturing vessels close by because there is no point to travel further than he can see. In a splitting operation for appendicitis the skin incision with a blunt-ended scalpel has no undertermined end; in splitting the external oblique, the cross-fibers of the internal oblique are not frayed, as so often happens when the point of a knife passes over them. Having retracted the external oblique, the edge of the knife divides the thin fascia over the internal oblique, and reversing the knife the back of it now splits this muscle and the transversalis. Now the peritoneum is picked up and the edge of the knife laid on it; having made a small opening the knife is inserted, edge upward, and a cut made to the right and to the left without any fear of touching the bowel because there is no point to the knife. In removing a varicose vein there is no point to puncture the vessel as it is dissected out from the surrounding tissues and much time is saved. The back of the scalpel makes on occasion a good dissector. The author considers the point of a scalpel an obstacle to quick operating and a dangerous companion.

Hemophilia in a Female.—E. W. Squire reports this rare condition as the disease is generally transmitted through mother to son and not to daughter. He could obtain no family history of hemorrhages except from the lungs in two members of the parents' families known to be phthisical on going back two generations beyond the parents: When born in 1907 there was a brown patch over one eye, which cleared up in a few days, showing disease probably congenital. The mother often noticed that the child bruised easily on falling. At one year of age a sharp attack of bronchitis with melena occurred, much blood being lost; a few months later severe hemorrhage, lasting for three to four days, followed a mere scratch on the finger; one year later there was bleeding from mouth, on both occasions stopping spontaneously; ten days later there was a further attack of bleeding from two points in the mouth, death ensuing. The child was well nourished and had a varied and liberal diet. There was no history of swollen joints as suggesting purpura or scurvy. One brother showed no disposition to hemorrhages.

Plumbism Treated by the Internal Administration of Permanganate.—Five cases are reported by G. A. Stephens. The drug should be given in all cases of the nature indicated, in capsular or palatinoid form, as it has a tendency to nauseate the patient. The author has already pointed out the fact in plumbism that the origin of the red line on the gums is due to the deposit of lead in the form of the sulphide on a preexisting red line caused by irritating particles in the atmosphere in which the men work. This red line is undoubtedly inflammatory in origin, as shown by the enlarged and engorged papillæ on the edge of the gum, and it is an inflammatory line that occurs on the anterior or upper end of the alimentary tract. Calcium permanganate, being of value in gastritis, acts therefore in the nature of a preventive, and it may be well to order its systematic use in all lead workers.

Some Points Relating to Therapeutic Immunization.—The paper of J. C. McWatters is a plea for the extension of the principles of vaccine therapy. He enumerates the various diseased conditions in which he has followed this line of therapy with success. He says that to-day we must regard the process of inflammation as ministering to immunization on the one hand by the transference of the phagocytes and on the other by the transference of antibacterial fluids from the blood to the invaded tissues. In other words, nature attempts cure in a local bacterial invasion by producing a local migration of leucocytes in the affected tissues accompanied by a leveling up of the amount of opsonin in the invading tissues to that in the circulating blood, and it therefore follows that if the opsonic content of the blood is deficient we shall fail to obtain a destruction of the invading bacteria. Herein, says the author, lies an explanation of the failure of Metchnikoff's original theory in those cases of inflammation in which phagocytic migration is unattended by cure.

Traumatic Tuberculosis, Traumatic Pneumonia, and Traumatic Pleurisy.—This paper is by F. Parkes Weber. He discusses first traumatic tuberculosis from direct infection and then alleged traumatic tuberculosis due to injuries by which tubercle bacilli could not have been introduced into the body from without. Cases of the latter kind are divided clinically into three groups: (a) cases in which a decided traumatism of some kind is followed by signs of either acute disseminated miliary tuberculosis or acute metastatic localized tuberculosis; (b) cases in which signs of pulmonary tuberculosis follow or are at first noticed after a supposed injury to the lungs; (c) cases in which an injury to bones, joints, or parts of the body other than the lungs is followed by signs of tuberculosis more or less localized to the region of trauma. These three headings are expanded by the author. He then asks what part does the trauma play in particular cases of alleged traumatic tuberculosis? We have to admit that in all cases, excepting those in which inoculation with bacilli occurs from without, tuberculosis of some kind, whether latent or not, must have been present before the trauma was received. In any given case, therefore, we have to ask, could tuberculosis be recognized before the injury, is there any reason to believe that the trauma played any part in the outbreak of the tuberculosis, and is the whole of the illness practically the result directly or indirectly of the trauma? In order to answer the last two questions a decision must be arrived at with regard to the other two. Then the nature, position, extent, and violence of the trauma have to be investigated; the lapse of time between the injury and the onset of the tuberculous symptoms has to be ascertained and one has to consider whether the existing tuberculous lesions and symptoms are of a kind likely to have followed the trauma in question. With reference to traumatic pneumonia and pleurisy experiments are referred to as affecting animals, and the author passes on to consider what he calls contusional traumatic pneumonia and pleurisy, referring to a series of cases in which these lesions followed such accidents as being run over, etc. In regard to the former malady he says that there is less expectoration than in the non-traumatic form of the disease. Early hemoptysis is not universally present. It is due to mechanical injury of the lung. External bruising is, of course, present, but it is by no means a marked feature. A crises may occur as in ordinary pneumonia. Chronic bronchitis, alcoholism, and degenerative conditions of the blood vessels doubtless act as predisposing causes of contusional pneumonia, and favor the severity of the attack. The shortest period between the reception of the trauma and the development of the pneumonia is, according to Latten, ten hours. With regard to contusional pleurisy the author says that a very important point is that signs of this disease after trauma may be due to tuberculosis. Pleurisy, with or without fluid effusion, has certainly sometimes been associated with signs of pulmonary tuberculosis following thoracic trauma. By such an injury latent foci of tuberculosis, such as a bronchial gland, etc., may be squeezed or torn in such a way that tubercle bacilli are mechanically disseminated over the neighboring lung tissue, the vitality of which is so lowered as to render it a favorable nidus for the subsequent germ development. The lesion commonly resulting is more apt to be peumonic, but may be pleuritic.

Berliner klinische Wochenschrift, May 2, 1910.

Unilateral Orthrostatic Albuminuria.—Kurt Vorpahl reports the case of a twelve-year-old girl who came to him complaining of headache, pain in the back and

joints, weariness, and loss of appetite. It was found that she had an orthostatic albuminuria, the urine being normal when the child was lying down, but containing albumin when she was walking about. The child had a fairly marked scoliosis, convex to the left in the lumbar region and to the right in the dorsal. As orthostatic albuminuria is often associated with lordosis, which this patient had not, Vorpahl thought that in this case it might be due to the scoliosis, and if so might be unilateral. Catheterization of the ureters proved this to be the case, the urine from the left kidney being normal and that from the right containing albumin.

Constipation Albuminuria.—Roubitschek reports a series of experiments on rabbits, in which he produced an artificial constipation by feeding with oats and giving opium and tannic acid. Six to nine days later albuminuria occurred and casts appeared in the urine. The albumin gradually increased in amount to 0.25-0.50 per mille. In one case, in which he put a firm bandage around the abdomen, it rose to 0.75 per mille. Autopsy, after 14-22 days, showed the intestines dilated and full of scybalæ, the liver and spleen hyperemic, the kidneys enlarged, dark grey red, of normal consistency, the capsule highly adherent, and punctiform hemorrhages. Hemorrhages occurred into the glomeruli. The cause of the albuminuria from constipation may be a toxic absorption from the bowel or pressure on the renal veins from the overfilled gut. The author inclines to the latter alternative. The urine contained red and white corpuscles, hyaline, granular, and epithelial casts.

Münchener medizinische Wochenschrift, May 3, 1910.

The Prophylaxis of Acute Anterior Poliomyelitis.—Römer and Joseph say that in discussing the prophylaxis of such a disease as poliomyelitis one must consider two forms of prophylaxis, hygenic and medicinal, especially etilogoically specific treatment. The latter may be preventative or curative. In hygienic prophylaxis domestic animals, as dogs and chickens, must be considered as possible carriers. Another point of importance is the probable part played by human beings as disseminators of the disease. In many ways the mode of transmission seems to be similar to that of meningitis. It has been suggested that the virus is present in the nasal and pharyngeal secretions, both of these suffering from the disease in its abortive or complete form and in the clinically healthy. Contact with secretions from such persons may cause infection. Experiments have shown that the virus remains virulent, and apparently actively virulent, after 28 days of drying. It may, therefore, be transmitted through dust. The authors have exposed the virus to fumes of formaldehyde in a room by the usual disinfection methods and have shown that after seven and a half hours the virus when injected into a monkey was inert; that the usual formaldehyde disinfection destroyed the virus. It is urged that disinfection should be carried out in a room which has held a patient. Careful disinfection of the nose and mouth of patients and all exposed to them is advised to prevent the danger of carriers. The discovery that one attack renders an animal immune to a second infection, and that the serum of an immune animal protects a normal one, holds out hope for the production of an immunizing serum.

The Transmission of Typhoid Fever by an Infant.—Rommeler reports the case of a woman, aged twenty-six, who, while nursing her infant, developed typhoid fever. The mother was admitted to a hospital and the baby was sent to be cared for by a friend. The child had a slight attack of diarrhea, but otherwise appeared quite well. Two weeks later the woman who was caring for the child developed typhoid fever and was soon followed by her three children, a three-year-old niece, and a twenty-year-old servant. The child was then examined and was found to give a positive Widal reaction, and on one occasion typhoid bacilli were isolated from the stools. The author draws from this case the lesson that when a nursing mother develops typhoid fever her infant should also be taken into the hospital. The symptoms of a typhoid infection in an infant are so slight that there is a great danger of a child apparently quite well conveying the disease to others.

The Treatment of Chronic Bronchitis and Bronchial Asthma by the X-Rays.—Theodor Schilling has treated a series of cases of chronic bronchitis and bronchial asthma with the *x*-ray. For the treatment he claims that chronic cases, which have persisted for years, may be improved and even completely cured. The results are especially hopeful in children. Bronchiectasis also may be cured clinically. The prompt improvement in many of the cases gives room for the belief that many forms of these diseases are caused by the presence of enlarged bronchial or hilus glands. Many cases of acute nonfebrile bronchitis also appeared to be improved rapidly by *x*-ray treatment. A knowledge of the technique completely prevents accidents.

Rectal Gonorrhea in Childhood.—Kaumheimer calls attention to the not infrequent occurrence of a gonorrheal infection of the rectum associated with a specific vulvovaginitis of childhood. He believes the contagion is by direct infection from the vaginal discharge. The subjective symptoms are usually very slight and in the majority of the cases are absent entirely, the disease being found only by systematic search. The occurrence of these rectal infections without symptoms may be an explanation of the difficulty in curing and the tendency to relapse in many cases of gonorrheal vulvovaginitis in infants. It may also play an important part in the spreading of epidemics in children's hospitals. On the theory that the infection may be spread by the use of the rectal thermometer, the author advises that in cases of gonorrheal vulvovaginitis the taking of rectal temperatures be stopped.

Deutsche medizinische Wochenschrift, April 28, 1910.

A Contribution to Banti's Disease.—Momm reviews the literature on Banti's disease and reports a case. In Banti's original description the disease was divided into three stages. In the first stage the enlargement of the spleen is followed by anemia. In the second or transitional period, which lasts only a few months, there is mild jaundice, the liver is usually somewhat enlarged, the urine is scanty, and contains urobilin and frequently traces of bile pigment, and finally gastrointestinal symptoms set in. In the third or ascitic stage the ascites comes on and develops slowly and painlessly; the symptoms of anemia become more severe, the blood examination shows a steadily decreasing number of red cells and reduction of hemoglobin, there is no increase of leucocytes, and death occurs after six months or a year. From a careful study of the literature and of his case Momm says that the disease cannot always be divided into these three stages, that especially the ascites may come on much earlier in the illness. The ascites is the result of the abnormal condition of the blood, and more especially of the interference with the flow of lymph by the swelling of the retroperitoneal and mesenteric glands. Talma's operation of splenectomy is not to be recommended. Occasionally trauma is a factor in the etiology. A clinical diagnosis between Banti's disease and thrombosis of the splenic vein cannot be made.

A Case of Nonparasitic Chyluria.—J. Hnatek reports the case of a woman of thirty-three years of age, previously in good health, who suddenly noticed a milky color to the urine, with the passage of hair-like clots, associated with pain resembling renal colic. The urine contained 7.73 grams of albumin to the liter. The chyluria had a definite nocturnal character, the urine pased during the day being quite normal. In the daytime, however, when the patient remained in bed the urine was chylous, and on a constant diet contained 123 times as much chyle as when she was up and about. Catherization of the uretus showed that the left kidney secreted four times as much chyle as the right. The observation teaches that in cases of parasitic chyluria one must lay weight rather on local changes in the neighborhood of the kidney than upon an altered function of the kidneys which are secreting the chylous urine. The question of why one kidney secreting the same amount of urine as the other should pass four times as much fat as its mate must be explained by further study.

Rupture of the Spleen, Extirpation, Recovery.—Richard Mühsam reports the case of a boy ten years of age who was admitted to the Moabit Hospital immediately after having been run over by an automobile. He was in collapse with free fluid in the abdomen and a contusion on the left side. Laparotomy showed a deep tear in the spleen, and extirpation was immediately performed. The abdomen was closed in two layers and the boy did well for a week. Then the fever rose from 101° to 102°, and the leucocytes numbered 80,000. The wound broke down, resulting in an extensive prolapse of the gut. After sewing up with through and through stitches the wound held. No subphrenic abscess was found at the second operation. Eight days later a purulent hematoma lying under the ribs was opened by resecting a piece of rib. Recovery after this was uneventful.

Book Reviews.

High Frequency Electric Currents in Medicine and Dentistry. Their Nature and Actions and Simplified Uses in External Treatments. By S. H. Monell, Professor of Static Electricity, International Correspondence School, 1898-1903; Founder and Chief Instructor New York School of Special Electrotherapeutics 1896-1902, etc. New York: William R. Jenkins Company, 1910.

This book is from the pen of a man who has had large experience with electrotherapeutics in general, and with high frequency currents in particular. It is divided into four parts, namely, (1) general consideration of high frequency currents, (2) clinical experience of other workers with the current, (3) apparatus and administration of the current, and (4) diseases which are amenable to the current. The book is fluently written, and suggests great possibilities in the therapeutic use of the high frequency current, as it informs one that the range of its usefulness ranges from infantile diarrhea to arteriosclerosis. It makes very interesting reading. On close inspection, however, by one desirous of making use of its teachings, the book is found to be lacking, in a way only too common in books of this type, in that, while telling enthusiastically the wonderful results of the author, it becomes somewhat hazy when it comes to describing the essential details of his methods.

Congenital Dislocation of the Hip. By J. Jackson Clarke, M.B., London, F.R.C.S.; Senior Surgeon to the Hampstead and North-West London Hospital, and Surgeon to the Royal National Orthopedic Hospital. London: Bailliere, Tindall & Cox, 1910.

This monograph discusses briefly and clearly the anatomy and diagnosis of the congenital dislocation of the hip joint, and then describes in detail the Lorenz manipulative or bloodless method of reduction, including operative measures, postoperative treatment, and care of special complications. Forty cases so treated are reported. The book is well illustrated with daylight and *x*-ray photographs, is well printed and bound, and in the ninety pages gives a very good discussion of the subject at hand.

Transactions of the American Pediatric Society: Twenty-First Session. Edited by Linnaeus Edford La Fétra, M.D. Volume XXI. Reprinted from *Archives of Pediatrics*, 1909-1910. New York: E. B. Treat & Co., 1910.

The volume contains the minutes of the meeting, the papers read at the sessions, and the discussion, all of which have previously appeared in print. A perusal of the pages gives one a good idea of the class of work on which the pediatrists of America were engaged during the year 1908 to 1909.

The Elements of the Science of Nutrition. By Graham Lusk, Ph.D., Sc.D., F.R.S. (Edin.); Professor of Physiology at the Cornell University Medical College, New York City. Second Edition, revised and enlarged. Philadelphia and London: W. B. Saunders Company, 1909.

The second edition of this book has been required by the advances made in metabolic work during the past three years. For many years German literature has been full of reports of experiments in animal and human metabolism, and during the past few years American workers have more and more taken up this wide field of physiological chemistry of the living body. These articles, however, come so fast, and are so minutely specialized that to the uninitiated they are little more intelligible than Egyptian hieroglyphics. To meet the needs of those who want to know what this modern work really means, the author has written the present book, which takes up the history of metabolic experiments from its incipiency and briefly gives the results of the various investigations which have been made. The book does not go into methods, it gives merely the conclusions, and references where one may find from the original articles the minutiæ of the procedures. The book can hardly be called light reading, but to the man with some knowledge of chemistry who wishes to have an understanding of the present-day trend of chemical investigations of the body processes, a careful study of the contents will be well repaid.

An Outline of Individual Study. By G. G. Partridge, Ph.D., Formerly Lecturer in Clark University. New York: Sturgis & Walton Co.

This volume is divided into three parts. Part I treats of the history and theory of individual study; Part II of the practical study of individuals, and Part III the application and results of individual study. It is primarily intended for the use of those interested in the study of children as individuals, and therefore will appeal to students of education, parents, and teachers. Some attention is paid to abnormal traits, both of body and mind, but the volume treats chiefly of the normal child. Part IV contains a report of the study of twin children, a chapter on types of children, and a final chapter on pedagogical aspects of individuality.

Modern Methods of Street Cleaning. By George A. Soper, Ph.D., Member of the American Society of Civil Engineers. Illustrated. New York: The Engineering News Publishing Company.

The absence of any treatises on this subject and the great experience and practical knowledge of the author make this volume well worthy of interest. The data were gathered in part during a three months' tour of Europe in 1907, while Dr. Soper was acting in an advisory capacity to the New York Street Cleaning Department. The author states that it was once his hope to present a deduction of some general principles, especially as to efficiency and cost of street cleaning, but the nature of the work and the character of the information available have not made this possible. The exceedingly diverse conditions of pavement, of traffic, and of weather, together with varying sanitary standards, make it impossible to treat this subject in analytical fashion, but the author has done well in describing the fundamental principles applicable to street cleaning, including the use and abuse of city streets and the disposal of refuse. As a history of contemporary methods used in Europe and America, this volume is entertaining and interesting, especially as a work of reference.

The Optic Nerve and the Accessory Sinuses of the Nose. By Prof. A. Onodi (University, Budapest). Authorized translation by J. Lückhoff, M.D., Edin., Ch.B. Pp. i to 101, with 50 illustrations. New York: William Wood & Company, 1910.

The subtitle of this volume declares it to be a contribution to the study of canalicular neuritis and atrophy of the optic nerve of nasal origin, pathological conditions of the utmost importance which in this country are just beginning to be studied in relation to their true significance. This work of Prof. Onodi's is therefore very timely, coming as it does from one who for ten years has studied his subject at first hand, both in the clinic and mortuary. As a result of such researches we now know that many hitherto obscure cases of optic neuritis and atrophy, as well as of acute total blindness, are associated with disease of the sphenoid and posterior ethmoid cells. The figures and plates here displayed are in general all that could be desired, taken as they are from photographs of actual specimens; and even without the elaborate descriptive text which accompanies them one may gain a very fair idea of the surgical anatomy of the nasal fossæ. The thirty-three pages at the end of the volume dealing with clinical considerations serve well to reinforce the value of the relations described in the preceding pages.

A word of criticism may be offered in passing relative to the frequent references of the author to his previously published "Atlas," including descriptive data, which are only of use when one has this atlas in hand. Moreover, instead of the legend "Natural Size" it would be easier for the reader if the author had shown by means of a plane passed through a diaphanous skull just where the section was taken; for in some of the pictures it is difficult to get one's bearings without puzzling over them for some time. These slight strictures aside, the volume is indispensable to all who are interested in the surgery of the head, and the author is to be thanked for his painstaking and exhaustive dissections.

Die Syphilis der Nase, des Halses und des Ohres, von Dr. P. H. Gerber, professor zu Koenigsberg, mit 4 kolorieten Tafeln und 1 Abbildung im Text. Zweite veraenderte und vermehrte Auflage, Berlin; Verlag von S. Karger, 1910.

In this excellent and comprehensive monograph, the author considers syphilis of the nose and nasal sinuses, nasopharynx, mouth and pharynx, larynx, trachea, and ear. There are also chapters on therapy, and an enumeration of the literature consulted in the preparation of the book. The various topics are treated in an exhaustive manner which is strictly abreast of the times. The author excels in the preparation of monographs of this kind. We unhesitatingly commend the result of his efforts in the present publication.

Society Reports.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twenty-fifth Annual Meeting, Held in Washington, D. C., May 3, 4, and 5, 1910.

PRESIDENT, DR. HENRY HUN OF ALBANY, N. Y.

(Special Report for the MEDICAL RECORD.)

(*Concluded from page 941.*)

Epidemiology of Acute Anterior Poliomyelitis.—Dr. JOSEPH COLLINS of New York stated that the epidemicity of this disease was abundantly proven by the records of upwards of fifty epidemics. The fact that anterior poliomyelitis occurred in epidemics necessitated the admission of its parasitic origin. In order to aid in the recognition of this parasite they must study the influence of meteorological agents and their diffusion, the vehicles by which the parasites were introduced into the body, the personal and social conditions influencing infection, the circumstances that determined the decline and extinction of epidemics, and all the factors that had any bearing upon the epidemic movements. The influence of meteorological agencies was most striking. Practically all the epidemics had occurred during or after protracted heat and, frequently, after a drought. The occurrence of digestive disorders in one-half the cases would suggest that foodstuffs might be the vehicles by which the parasites gained entrance to the body. Personal and social conditions had very little to do with the occurrence of the disease. The circumstances that determined the decline and extinction of the epidemics were not unlike those that governed the laws of anticipation, association, and antagonism in other epidemic movements. The disease had not been recognized sufficiently long to state that there were secular mutations or multi-annular mutations, but they were certain that there were epidemic waves or explosions of it recurring at more or less regular intervals. The variations in the mortality of epidemics occurring in the same section of the country in different years, showed that anterior poliomyelitis conformed to the laws that governed the multi-annular fluctuations or mutations of other epidemic diseases. Poliomyelitis had prevailed epidemically in many parts of the world during the past twenty-five years. Nothing had been found in literature that indicated that the disease had been recognized or that it had existed before 1843. The most remarkable thing in the epidemicity of poliomyelitis was its seasonable occurrence. The inference was to be drawn that cold was inimical to the saprophytic growth of the non-obligatory parasite. The mortality rate varied decidedly in different epidemics. The most careful investigation had failed to reveal that the epidemic prevalent had anything to do with unhygienic surroundings.

The Pathology of Poliomyelitis.—Dr. B. SACHS of New York said that recent epidemics had shifted the chief interest in poliomyelitis from the study of the pathology to the questions of the etiology and bacteriology of this disease. Nevertheless, it would be of some value to consider to what extent the advanced study of the morbid changes bore out the modern conception of the disease. This disease should be rightly described as polioencephalomyelitis, as its chief effect was upon the anterior gray matter of the spinal cord. However, it was not limited to the anterior portion: the central gray matter and the posterior horns were also affected. Studies during recent epidemics showed a general hyperemia of the meninges, both of the brain and cord; therefore it was not surprising that meningeal symptoms had been so frequently noted. The gray matter of the cord appeared brownish red in the acute cases: inflammation of the pia mater was found surrounding an infiltration of the cord. The infiltration about the vessels was most marked in the sacral and lumbar segments and next in the cervical. The blood vessels evidently played an important role. He thought the disease was on the order of an interstitial and not a parenchymatous inflammation, at least not primarily. The ganglion cells were found in various stages of degeneration. They might be seen surrounded by small round cells or polymorphonuclear cells: in some instances these had entered the cells, presenting a true neron-asphasia. The ganglion cells did not disappear group by group; the cells that disappeared were in areas in which there was a marked interstitial change. In two cases reported by Strauss the cells of the column of Clarke were found to be degenerated; in five out of seven cases examined by the same investigator the ganglia showed the same evidences of an inflammatory process and the findings were very similar to those in rabies. In the cord of monkeys to whom the disease had been communicated entirely similar changes were found. The pathological findings were in entire accord with the infective character of the morbid process. Areas of bronchopneumonia had been found; parenchymatous degeneration had been made out in the liver and kidneys; the spleen was found invariably congested and firm and generally enlarged. General enlargement of the glands of the body was observed in one case and petechiæ were noted in two cases.

Animal Pathology of Poliomyelitis.—Dr. SIMON FLEXNER of New York reported on the experimental study of poliomyelitis in monkeys, which had yielded a large number of important facts relating to the spontaneous disease in man. The nature of the virus had been discovered, many of its properties had been ascertained, some of its immunity effects had been established, the clinical and pathological peculiarities of the disease had been elucidated, and a basis had been secured on which to develop measures of prevention.

Dr. MARK W. RICHARDSON of Boston reported on the work done by the State Board of Health of Massachusetts in investigating this disease. In 1907 the number of cases numbered 235; in 1908 it numbered 185; while in 1909 the number of cases was almost 1,000. It was brought out that the disease was not necessarily a city but a rural disease; Boston ranked, for instance, sixty-fifth among the cities and towns of the State in which this disease appeared. Among 3,600 children in institutions of the State only one case of acute anterior poliomyelitis was found in a child under fifteen years of age. This child had not been out of the institution for a number of months and had received no visitors. A circular letter had been sent to the physicians of the State recommending that whenever the disease appeared the patients should be quarantined as one would do in a case of scarlet fever. In every case that came to autopsy there seemed to be a definite relation between the fatal cases and an enlarged thymus gland.

Dr. B. SACHS of New York said that in performing autopsies on these cases of acute anterior poliomyelitis, other organs besides the thymus would show evidences of a general infection.

Dr. SIMON FLEXNER of New York said that the thymus gland had been found to be enlarged in those who were the victims of this disease.

The Electrocardiogram in Clinical Diagnosis.—Drs. L. F. BARKER, A. D. H'RSCHFELDER, and G. M. BOND of Baltimore made this presentation which consisted of lantern slide demonstrations showing the value of electrocardiograms as a supplement to other methods of investigating cardiovascular conditions. The curves were especially helpful in the diagnosis of cardiac arrhythmias, including the extrasystoles and heart block, in hypertrophy of the right or left ventricle, in atrial paralysis and the

pulsus irregularis perpetuus, in tachycardias and bradycardias, and in fibrillation of the atrium. The work had been done with Einthoven's string galvanometer.

Demonstrations of Electrocardiograms.—Dr. Walter B. James of New York gave a lantern slide demonstration illustrating the heart's action current in fibrillation of the human auricle in the terminal stage of cardiac insufficiency in valvular disease and also electrocardiograms of pulsus bigeminus.

The Structure of the Sweat Glands of the Skin in Cases of Chronic Nephritis.—Dr. Herbert U. Williams of Buffalo made this presentation. He said that in view of the very general practice of attempting to relieve the kidneys by inducing free perspiration, it seemed that a study of the sweat glands in cases of chronic disease of the kidneys might be interesting. In about 75 cases, mostly of chronic interstitial nephritis, the histology of the sweat glands in skin from the sole of the foot was studied; skin from the abdomen was studied in about half of these cases. Dr. Williams gave a lantern slide exhibition of the pathological conditions found in the sweat glands.

Second Day—Wednesday, May 4.

A Study of the Development of the Epiphyses of the Hand and Wrist for the Purpose of Classifying the Cadets at Annapolis.—Dr. Thomas Morgan Rotch of Boston, presented this paper. He said that he had been requested by the Secretary of the Navy to make an index for the grading of cadets at Annapolis similar to the one he had made and presented in his paper entitled "A Study of the Development of Bones for Determining the Anatomical Index for the Grading of Children up to Thirteen Years." The fact that some of the young men ready to enter under the tests usually made were later unable to withstand the strain or would go along until near the end of the four years and then break down was the reason that the Government desired some additional means of ascertaining at the beginning whether an individual student would be able to withstand the strain, both mental and physical, through which he would have to pass. The work had been carried on on young men from fifteen to sixteen up to about twenty years of age. It had been found that the development of the hand and wrist represented so well that of the other epiphyses of the skeleton that they furnished the best material for the study. They could, therefore, practically make use of these different stages of epiphyseal development so as to cover two distinct periods, one corresponding to the first thirteen or fourteen years of life, and the other from fourteen or fifteen up. The earlier period was determined by the appearance in succession of the carpal bones and the epiphyses of the radius and ulna. The later period was represented by the different stages of ossification, leading up to complete union, of the epiphyses of the phalanges, metacarpal bones, ulna, and radius. The grading was determined by the different periods at which the union took place in the above mentioned epiphyses. He had before shown that epiphyseal development seemed in some way to be connected with mental development while other factors did not. It was the equilibrium of mental and physical development which should be watched. This was accomplished by having Roentgen pictures taken from time to time as the cadet was advanced in order to determine whether he should be advanced or even retained in the Government service. Dr. Rotch presented charts and pictures showing cadet's hands in various stages of development.

Cardiac Hemisystole as Illustrated in a Case of Heart Block.—Drs. Alfred Stengel and William Pepper of Philadelphia reported this case. The cases did not show the Stokes-Adams syndrome although there was complete auriculoventricular disassociation. After the administration of atropine there was a change from complete block to an incomplete one with 3-1 rhythm, then 2-1 rhythm alternating with normal rhythm. Finally there was a persistence up to date of a 2-1 rhythm. Observations made upon the tracings showing this transition from 2-1 to normal rhythm and *vice versa* while the tracings were being made: (1) The change that took place in the auricular and ventricular rate at such times, variations of the A-C interval, etc.; (2) Tracing showing an example of hemisystole, the left ventricle contracting while the right did not. He spoke of Leyden as the chief advocate of varieties of hemisystole and thought that probably his cases were examples of bigeminus. He raised the question: "Provided that hemisystole could occur, would not its appearance in a case of heart block suggest a lesion is one or other division of the bundle of His and thus aid possibly in localizing the lesion?"

Dr. A. W. Hewlett of Ann Arbor said that whatever of interest might be attached to cardiac hemisystole came from the experimental side. He had cut one branch of the bundle of His but he got no dissociation, and did not pursue the experiments further. The number of cases which showed a lack of association was certainly increasing.

Dr. Walter B. James of New York said that by cutting the bundle of His on one side, there was a delayed impulse. There was a complete systole on one side, and a slowness on the other.

Dr. W. S. Thayer of Baltimore said it was a very interesting question as to whether these cases reported by Dr. Stengel should be called cases of heart block. He had seen several cases during the past two years; one individual without any delay in his A-C time showed a dropping of alternating beats after exercise or emotion.

The Structure of the Sweat Glands of the Skin in Cases of Chronic Nephrits.—Dr. Herbert U. Williams of Buffalo presented this paper and gave a lantern demonstration of photomicrographs. He said that in view of the very general practice of attempting to relieve the kidneys by inducing free perspiration, it seemed that a study of the condition of the sweat glands in cases of chronic kidney disease might be interesting. In about seventy-five cases, mostly of chronic interstitial nephritis, the histology of the sweat glands in the skin from the sole of the foot was studied; skin from the abdomen was also studied in about one-half of these cases. The subjects showing obvious skin lesions were excluded. The various pathological conditions found in the sweat glands he demonstrated by means of lantern slides from photomicrographs.

Dr. A. S. Warthin of Ann Arbor said it was very difficult to draw any relationship between the pathological changes occurring in the kidneys and the great frequency of changes that occurred in the sweat glands.

The Relation of Combined Intoxication and Bacterial Infection to Necrosis of the Liver, Acute Yellow Atrophy and Cirrhosis.—Dr. Eugene L. Opie of New York said that by the administration of poisons which attacked the liver, namely, chloroform or phosphorus, in combination with bacterial infection, it was possible to reproduce the peculiar midzonal necrosis which in man occurred in association with bacterial infection, under conditions which were not fully understood. The same combination of poison and bacteria, apparently acting with maximum intensity, reproduced a lesion resembling acute yellow atrophy in man; necrosis and hemorrhage were followed by the generative changes. When the poison in association with bacterial infection repeatedly produced relatively slight changes, cirrhosis of the liver occurred and advanced much more rapidly than that produced by the poison alone.

Dr. S. J. Meltzer of New York said that he wrote a paper some years ago in which he stated that any bacteria like that which caused typhoid fever, or the streptococci, when introduced into the circulation, disappeared in a very short time. But if there was a small injury inflicted, then these bacteria would start to develop. In Dr. Opie's experiments it might be that the chloroform or the phosphorus caused such an injury.

Dr. William H. Welch of Baltimore said that experimental work upon cirrhosis of the liver had hitherto been very unsatisfactory, particularly with alcohol. He said he had never succeeded in producing cirrhosis of the liver experimentally with alcohol. He believed that Dr. Opie's inferences were correct. You had something which produced a damage to the liver causing death; but with the liver's enormous power to regenerate after hepatic abscess, for instance, cirrhosis of the liver did not occur. In order to get cirrhosis of this organ one must inhibit this regenerative power. A combination of the action of toxins with something which prevented this regenerative power might lead to the production of liver cirrhosis.

Dr. A. S. Warthin of Ann Arbor reported an interesting case. The patient was seven months pregnant, was operated on for gallstones, and died after the operation. Portions of the liver were at once removed and left in a warm room for six hours. A central necrosis developed in this liver tissue after its removal from the body. The examination of the lever tissue removed immediately after death showed no such change.

The Interpretation of the Metabolic Defects in Diabetes Mellitus Upon the Basis of the Theory of Intracellular Ferment Action.—Dr. A. E. Taylor of Berkeley, Cal., read this paper. He considered the four chief reactions of glucose in the animal body: the formation of glucose from levulose and galactose, and the formation of galactose from glucose; the formation of glycogen from glucose, and the reversed reaction; the formation of fat from glucose; and the combustion of glucose. All were reactions of fermentation. From the nature of the chemical reactions involved, all were presumably related to different enzymes. The reaction of intramolecular conversion was retained fully in true diabetes, namely the formation of glucose from levulose and galactose. The power of forming glycogen from gulcose, of forming fat from glucose, and of burning glucose were more or less completely lost. The formation of glycogen from glucose involved two known stages: the stage of disaccharide and the stage of polysaccharide; they did not know where the difficulty lay in diabetes. They could not study the loss of the power of forming fat from glucose until they knew whether normally sugar was formed from fat in the body. As to the loss of the power of burning sugar, it was known that the difficulty lay in the very first stages of the reaction, before the stage of lactic acid. The loss of the power of forming glycogen and fat from glucose could not be dependent upon the loss of the power of burning glucose. Dr. Taylor interpreted the loss of power of burning glucose physicochemically as follows: Glucose in alkaline reaction was slowly burned, this was the autoreaction. The muscles provided a zymase of low activity only. The pancreas provided a zymoexcitor, whose action was to multiply greatly the acceleration accomplished by the muscular zymase. A direct analogy was to be found in alcohol fermentation, where the zymase of the yeast was the enzyme and phosphoric acid the zymoexcitor. Loss of combustion of glucose could be caused by loss in the mass of the muscular enzyme, by loss in the pancreatic zymoexcitor, or by some disturbance in the reaction. The best investigations indicated that in diabetes of the classical type, the cause was to be found in the pancreas, leading to the more or less complete reduction in the mass of the zymoexcitor.

The Distribution of Protein Digesting Enzymes in the Body and Their Part in Some Pathological Processes.—Dr. Eugene L. Opie of New York read this paper in which he stated that numerous observations had shown that a variety of conditions, often associated with degenerative processes in various organs and with cachectic conditions, were accompanied by increased antienzymotic (antitryptic) activity in the blood serum. Poisoning by chloroform or by phosphorus, associated by advanced changes in the liver, illustrated this increased antienzymotic activity. By the study of the enzymes present in the liver and in the blood serum after the administration of these substances, the attempt had been made to explain the change.

A Study of the Internal Secretion of the Pancreas.—Dr. Joseph Pratt and Dr. Lesley H. Spooner of Boston presented this paper. They discussed atrophy of the pancreas produced by ligating the ducts in dogs and cats. The limit of assimilation of carbohydrates decreased 50 per cent. or more in two months after occluding pancreatic ducts. In a dog kept under observation for one year diabetes did not develop. There was no definite evidence of compensation on the part of other organs for diminished pancreatic function. The limit of assimilation for glucose was markedly increased by feeding fresh pancreases. There was complete disappearance of the islands of Langerhans in atrophied pancreases without the occurrence of diabetes.

Dr. Henry Sewell of Denver made a preliminary report upon an interesting case; his clinical observations had been carried on for two months in a case of diabetes. The patient was a child in whom a very strict diet did not seem to relieve his glycosuria. His experiments were not yet completed, and a detailed report would be made later.

Dr. William Geo. MacCallum of New York was convinced that the remnants referred to were the remains of the islands of Langerhans.

The Pancreatic Reaction of Cammidge in Relation to Diseases of the Pancreas and Ductless Glands.—Dr. Balfour related his experiences with the Cammidge reaction two years ago. He had experimented on eighty cases following Cammidge's technique closely. His results were most discouraging and he gave up.

Dr. Pilcher resumed examinations in May, 1909. He made an effort to improve the technique by running parallel tests of hydrolized and unhydrolized specimens. The experiments were made chiefly on patients showing more or less pancreatic involvement. Of 62 patients showing involvement of the pancreas at operation, 50 gave more or less "positive" reactions. Of 50 cases showing at operation no pancreatic involvement, seven gave more or less positive reactions. Of 25 well individuals one gave a positive reaction. This work served to show the possibilities of error, owing to the indefiniteness of what actually constituted a reaction.

Drs. Willis and McGrath took up the work along with Dr. Pilcher about five months ago and sought: (1) to attain a uniform technique; (2) to analyze the types of reaction; and (3) to eliminate the personal equation by having the end reactions classified by one who knew nothing of the patient. Nineteen types of end reactions were found necessary for accurate recording. From Cammidge's description about four of these types would have been considered positive and the remainder negative. Cases were clinically of four classes: 1. Cases shown at autopsy or operation to have involvement of the pancreas. 2. Cases which at operation or autopsy were shown to have no pancreatic involvement. 3. Sick individuals in whom the pancreas was not examined. 4. Apparently well individuals. Group 1 contained 21 cases, 14 of whom were examined before the operation; six gave positive reac-

tions. Of the same 21 cases examined five days after operation six were positive, three of these having been positive before the operation, one was negative, and two were not examined previously. Eighteen of these were examined about the ninth day after operation and three gave positive reactions. These three had been positive before the operation. One had been positive on the second test and the other two negative. The second group, in which the pancreas was not involved, contained 60 cases. Twenty-one were examined before the operation, fourteen were positive. Five days after the operation all sixty were examined again and fifteen were positive. Four of these had been positive before and the remaining eleven had not been previously examined. Nine days after operation 55 of these cases were again examined and 14 were positive. Of these, five had been positive before operation and the remaining nine had not been examined before operation. Of the third group, sick persons whose pancreases were not examined, 207 cases were examined. Seventy-three of these were positive. Of these 73 positives 15 were goiter cases, eight were appendicitis cases, and the remainder were cases of salpingitis, uterine tumors, etc. Of the group of well persons 17 cases were examined from one to five times each. Of these examinations five were positive. From these facts they summarized as follows: 1. That even where the most elaborate care was exercised to follow the technique of Mr. Cammidge's "6" reaction, if knowledge of the clinical histories and other factors of the personal equation were eliminated, the end results must be considered, both as valueless and misleading as a means of diagnosing disease of the pancreas. 2. There was no apparent clinical relationship between disease of the pancreas and any of the various types of end reaction. 3. It did not seem to them that the end reactions were artifacts but rather that they indicated actual metabolic variations. The relationship of these changes to the welfare of the patient was not apparent.

Dr. Francis F. Kinnicutt of New York said that their observations at the Presbyterian Hospital did not permit him to accept Dr. Wilson's conclusions; they had tried the reaction in 127 cases and there were positive reactions in twenty-four of them. He gave a brief report of the positive cases.

Dr. Louis B. Wilson of Rochester, Minn., said that, strange as it might seem, a positive reaction was obtained in absolutely healthy individuals. There was a larger number of individuals without pancreatic lesions that gave the reaction than did the individuals who had pancreatic lesions. In those patients with pancreatic lesions, the reaction varied greatly.

Election of Officers.—*President,* Dr. F. Forchheimer, Cincinnati; *Vice-President,* Dr. J. George Adami, Montreal; *Secretary* Dr. George M. Kober, Washington; *Recorder,* Dr. Solomon Solis Cohen, Philadelphia; *Treasurer,* Dr. J. P. Crozer Griffith, Philadelphia; *Councillor,* Dr. George Dock, New Orleans. *Elected to Active Membership,* Dr. Albion W. Hewlett, Ann Arbor, Mich.; Dr. E. Libman, New York; Dr. Frederick T. Lord, Boston. *Elected to Associate Membership,* Dr. Thomas R. Boggs, Baltimore; Dr. John Howland, New York; Dr. Leo Loeb, Philadelphia; Dr. Wilder Tileston, New Haven; Dr. Augustus B. Wadsworth, New York.

Digestive or Alimentary Hypersecretion of Gastric Juice.—Dr. Julius Friedenwald of Baltimore presented this paper in which he said that alimentary hypersecretion was characterized by the appearance of abnormally large quantities of gastric secretion after the introduction of an ordinary test meal, being distinguished from continuous hypersecretion by the presence of but little or no gastric juice in the fasting stomach. He had based his observations on the study of fourteen cases, varying in age from 18 to 64 years. The symptoms consisted of fullness, pressure, distention, and eructations after meals, with pain in the region of the stomach, accompanied occasionally by nausea and vomiting. Emaciation was present in all instances; there was usually constipation but rarely heart-burn. The gastric contents extracted after an Ewald-Boas test breakfast ranged between 190 c.c. and 410 c.c. This large amount was always a feature of the disease. The amount of fluid in the stomach contents ranged as high as 94 per cent., but was once as low as 68 per cent. Eight of the fourteen cases presented a hyperacidity, five a normal acidity, and one a subacidity. With the dry test meal two of the cases presented hyperacidity, eleven normal acidity, and one a subacidity. Alimentary gastrosuccorrhea was a nervous affection which was apt to extend over a long period of time and with great variability of symptoms. The fact that the patient enjoyed good health for long periods of time and at those times the increased secretion following meals was apt to disappear, indicate that the disorder was purely a form of gastric neurasthenia.

Some Reactions of the Vasomotor Center.—Drs. Torald Sollmann and J. D. Pilcher of Cleveland said that the reactions of the vasomotor center were being studied by a method which permitted the elimination of all complicating factors, such as cardiac or peripheral vasomotor reactions. They reported on response of the center to various conditions such as reflex pressor and depressor stimulation, asphyxia, cerebral anemia, cardiac stoppage, rise of blood-pressure, hemorrhage, saline infusion, and a series of drugs.

Further Experiments on the Production of Active Immunity in Guinea-Pigs by Mixtures of Diphtheria Toxin and Antitoxin.—Drs. Theobold Smith and Herbert R. Brown of Boston presented this communication, which was a report of the continuation of those experiments published in the *Journal of Experimental Medicine,* 1909, XI. To the trials made with mixtures of toxin and antitoxin they had added some made with toxin alone, and others in which the toxin injection followed the dose of antitoxin by from 24 to 72 hours. The immunity produced was measured, as heretofore, by the passive immunity of the offspring. They concluded with a discussion of the theories involved.

The Bacteriology of Acute Respiratory Infections as Determined by Culture from the Bronchial Secretion.—Dr. L. Emmet Holt of New York read this paper. The object of his work was to obtain facts as to the increased frequency of respiratory infections and to ascertain the part played by the *B. influenzæ.* The results of his first season's observations indicated that the influenza organism played a very important part, especially in winter and early spring infections. The *B. influenzæ* was second only to the pneumococcus. During the present season about 1000 cultures had been made upon 400 patients and 32 nurses, also cultures from the lung's and heart's blood in 65 routine autopsies. The patients were all under three years of age. The method of taking bronchial cultures consisted in inducing a hard cough by pharyngeal irritation and catching the secretion upon a swab. The patients were divided into four groups, pneumonia, bronchitis and mild respiratory infections, non-respiratory infections, pneumonia, and tuberculosis. There were several fairly distinct clinical types recognized. In general, the influenza infections were characterized by wide and irregular fluctuations in temperature, by rather mild general symptoms, and very irregular physical signs, prolonged and recurring. Dr. Holt believed that the *Staphylococcus aureus* played a much more important part in the bronchopneumonias of young children than was usually attributed to it. The findings in bronchitis differed very little from those in cases of pneumonia as to the frequency with which the pneumococcus, streptococcus, and staphylococcus were found. The influenza

bacillus was present in a higher percentage of cases than in the pneumonias. In the non-respiratory cases, though all these organisms were frequently found, the proportion of influenza fell to the lowest point. Otitis frequently complicated these respiratory infections, and cultures after fresh paracentesis of 75 ears showed staphylococcus 66 per cent., pneumococcus 20 per cent., streptococcus 20 per cent. and influenza bacillus 8 per cent. In general the post-mortem findings corresponded with the clinical findings as determining the type of infection. After an experience extending over two years Dr. Holt thought that culture examination was of great assistance in diagnosis, especially in influenza infections. Therapeutically these findings might have some bearing. In about half a dozen cases he had used influenza vaccines and he thought they were indicated in very protracted or in recurring cases of influenza infection.

Dr. Frederick T. Lord of Boston said that he had worked along similar lines in Boston from 1903 to 1905, but he dealt with adults and not with children. In his series of 186 cases about two-thirds showed mixed infections, the remaining one-third having but a single organism predominating. It became apparent, however, that even in this small group of cases where there was but one organism found at the first examination, there appeared sooner or later other organisms. There did not appear to be any increased leucocyte count in infections of the upper respiratory tract; whereas, in the deeper parts of this tract there was a high leucocyte count.

Dr. William H. Park of New York said that there had been emphasized two important points, the importance of employing cultural methods, and the bearing this had on the diagnosis and prognosis.

The General Principles Underlying Vaccine Treatment.—Dr. J. G. Adami of Montreal discussed the differences between reactions *in vivo* and *in vitro* together with the possible differences between the natural cure of disease and the cure by means of antibodies, whether these were directly introduced into the organism, or were developed in the organism by the introduction of dead or living bacteria. He also considered the main principles which seemed to determine successful vaccine therapy.

Vaccine Therapeutics in Typhoid Fever.—Dr. Mark W. Richardson of Boston read this paper. He first reviewed the literature on this subject and then summarized the results obtained with typhoid vaccine in the treatment of typhoid fever, both in the original disease and in relapses. The results obtained were not striking as far as the original disease was concerned. There was, however, a better outlook as to the prevention of relapses. The best field for the use of vaccines lay, undoubtedly, in prophylaxis against the disease. Preventative inoculation was becoming more and more common in widely separated parts of the world.

The Effects of Injections of Killed Streptococci in the Living Body.—Dr. George Henry Weaver of Chicago discussed the destruction of streptococci in the body as accomplished through phagocytosis. The opsonin was the only demonstrable antibody of importance in this process. In regard to the immunizing power of killed streptococci in uninfected animals he said that streptococci killed by strong galactose solutions were much more active than those killed by heat. Immunity in rabbits was associated with increase of opsonin. He discussed the use of prophylactic injections in man against scarlet fever and for the purpose of preventing streptococcus complications in this disease and concluded that they were of uncertain usefulness in the first instance and of no apparent value in the prevention of complications. The therapeutic effects of killed streptococci in man were of no benefit in erysipelas except in subacute and chronic cases. In the streptococcus complications of eruptive diseases there was no benefit from these injections in the acute stage; in subacute and chronic stages there was a marked benefit in some cases. Septic cases were often benefited. The difficulties of judging results accurately were very great because of the natural course of the conditions treated. The failure to obtain favorable results might depend upon exhaustion of reactive ability of the body cells, adaptation of bacteria, distortion of interaction of bacteria and the serum and cells of the body.

Report of the Inoculation Department of the German Hospital, Philadelphia.—Dr. John C. DaCosta, Jr., of Philadelphia made this report. He described the methods and technique employed and reported a number of cases in which vaccine therapy had been employed; these embraced cases of streptococcus and staphylococcus bacteriemia, local suppurative lesions such as furunculosis, carbuncle, mastoiditis, otitis, empyema, subdural abscess, pelvic abscess, pyonephrosis, and diffuse pyogenic lesions as cellulitis and disseminated superficial abscess.

Results in Vaccine Therapy.—Dr. William H. Park of New York spoke of the results that were attained by the use of bacterial vaccines and concluded that bacterial vaccines were of value in many localized bacterial infections, but that their value in general infections, such as typhoid fever and pneumonia, was not yet established.

Dr. Francis F. Kinnicutt of New York said that at the last meeting of the association there were reported several cases of streptococcus bacteriemia associated with endocarditis in which recovery took place. During the past three weeks they had received into the wards of the Presbyterian Hospital three severe cases of puerperal sepsis; in all the autogenous vaccines were used and all these patients had made a good recovery.

A Clinical Aspect of Fifty-two Sporadic Cases of Trichinosis.—Dr. W. Gilman Thompson of New York made this report. He said that the fact that he had been able to obtain records of 52 sporadic cases of trichinosis during a period of six years proved that this malady was much more common as a sporadic disease than was usually supposed, at least in the vicinity of New York. There was no difficulty in determining at once a correct diagnosis of trichinosis based upon the following symptoms: 1. Acute onset, usually with vomiting and abdominal cramps. 2. A high grade of eosinophilia, usually above 30 and frequently much higher, even above 80 per cent. 3. A temperature often reaching 104 or more and lasting in lessening degree for from two to six weeks. 4. Puffiness of the eyelids and face with pains in the eye occurring in one-fourth of the cases. 5. Dyspnea and diaphragmatic breathing occurring without cyanosis in about one-fourth of the cases. 6. The generalized muscle pains, cramps, soreness, and prostration. 7. The sudden occurrence of symmetrical circumscribed corneal hemorrhage in a patient whose blood vessels were not degenerate.

Dr. Richard C. Cabot of Boston said that at the Massachusetts General Hospital during the past year they had had one case of general anasarca, with dropsy of all the serous cavities. In one case the patient had no pain at all. In another case they obtained the embryo from the blood by the method described by Dr. Janeway.

The Resistance to Compression of the Arterial Wall.—Drs. Theodore C. Janeway and Edwards A. Park of New York presented this paper, which was a report of experiments carried on by graphic methods, the pressure of the internal circulation and the external compressing medium being registered, while the variations in the flow beyond the artery were recorded by a Hurthle membrane manometer. The points of the first diminution of the flow, of total cessation, and of the return of the flow after lowering the external pressure, were thus determined. The latter proved by far the most constant index and most analogous to the ordinary criterion of the return of the

pulse in clinical work. Four groups of arteries were tested. 1. Adult's arteries obtained postmortem. These gave data concerning the relatively slight effect of arteriosclerosis and even calcification of the wall on the compressibility. No such vessel required more than 20 mm. overpressure. 2. Infant's arteries obtained very soon after death. These required uniformly but a few mm. to compress. 3. Arteries from amputated limbs kept in Ringer's solution and tested within a few hours. The results were somewhat variable and unsatisfactory, but they seemed to substantiate post-mortem results. 4. Surviving carotids from the ox, all alive when tested, as proved by the contraction to adrenalin and barium chloride by Meyer's method. In this group the effect of tonus was studied in various ways and it was demonstrated that it had a surprising influence on the compressibility of the vessel. They pointed out the sources of error in such experiments which invalidated all previous work.

Third Day—Thursday, May 5.

Peculiar Sickle-Shaped Forms of Red Blood Corpuscles in a Case of Anemia.—Dr. James B. Herrick of Chicago reported this case. A young negro, twenty years of age, was suffering from a severe secondary anemia of obscure origin. His blood showed many red blood corpuscles of peculiar sickle-like shape. Some were nucleated. The patient had yaws and had suffered from weaknes, dyspnea, and jaundice for three years. When he first presented himself he had a cough, fever, dizziness, bronchial catarrh, and acute rhinitis. He had an enlargement of the left ventricle and a systolic murmur. The spleen and liver were not enlarged. The urine showed a trace of albumin and a few casts. He had been under treatment for a year and while he had improved the blood presented practically the same picture as at the beginning of treatment.

Pernicious Anemia.—Dr. Alexander McPhedran of Toronto reported a case of pernicious anemia in which there was apparent complete recovery lasting for a period of sixteen years.

Dr. George Dock of New Orleans said that these remissions in pernicious anemia were very interesting features of the disease and, curiously enough, were not often recognized. He knew of one patient that had been presented to three different medical societies by three different medical men as a cured case of pernicious anemia.

Dr. James B. Herrick of Chicago recalled one patient in which there was an interval of seven years between the attacks.

Dr. William S. Thayer of Baltimore had seen but one such case; the interval was about four and a half years.

Dr. Frederick C. Shattuck of Boston saw one case of pernicious anemia which followed confinement; recovery took place. The blood picture was absolutely typical of the disease, the examination being made by Dr. Cabot.

Study of Experimental Cardiorenal Lesions.—Drs. H. A. Christian, R. M. Smith, and I. C. Walker of Boston presented this report of a year's study of cardirenal lesions produced in rabbits by the injection of various drugs such as uranium nitrate, arsenic, sparteine sulphate, and adrenalin chloride. They gave particular attention to the histological changes produced in the heart and kidneys. Of particular interest among these lesions was a proliferative type of pericarditis following hemorrhagic exudation into the pericardial cavity. This lesion was associated with both myocardial and endocardial changes of a proliferative character.

The Frequency and Significance of Albumin in the Urine of Normal Children.—Drs. Samuel McClintock Hamill and H. D. Blackfan of Philadelphia presented this paper which was based upon the systematic analyses of the urine of 500 children. They discussed the frequency of albuminuria in children presumably normal and the relationship of such albuminurias to the conditions upon which they were supposed to be dependent.

Dr. S. J. Meltzer of New York reminded those present that the mucous membrane of the gastrointestinal tract was more permeable in children than in adults, and this might apply to all the mucous membranes of the body, that they were all more permeable at the time of growth; this was as it should be for purposes of absorption and elimination.

A Clinical Method of Estimating the Coagulation Time of the Blood.—Dr. Robert Dawson Rudolf of Toronto presented this paper. He said that no attempt had been made or could be made to measure the time or extent of the coagulation of the blood when this was surrounded by normal tissues and was circulating in a normal manner, because under those conditions it did not coagulate. The chief object of his communication was to advocate a method of measuring the coagulation time of the blood, which was convenient clinically and which seemed to give reliable results. The temperature at which the experiment was carried out made a marked difference in results. This difference was about one minute for each degree Centigrade. At 20 C. the average coagulation time was eight and one-half minutes. Age, after early childhood, and sex seemed to have no influence upon the time. A diurnal variation did not seem to occur; possibly there was a slight increase in coagulability as the day advanced, but this might have been due to an experimental error. There appeared to be a slight tendency to decrease in the coagulability some two hours after a meal but it was too slight to attach any weight to it. Calcium lactate did not appear to have any influence upon coagulation. Citric acid appeared to have a slight retarding influence. Considerable variation occurred in the coagulation time of a healthy individual from time to time, the nature of which was not evident.

A Preliminary Note on Medical Uses of Rectal Infusions.—Dr. Henry Sewall of Denver made this report. He said that from a theoretical point of view the following summary might be made of the distinctive vital relations of proctolysis: 1. Rectal infusions seemed less disturbing to the economy than fluid presented to the body through other channels. Infusions introduced by the "Murphy method" produced a minimum of peristaltic reaction. 2. Warm rectal infusions had a diuretic effect which was frequently immediate and intense. 3. Soluble toxins proceeding from foci of infection impaired the vitality and reduced the resistance power of healthy tissues. This condition was important in medical as well as surgical cases. Dilution of the circulating toxins with imbibed fluid and their removal by diuresis would seem not only to protect the kidneys by lessening the concentration of the poisons excreted but tended to safeguard sound tissues. 4. Clinical observation indicated that microbic metastasis was inclined to seek regions already injured by circulating toxins. In gonorrheal affection joint pains were probably due to transported toxins and were apt to precede the local establishment of the cocci. Proctoclysis appeared to ameliorate such pains, and might possibly limit the extension of the infection. 5. The addition of foreign fluid was an important aid in the maintenance of normal blood pressure. 6. The exhibition of many medicines by way of rectal infusions commended itself as free from disadvantages inherent to the oral channel. The cases upon which the article was based belonged to two groups: 1. Those in which it was desired to raise arterial tension, or to deplete an effusion; 2. Those in which the object was to reduce toxemia. In the second group there was a pertinent field for proctoclysis.

The Effects of Concentrated Saline Solutions on the

Human Body.—Dr. Harlow Brooks of New York made this report. The patient was a young woman for whom, after an operation for appendicitis, a rectal enema composed of one pint of normal saline and one-half ounce of whiskey was ordered to be repeated q. i. h. for three doses. One hour after the first enema the patient became restless, nervous, and thirsty. After the second dose her symptoms became exaggerated and the surgeon was sent for. She had been given the third enema before he arrived and he found her unconscious. The pulse was small, 120 and temperature 101°. The pupils were contracted and failed to react to light. The temperature rapidly rose to 109° per rectum, respirations became rapid, shallow, and difficult, and the patient died about eight hours after leaving the table. About forty minutes before death she had a convulsive seizure lasting ten minutes and a few minutes before death passed about a quart of blood-stained gelatinous material from the gut. The urine had been voided frequently and showed a specific gravity of 1.015, no sugar and no albumin. A few days later it was found that the nurse had given a saturated solution of NaCl used as a stock solution. Thus the patient received nine ounces of sodium chloride and it was believed that this was the cause of death. Administration of concentrated salines produced symptoms precisely like those in this case, presumably by taking fluids from the blood lymph and tissues and drawing them to the gut or stomach. The administration of NaCl to rabbits produced these symptoms and postmortem examination showed the stomach and intestines filled with gelatinous secretion; hemorrhagic eschars were present in the stomach and intestines. With the idea that although acute administration of excessive quantities of salt might not produce renal lesions, persistent administration might, rabbits were submitted to repeated excessive but not fatal doses of NaCl by the stomach. Aside from emaciation and temporary symptoms, produced immediately by the doses, no effects were obtained. The excretion of the excess of salt was rapidly brought about by the urine. No demonstrable renal lesions were produced, and a certain degree of toleration seemed to be established.

Toxemic Jaundice.—Dr. David Riesman of Philadelphia discussed those forms of jaundice which were not due to obstruction of the ducts, and he distinguished four principal groups: (1) That in which the jaundice was associated with acute infectious diseases; (2) that characterized by extensive anatomic changes in the liver; (3) obscure infections or intoxications without marked changes in the liver; (4) a familial or hereditary type characterized by chronicity, enlargement of the spleen, and hemolysis. The jaundice in these four groups, as well as that experimentally produced by icterogenic poisons such as toluylendiamin, was not hematogenous but was always of hepatic origin. Reference was made to the histological changes in the liver in the jaundice of pneumonia and other infectious diseases, especially to a peculiar loosening up of the cellular texture of the organ. He did not share the view of William Hunter that the jaundice was due to a catarrhal swelling of the finest bile channels and increased viscidity of the bile, but was of the opinion that it was chiefly functional in origin and was due to changes in the pressure relations within the liver which caused a reversal of the bile flow. It was probable that exaggerated blood destruction, by furnishing the liver with a larger amount of raw material, *i. e.*, hemoglobin, might bring about excessive bile formation. The possibility also existed that the poisons in their passage through the liver injured the endothelial cells of the various capillary systems of the organ, and thus facilitated the resorption of bile.

Anuria Five Full Days in a Child Three Years Old; Recovery.—Dr. W. P. Northrup of New York reported this case, a child who had suffered from scarlet fever with severe angina. For three or four days following the injection of Mulford's whole serum he had had a striking urticarial rash. At the end of twelve days there ensued a period of five days during which time the boy passed only a few drops of urine. He had no symptoms of uremia and was waterlogged. At the end of five days he began to pass urine in spurts of one drachm; the following days he passed 300 c.c., 600 c.c., 1,000 c.c., 1,750 c.c. and 2,100 c.c. He was now perfectly well. This case was rare but not unique. The probable cause of the anuria was toxic inhibition; it was probably not due to the antitoxic serum. Inflammation of the kidneys was not severe. Dr. Northrup said that the question as to whether there was any relation between the excessive urticarial skin rash, presumably an antitoxin serum rash, and the swelling of the kidney was purely conjectural. He asked whether a surgeon would at the present time suggest splitting the kidney capsule and whether one would always wait five days in a similar case.

Dr. Milton H. Fussell of Philadelphia reported a case of anuria which extended over a period of four days. There was no anasarca. The child died later of miliary tuberculosis. Sections of the kidneys were examined but nothing was found to account for the anuria.

Dr. William S. Thayer of Baltimore reported the case of a child who was absolutely waterlogged for a period of at least two months and yet there was not any abnormal sign in the urinary examination except a reduction in the quantity of the urine. He died three or four years after this attack of some other condition.

Dr. Frederick C. Shattuck of Boston asked if a reversal of the condition described by Dr. Northrup had ever been observed by him. He recalled one case in which, after the subsidence of the scarlet fever, the child had a tremendous polyuria. Nothing abnormal was found in the urine, and there was no dropsy or anything which pointed toward any nephritic trouble.

Dr. R. D. Rudolph of Toronto asked Dr. Northrup if the symptoms of nephritis appeared before the administration of the antitoxin.

Dr. William P. Northrup of New York replied in the negative. He was unable to answer Dr. Shattuck's question. In the cases that had been reported in the literature, there were a great number of weak places. In some it was reported that the patients were given tub baths daily and this admitted of a loophole even though the patients were carefully observed.

Dr. Francis F. Kinnicutt of New York asked if the urticaria was very severe.

Dr. Northrup replied that the urticaria was very severe.

Dr. Francis F. Kinnicutt of New York said that urticaria as a possible cause of the anuria appealed to him. In angioneurotic edema the mucous membranes became swollen; therefore, as an etiological factor this suggested itself to him.

Dr. Northrup of New York said that one of the best articles on this subject was by Dr. E. P. Fowler of New York on "Suppression of Urine" (William Wood & Co., New York, 1881).

Eye Affections in the Insane.—F. M. Fernández describes the affections of the eyes he found in almost 200 insane patients. Lacrymal diseases are not very common. Blepharitis, on the contrary, is abundant, owing to the prejudices of that kind of patients. Ectropion is exceedingly common, owing to the frequency with which the insane strike each other. He was surprised to find so little trachoma in spite of the increase of the disease in Cuba lately, and of the scanty sanitary conditions. Pterygium was frequent, and also corneal affections. Cataract was common, and he operated upon four cases, with fair results. He was surprised to see an immense number of cases of increased sensibility of the retina.—*Crónica Médico-Quirurgica de la Habana.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners of Maryland.

December, 1909.

ANATOMY.

1. Bone? Composition and structure.
2. Name bones with which the temporal articulates.
3. Describe the thoracic duct.
4. Name the ductless glands.
5. Describe any one ductless gland.
6. Make diagram of transverse section of thoracic spinal cord.
7. Give general plan of circulation.
8. Describe the ophthalmic nerve.
9. Describe the middle ear.
10. Origin, insertion, action, and nerve-supply of teres major and gracilis muscles.

PHYSIOLOGY.

1. (*a*) Define human physiology. (*b*) Define physiological leucocytosis and mention some conditions in which it is found. (*c*) Give normal blood-pressure.
2. State what you know of the composition and characacter of urine, and mention the most frequent abnormal constituents.
3. (*a*) What are the sources of oxygen and carbonic-acid gas in the system? (*b*) What is the effect of each upon the blood?
4. What is meant by absorption and nutrition?
5. Where in the body is each of the following found, and what is the function of each: Pepsin, trypsin, glycogen, ptyalin, and synovia?
6. Describe the normal heart sounds and factors producing each.
7. Describe briefly the functions of the pneumogastric nerve.
8. Give the functions of the skin, and describe briefly how each function is performed.
9. Lymph: Origin, description, composition, and functions.
10. (*a*) Describe the normal pulse, and give the average rate during infancy, youth, and old age. (*b*) What is the normal ratio of the pulse to respiration?

CHEMISTRY.

1. Define (*a*) diffusion, (*b*) dialysis, (*c*) combustion, (*d*) reagents, (*e*) oxidation, and give an illustration of each.
2. (*a*) What is the reaction of normal gastric juice, (*b*) and to what is it due?
3. (*a*) Give properties, (*b*) chemical formula, and (*c*) uses of permanganate of potash.
4. Mention one chemical antidote for each of the following: (*a*) Phenol, (*b*) arsenious oxide, (*c*) sulphuric acid, (*d*) mercuric chloride, (*e*) oxalic acid.
5. Complete the following equations:
   (*a*) $BaO_2 + H_2SO_4 =$
   (*b*) $2KI + HgCl_2 =$
   (*c*) $Na_2CO_3 + CaCl_2 =$
   (*d*) $Pb(NO_3)_2 + Na_2SO_4 =$
   (*e*) $2KOH + H_2SO_4 =$
6. Describe in detail the examination of a sample of urine for the detection of sugar, albumen and bile.
7. Give (*a*) chemical formula, (*b*) properties, and (*c*) uses of iodoform.
8. Give a chemical classification of foodstuffs, with an example of each.
9. Under what circumstances are the syllables mono, di-, tri-, tetra-, and penta- used in chemical nomenclature? Give examples.
10. Describe Marsh's test for arsenic.

MATERIA MEDICA.

1. How is opium obtained? (*a*) What per cent. of morphine should the official powdered opium yield? (*b*) Name two alkaloids of opium and give doses.
2. Give the official name and composition of (*a*) Fowler's solution, (*b*) Donovan's solution.
3. Name five official preparations of mercury.
4. State the dose of infusion of digitalis, fluid extract of ergot, oleum terebinthinæ, sodium salicylate, and tinctura opii deodorati.
5. Give the official name and dose of (*a*) Epsom salts, (*b*) Rochelle salts, (*c*) Glauber salts.
6. What is incompatibility in medicine, and what are the different kinds of incompatibles?
7. Would you write potassium chlorate and tannin in the same prescription? Give reasons for your answer.
8. Define narcotics, anesthetics, and sedatives, and give an example of each.
9. Name the four principal alkaloids of cinchona.
10. Mention the three principal salts of potassium used in medicine, and give dose of each.

THERAPEUTICS.

1. Name two respiratory stimulants and two vasomotor depressants. Give doses.
2. Describe and give the indications for the use of cardiac sedatives, with an example.
3. For what purpose is diaphoresis produced? Name three diaphoretics.
4. By what methods do antipyretics act?
5. Define anthelmintics, and name some remedies of this class.
6. Explain how antitoxin produces immunity and effects cure.
7. What therapeutic uses has chloroform other than as an anesthetic?
8. What is cumulative action? Name one drug that has this tendency, and give symptoms of such action.
9. What is the important alkaloid of erythroxylon, and what is its principal therapeutic use?
10. What are the therapeutic uses of the preparations of bismuth?

PATHOLOGY.

1. Define (*a*) calcification, (*b*) neuroma and angioma, (*c*) a retention cyst. (*d*) What are the degenerative changes of arteries? (*e*) What is osteomalacia?
2. How does sarcoma differ histologically from carcinoma?
3. What pathological changes are found in Addison's disease?
4. Give pathology of tabes dorsalis.
5. Describe pathological change that takes place in the liver from chronic interstitial hepatitis or atrophic cirrhosis.
6. What pathological changes occur in acute lobar pneumonia?
7. What is diplococcus? Name two pathogenic diplococci.
8. Define (*a*) germicide, (*b*) antiseptic, (*c*) asepsis, (*d*) sterile, (*e*) disinfectant.
9. What is essential to the life of bacteria?
10. What special culture medium is required for the growth of gonococcus?

PRACTICE.

1. Define (*a*) epidemic parotitis, (*b*) difference between endemic and epidemic diseases, (*c*) dysphagia, and name some diseases in which it occurs; (*d*) Koplik's sign and Kernig's sign. In what diseases do they occur?
2. What is (*a*) percussion, (*b*) inspiration, (*c*) mensuration, (*d*) palpation, (*e*) auscultation, (*f*) succussion, (*g*) egophony.
3. Give differential diagnosis between membranous and spasmodic croup, and give treatment of each.
4. Give differential diagnosis between varioloid and varicella.
5. Give differential diagnosis between hysteria and epilepsy.
6. Give symptoms of Graves' or Basedow's disease.
7. Give causes and symptoms of ascites, and indicate how to recognize by what disease it is produced.
8. Give treatment of erysipelas.
9. Give treatment of diabetes mellitus.
10. Describe symptoms of herpes zoster and its treatment.

SURGERY.

1. What is an abscess, an aneurysm, and with what conditions may aneurysm be confounded?
2. Define peritonitis.
3. Describe operation for ligation of subclavian in its third portion.
4. Describe tonsillectomy, and how would you arrest dangerous hemorrhage after this operation?
5. Name and describe the more common errors of refraction.
6. Define glaucoma, and describe its surgical treatment.
7. Where and when, if at all, should metallic sutures be used, and why?
8. Give symptoms, signs, diagnosis, and surgical treatment (operative and non-operative) of tuberculous coxitis (hip-point disease).

9. Name several local anesthetics and mode of application.
10. Cholecystotomy: Indication, limitations, technicque.

OBSTETRICS.

1. What are the factors concerned in normal menstruation? Under what pathological condition may menstruation be absent?
2. How is external palpation applied in the diagnosis of the position of the fetus?
3. What is puerperal eclampsia? Describe the prophylaxis and give treatment.
4. Give the causes, diagnosis, and treatment of prolapse of the cord.
5. Give the causes, diagnosis, mechanism, and management of a face presentation.
6. Mention all the structures divided in complete laceration of the perineum, and describe an operation for their restoration.
7. Give the pathological anatomy, symptoms, diagnosis, and treatment of membranous dysmenorrhea.
8. Give reasons for the shortening of the round ligaments. Describe the operation.
9. Describe the structures and development of a dermoid cyst of the ovary.
10. Give the causes of icterus of the new-born.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF MARYLAND.

December, 1909.

ANATOMY.

1. See Cunningham's "Anatomy" (1909), pages 70 and 71; or Gray's "Anatomy" (1908), pages 41 and 34.
2. The Temporal bone articulates with the Occipital, Parietal, Sphenoid, Inferior Maxillary, and Malar bones.
3. See Cunningham's "Anatomy" 1909), page 906; or Gray's "Anatomy" (1908), page 775.
4. The ductless glands are: Spleen, thyroid, parathyroids, thymus, suprarenals, coccygeal, carotid, pineal pituitary, and lymphatic glands.
5. See Cunningham's "Anatomy" (1909), page 1210; or Gray's "Anatomy" (1908), page 1407.
6. See Cunningham's "Anatomy" (1909), page 458; or Gray's "Anatomy" (1908), page 843.
7. See Gray's "Anatomy" (1908), page 557.
8. See Cunningham's "Anatomy" (1909), page 679; or Gray's "Anatomy" (1908), page 1043.
9. See Cunningham's "Anatomy" (1909), page 748; or Gray's "Anatomy" (1908), page 1160.
10. TERES MAJOR. *Origin:* Inferior angle of scapula. *Insertion:* Inner bicipital ridge of humerus. *Action:* draws humerus downward and backward, and is internal rotator. *Nerve supply:* Subscapular nerve.

GRACILIS. *Origin:* Symphysis pubis. *Insertion:* Upper part of inner surface of shaft of tibia. *Action:* Flexes leg, rotates it inward, and adducts thigh. *Nerve supply:* Obturator nerve.

PHYSIOLOGY.

1. (*a*) *Human physiology* is that branch of science which treats of the functions of the organs and tissues of the human body in a state of health.

(*b*) *Physiological leucocytosis* is an increase in the number of the white blood corpuscles occurring under normal or physiological conditions, such as: Digestion, exercise, after a cold bath, or during pregnancy.

(*c*) The normal blood pressure in the brachial artery is between 110 and 130 millimeters of mercury.

2. *Normal urine* is a yellowish fluid secreted by the kidneys to the amount of about 1200-1500 c.c. daily; specific gravity, about 1015 to 1025; acid reaction (due to acid sodium phosphate); it has a characteristic odor and a salty taste. Its *normal constituents* are: Water, urea, uric acid, urates, hippuric acid, kreatin, kreatinin, xanthin, hypoxanthin; sulphates, chlorides, and phosphates of sodium and potassium; phosphates of magnesium and calcium; nitrogen, and carbon dioxide. The most frequent *abnormal constituents* are: Albumin, casts, sugar, blood, pus, excess of indican, bacteria, bile.

4. *Absorption* is the process by which the products of digestion are conveyed to the circulation. *Nutrition* is the sum of the processes by which the body digests, absorbs, and assimilates suitable materials brought into contact with it.

5. *Pepsin* is found in the gastric juice; it changes proteids into proteoses and peptones in an acid medium. *Trypsin* is found in the pancreatic juice; it changes proteids into proteoses and peptones in an alkaline medium, and afterwards decomposes them into leucin and tyrosin. *Glycogen* is found in the liver (also in placenta, white blood corpuscles, muscle tissue, etc.); it is a source of sugar and of energy. *Ptyalin* is found in the saliva; it changes starches into dextrin and sugar. *Synovia* is found in the joints and bursæ; it acts as a lubricant.

6. There are two normal heart sounds which follow in quick succession, and are succeeded by a pause. The first, or systolic, sound is dull and somewhat prolonged; the second, or diastolic, sound is sharper and shorter. The sounds may be expressed by the syllables *lubb—dup*. The first sound is heard best at the apex beat in the fifth left intercostal space; the second sound is heard best over the second right costal cartilage. The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculoventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall. The *second* sound is caused by the vibration due to the closure of the semilunar valves.

7. *Function of Pneumogastric Nerve:* It supplies (1) *motor* influence to the pharynx and esophagus, stomach, and intestines, to the larynx, trachea, bronchi, and lungs; (2) *sensory* and, in part, (3) *vasomotor* influence, to the same regions; (4) *inhibitory* influence to the *heart;* (5) *inhibitory* afferent impulses to the *vasomotor center;* (6) *excito-secretory* to the salivary glands; (7) *excito-motor* in coughing, vomiting, etc.

8. The *functions of the skin* are: (1) Protection, (2) excretion, (3) secretion, (4) heat regulation, (5) absorption, (6) general sensation, (7) special sense of touch, and (8) respiration.

(1) By its mechanical covering, and also by its being an organ of sensation. (2) Very slight; and see (3). (3) It secretes sebum to lubricate the hairs, and sweat (which has several functions: excretion of water, carbon dioxide, and urea; cooling of surface of body; and regulator of body heat). (4) By radiation, and see 3. (5) Very slight, chiefly of oily substances. (6) and (7) By end organs. (8) A slight amount of carbon dioxide is exhaled.

9. LYMPH. *Origin:* There are two theories as to the formation of lymph: (1) That it is formed from the blood plasma by the processes of filtration, diffusion, and osmosis. (2) That in addition to these, the endothelial cells of the capillaries exercise some influence. *Description:* Lymph is a colorless, albuminous fluid, alkaline in reaction, with specific gravity of about 1015, containing lymph corpuscles, and coagulating when drawn from its vessels. *Composition:* Proteins (serum albumin, fibrinogen), sugar, sodium chloride and carbonate, water, urea, fat. *Function:* To provide cells and tissues with materials necessary for their growth, repair, and functional activities; and to receive and carry away their waste products.

10. The *pulse* is a wave of expansion which travels along the arteries, and is due to the discharge from the left ventricle of a volume of blood, during systole, into the already full arterial system. The points to be observed are: (1) Its *frequency;* this gives the rate of the heart beats. (2) Its *compressibility;* this denotes the force with which the heart is beating. (3) Its *tension;* this denotes the peripheral resistance, and also the state of the arterial walls. (4) Its *regularity* or *rhythm;* this denotes the regularity (or otherwise) of the heart's action in force or rhythm. The average rate during infancy is about 120 per minute; during youth, about 80; and during old age, about 60. The normal ratio of pulse to respiration is about 4:1.

CHEMISTRY.

1. *Diffusion* is the thorough mixing of liquids or gases which occurs when they are brought together. Thus, two liquids of different densities, even when at perfect rest, will soon have diffused into each other to form a single liquid whose density and composition are the same throughout. *Dialysis* is the process of separating substances from each other by placing the mixture containing them in a vessel with porous walls and immersing it in water, when the more diffusible substance will pass through. *Reagents* are substances used to produce chemical reactions; for example, see Question 6 below:

By *oxidation* we mean the act of union of oxygen with another element or compound. This process is attended by the liberation of heat, and, when it takes place rapidly, of light. The rusting of a given weight of iron is a slow oxidation, while the burning of the same in oxygen is a rapid oxidation. Only the latter produces light, while in both cases the same amount of heat is liberated.

By *combustion*, in a general sense, is meant the rapid union of the oxygen of the air with some other substance, as coal or phosphorus. In a wider sense, however, combustion may be defined as any chemical union of two substances attended by liberation of heat and light.

2. (*a*) Acid. (*b*) To hydrochloric acid.

3. Potassium Permanganate is a dark crystalline substance, yielding a red powder when broken. It is soluble in water, and gives it a red color even in very dilute solutions. It is an oxidizing agent, and disinfectant. Its formula is $K_2Mn_2O_8$.

4. One chemical antidote for *phenol*, sodium sulphate; for *arsenious* oxide, freshly prepared solution of ferric hydroxide; for *sulphuric acid*, magnesia; for *mercuric chloride*, white of egg; for *oxalic acid*, magnesia.

5. (*a*) $BaO_2 + H_2SO_4 = BaSO_4 + H_2O_2$
(*b*) $2KI + HgCl_2 = 2KCl + HgI_2$
(*c*) $Na_2CO_3 + CaCl_2 = 2NaCl + CaCO_3$
(*d*) $Pb(NO_3)_2 + Na_2SO_4 = PbSO_4 + 2NaNO_3$
(*e*) $2KOH + H_2SO_4 = K_2SO_4 + 2H_2O$

6. *Test for albumin:* "The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent it is to be treated with a few drops of magnesia mixture and again filtered. The reaction is first observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3."

Test for sugar: Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color.

Test for bile pigment in the urine: Put 3 c.c. HNO_3 in a test-tube; add a piece of wood, and heat until the acid is yellow; cool. When cold, float some of the urine to be tested upon the surface of the acid. A green band is formed at the junction of the liquid, which gradually rises, and is succeeded from below by blue, reddish-violet, and yellow.

7. *Iodoform* has formula CHI_3. It is a solid, yellow, crystalline substance, insoluble in water, soluble in alcohol and in ether, with a sweet taste and a peculiar penetrating odor. It is used as a dressing for wounds, sores and ulcers (particularly tubercular and syphilitic ulcers).

8. Foods are classified as follows:

I. Inorganic { Water. / Salts. (Sodium Chloride.)

II. Organic { Non-nitrogenous { Carbohydrates (Sugar). / Fats (Fat). / Nitrogenous—Proteids (Meat).

9. *Mono* denotes one; thus, CO carbon monoxide. *Di* means two; thus, H_2O_2 hydrogen dioxide. *Tri* means three; thus $C_3H_5(OH)_3$ glycerol is a triatomic alcohol. *Tetra* means four; thus, carbon is tetravalent. *Penta* means five; thus PCl_5 phosphorus pentachloride.

10. *Marsh's test for arsenic:* This test depends on the fact that arsenic hydride is formed when nascent hydrogen acts on a compound of arsenic:

$$H_3AsO_3 + 3H_2 = AsH_3 + 3H_2O.$$

A small flask fitted with thistle funnel and a delivery tube, as for the production of hydrogen, is used; pure zinc and hydrochloric acid are introduced, and after a short time the hydrogen is ignited. It is advisable to cover the flask with a cloth before igniting the gas, as an explosion may happen unless the air has all been driven out. If the materials are pure the hydrogen flame gives no deposit upon a piece of cold porcelain brought into it, but commercial zinc usually contains arsenic. When the purity of the gas is proved, a little solution of arsenite may be poured down the thistle funnel, which will produce a more rapid evolution of gas, and the flame will become larger and perceptibly colored. A piece of cold porcelain depressed upon the flame will be covered with a deposit of metallic arsenic. The films of arsenic are metallic looking in the thicker places, brownish near the edges; they are easily volatized by heat, and dissolve in solution of bleaching powder. A portion of the glass tube from which the gas is burned should be heated to redness; the gas decomposes and a deposit of arsenic appears on the tube, which may be identified in a similar way, or may be converted into crystals of oxide by cautious sublimation in an open tube.—(Fisher's *Elementary Chemistry.*)

MATERIA MEDICA.

1. Opium is obtained by incising the unripe capsules of Papaver somniferum. It should yield not less than nine *per cent.* of morphine. *Two alkaloids:* Morphine, dose gr. 1/5; Codeine, dose gr. ½.

2. (*a*) *Fowler's Solution* is liquor potasii arsenitis. Its composition is: Arsenic trioxide, potassium bicarbonate, compound tincture of lavender, and water.

(*b*) *Donovan's Solution* is liquor arseni et hydrargyri iodidi. Its composition is: arsenous iodide, red mercuric iodide, and water.

3. (1) Hydrargyri chloridum corrosivum; (2) Hydrargyri chloridum mite; (3) Hydrargyri iodidum flavum; (4) Hydrargyri iodidum rubrum; (5) Hydrargyrum cum creta.

4. Infusion of digitalis, dose 3ij; Fluidextract of ergot, dose ℥xxx; Oleum terebinthinæ, no dose; Sodium salicylate, dose gr. xv; Tinctura opii deodorati, dose ℥viij.

5.

	OFFICIAL NAME.	DOSE.
Epsom salt.....	Magnesii sulphas	3iv
Rochelle salt.....	Potassii et sodii tartras	3ij
Glauber's salt.....	Sodii sulphas	3iv

6. By *incompatibility* is understood the simultaneous administration or combination of substances not suitable for such combination. *Varieties:* Chemical, pharmaceutical, and therapeutical.

7. I would not write potassium chlorate and tannin in the same prescription; because the combination is explosive.

8. *Narcotics* are agents which produce deep sleep; as opium.

Anesthetics are agents which destroy sensation; as ether.

Sedatives are agents which reduce functional activity and diminish pain; as aconite.

9. Quinine, quinidine, cinchonine, cinchonidine.

10. Potassium iodide, dose gr. vijss; potassium chlorate, dose gr. iv; potassium bitartrate, dose gr. xxx.

THERAPEUTICS.

1. *Two respiratory stimulants:* Strychnine, dose of sulplate, gr. 1/64; and citrated caffeine, dose gr. ij. *Two vasomotor depressants:* Amyl nitrite, dose ℥iij; and aconite, dose of tincture, ℥x.

2. *Cardiac sedatives* lessen the force and frequency of the heart's action. They are used to control palpitation and overaction of that organ, also to slow the pulse in febrile conditions in sthenic subjects, especially when local inflammation is the exciting cause thereof. Most of them are direct cardiac poisons, depressing both the heart muscle and the motor ganglia. The list includes Aconite and Veratrum, also Muscarine, Pilocarpine, Saponin, Hydrocyanic Acid, Antimony, Potassium salts, and Digitalis, the last-named acting as a sedative by stimulation of the vagus center and the cardiac muscle, slowing the rate and giving regular rhythm to the action of the heart.—(From Potter's *Materia Medica.*)

3. *Diaphoresis is produced:* (1) To remove fluid from the body. (2) To remove poisons from the body. (3) To reestablish disturbed cutaneous circulation, and so to relieve congestion of internal organs. (4) To relieve the kidneys. (5) To increase the alkalinity of the tissues. *Three diaphoretics:* Alcohol, aconite, and pilocarpus.

4. The following table (from Potter's *Materia Medica*) gives the chief antipyretics, with their manner of action: Temperature depression may be done by five different actions working upon two principal lines, viz., by:

(*a*) *Lessening heat production by* { (1) diminishing tissue change. / (2) reducing the circulation.

(*b*) *Promoting heat loss by* { (3) dilating cutaneous vessels, thus increasing heat radiation. / (4) promoting perspiration, its evaporation lowering the temperature. / (5) abstracting heat from the body.

The following list of antipyretics includes a few for each of the above-named actions, to which the numbers refer in each case, viz.:

Quinine, 1.	Aconite, 2.	Antipyrin, 1, 4.
Phenol, 1.	Alcohol, 1, 3.	Antimony, 2, 4.
Salicin, 1.	Nitrous ether, 3, 4.	Cold bath, 5.
Digitalis, 2.	Acetanilid, 1, 4.	Cold drinks, 5.
	Phenacetin, 1, 4.	Wet-pack, 5.

5. *Anthelmintics* are agents which kill or expel worms inhabiting the intestinal tract. *Examples:* Oleoresina aspidii, gr. xxx; Pelletièrine tannate, gr. x; santonin, gr. j; pumpkin (pepo) seeds, ʒj.

6. *How* antitoxin produces immunity and affects cure is not known, but *theories* deduced from observed facts are as follows: "As the various pathogenic bacteria produce the causative toxins of their respective diseases, so the organic cells of the body, reacting under the stimulus of the poisons thus introduced, immediately proceed to elaborate defensive bodies, which if produced in sufficient quantity will neutralize the effects of the toxins. Residual antibodies remaining in the blood after recovery render the animal immune for a time against the disease. The immunizing and curative effects obtained by the injection of the blood serum of an immunized animal into the circulation of another animal are due either to direct chemical neutralization of the toxins themselves by the antibodies so introduced (Behring, Kitasato), or to a particular influence exerted by the antibodies upon the living cells of the organism which, being affected in two opposite directions, remain neutral to the disease (Buchner). Some authorities hold that these results are due to the conjoint action of leucytic and chemical forces. Ehrlich's side-chain theory assumes that every toxin contains toxophore molecules having direct toxic action, and haptophore molecules which combine the toxophores with a similar combining group of molecules in the tissue cell of the attacked organism. The tissue cell molecules being destroyed by the toxophores, a rapid and profuse regeneration of similar molecules occurs in side chains, and these molecules overgrowing are carried into the circulation, becoming the antitoxin, which acts by combining with the haptophores of newly arrived toxin, using up their combining power before they can reach the tissue cells."—(Potter's *Materia Medica*, etc.)

7. Besides being an anesthetic, chloroform is a rubefacient, an anodyne, an antipruritic; it is administered internally as a stomachic, in dyspepsia, to disguise nauseous drugs, in diarrhea, in irritating coughs and bronchitis.

8. *Cumulative action* is the property which some drugs have of producing more or less sudden and violent action, after single and successive doses have been taken with no untoward effect. *Example:* Digitalis; this produces fast and irregular pulse, gastroenteritis, small pulse, low blood pressure.

9. The important alkaloid of erythroxylon is cocaine; its principal therapeutic use is as a local anesthetic.

10. Preparations of bismuth are used: (1) *Externally*, as dusting powders for wounds, sores, some skin diseases; (2) *internally*, in vomiting, diarrhea, gastritis, gastralgia, and as an intestinal antiseptic; (3) also in sore mouth, conjunctivitis, granular lids, coryza, mercurial ptyalism.

PATHOLOGY.

1. (*a*) *Calcification* is a pathological process in which certain tissues are infiltrated with calcareous particles (salts of calcium and magnesium). (*b*) *Neuroma* is a tumor consisting almost entirely of nerve tissue. *Angioma* is a tumor consisting of blood-vessels bound together by a small amount of connective tissue. (*c*) A *retention* cyst is a cyst which results from the retention of a normal secretion (as a sebaceous cyst); (*d*) Fatty, calcareous, hyaline, and amyloid degenerations. (*e*) *Osteomalacia* is a disease characterized by progressive softening of the bones.

2. *Carcinoma* is derived from the epiblast or the hypoblast; possesses a stroma, in which are both blood-vessels and lymphatics; metastasis occurs by the lymphatics.

Sarcoma is derived from the mesoblast; it has no stroma and no lymphatics; metastasis occurs by the blood-vessels which are in contact with the cells.

3. See French's "Practice of Medicine" (1907), page 539; or Osler's "Practice of Medicine" (1909), page 756.

4. In *tabes dorsalis* the posterior columns of the spinal cord and the posterior nerve roots are involved. The posterior columns of the spinal cord are gray and shrunken, and show considerable overgrowth of connective tissue in the columns of Goll, Burdach, and Lissauer; this process extends upward from the lumbosacral region; the posterior nerve roots degenerate and become atrophic. The meninges over the affected parts become opaque and adherent. Some of the cranial nerves may also atrophy, notably the optic, but also the motor oculi and vagus. The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective tissue, and sometimes congestion; the spinal ganglia may be affected.

5. In *atrophic cirrhosis:* The liver is shrunken and indurated, rough, and of a pale or yellow color; a growth of new connective tissue is disposed in broad bands which run in various directions, and by their contraction divide the liver into numerous irregular lobes. Many acini may be affected at one time. The capsule may be thickened, or adherent to the diaphragm. Jaundice is slight, and comes on late; ascites is pronounced and may occur early.

6. See French's "Practice of Medicine" (1907), page 154; or Osler's "Practice of Medicine" (1909), page 170.

7. A *diplococcus* is a form of bacteria made up of two cocci attached to each other (in pairs). Two pathogenic diplococci: *Diplacoccus pneumoniæ* and *Diplococcus intracellularis meningitidis.*

8. (*a*) *Germicide* as an agent capable of destroying bacteria. (*b*) *Antiseptic* is an agent capable of preventing or restraining putrefaction. (*c*) *Asepsis* means freedom from pathogenic germs. (*d*) *Sterile* means containing neither microorganisms nor spores capable of development. (*e*) *Disinfectant* is an agent which restrains infectious diseases by destroying or removing their specific poisons.

9. Most bacteria require proper temperature, generally at or near that of the body; oxygen is generally needed, those that cannot live without it being called aërobic, and those that can grow without it, anaërobic; nutriment of a proper kind, containing both organic and inorganic material; a slight degree of moisture; a medium of slightly alkaline reaction; and rest. Individual bacteria may require modifications of the above essentials.

10. Human blood serum.

PRACTICE.

1. (*a*) *Epidemic parotitis* is inflammation of the parotid gland (or mumps), occurring in a large number of people at the same time. (*b*) An *endemic* disease is one which is more prevalent in certain localities than elsewhere; an *epidemic disease* is one which attacks a large number of persons in the same locality in rapid succession. (*c*) *Dysphagia* means painful or difficult swallowing; it occurs in peritonsillar abscess, tonsillitis, cancer of tongue, pharyngitis, etc. (*d*) *Koplik's sign* is the presence of small red spots with a bluish-white center on the inner surface of the cheeks, found in measles prior to the development of the eruption on the skin. *Kernig's sign* is inability to fully straighten the leg after both thigh and leg have been flexed; it is found in cerebrospinal meningitis.

2. (*a*) *Percussion* is a method of diagnosis, and consists in striking a part with a view to determining the condition of the underlying organs by the sound elicited. (*b*) *Inspiration* is the act of breathing in. (*c*) *Mensuration* means measuring. (*d*) *Palpation* is a method of diagnosis, and consists in feeling or pressing over an organ with fingers or hands. (*e*) *Auscultation* is a method of diagnosis, and consists in listening to the sounds of the heart, blood-vessels, or respiratory apparatus. (*f*) *Succussion* is a method of diagnosis, and consists in shaking (slightly) the patient or some viscus. (*g*) *Egophony* is a form of vocal resonance in which the voice sounds tremulous and bleating.

3. *Spasmodic croup* generally comes on suddenly, at night. There is no appreciable fever, no previous malaise or sickness, and often the patient is asleep again by the time the physician arrives. There is frequently a thick, tenacious mucus, but neither Klebs-Loeffler bacilli nor streptococci are present. It is entirely a local disturbance.

Membranous croup is either laryngeal diphtheria or a streptococcus infection. In either case there is a prior stage of malaise, accompanied by chills, fever, and sore throat. The fever may become very high. A membrane forms, in which are found the Klebs-Loeffler bacilli or streptococci.

For treatment, see French's "Practice of Medicine" (1907), pages 647 and 195; or Osler's "Practice of Medicine" (1909), pages 599 and 207.

4. In *varicella* the symptoms come on gradually; there is no prodromal fever; no pain in the back; the eruption appears on the first day, comes in crops, disappears on stretching the skin, and is not shotty.

In *varioloid* the symptoms come on very suddenly; there is fever; severe pain in the back, and headache; the eruption appears on the third or fourth day, as papules, becoming in turn vesicles and pustules.

5.

EPILEPSY.	HYSTERIA.
1. No apparent cause.	1. Cause, emotional.
2. Sudden and rapid onset.	2. Onset gradual, usually after some mental excitement.

EPILEPSY.	HYSTERIA.
3. Aura generally present.	3. Globus hystericus or palpitation.
4. Consciousness lost.	4. Consciousness generally preserved.
5. Pupils generally dilated.	5. Pupils normal.
6. Tongue often bitten.	6. Tongue never bitten.
7. Patient very liable to hurt himself.	7. Patient not liable to hurt himself; may injure others.
8. May be involuntary bladder and bowel discharges.	8. Never.
9. Of short duration.	9. Duration longer.

6. See French's "Practice of Medicine" (1907), page 548; or Osler's "Practice of Medicine" (1909), page 766.

7. See French's "Practice of Medicine" (1907), page 871; or Osler's "Practice of Medicine" (1909), page 589.

8. See French's "Practice of Medicine" (1907), page 221; or Osler's "Practice of Medicine" (1909), page 213.

9. See French's "Practice of Medicine" (1907), page 944; or Osler's "Practice of Medicine" (1909), page 420.

10. See French's "Practice of Medicine" (1907), page 995.

SURGERY.

1. An *abscess* is a circumscribed collection of pus in a cavity of new formation.

An *aneurysm* is a pulsating sac containing blood communicating with the lumen of an artery; it may be confounded with abscess, cyst, soft tumor.

2. *Peritonitis* is inflammation of the peritoneum.

3. See Rose and Carless' "Surgery" (1908), page 333; or Da Costa's "Surgery" (1908), page 410.

4. See Rose and Carless' "Surgery" (1908), page 868.

5. The more common errors of refraction are: Myopia, hypermetropia, and astigmatism. *Myopia* is a condition in which the anteroposterior axis of the eye is abnormally long, and parallel rays are focused in front of the retina. *Hypermetropia* is a condition in which the anteroposterior axis of the eye is abnormally short, and parallel rays are focused behind the retina. *Astigmatism* is a condition in which, owing to a greater curvature of the eye in one meridian than in others, the refractive power of the eye varies.

6. *Glaucoma* is a diseased condition of the eye especially characterized by increased intraocular tension. Surgical treatment is *iridectomy:* "Having first secured a lid speculum in position, a fold of conjunctiva, near the cornea and opposite the place where the incision is to be made, is seized by fixation forceps. A keratome is entered through the cornea at the scleral border, the point being kept nearly perpendicular to the sclera until it has reached the anterior chamber, when the handle is depressed so as to bring the blade parallel to the iris. The blade is then pushed forward until it has made a wound sufficiently large for the purpose of the operation; still depressing the handle, the blade is withdrawn slowly, and iris forceps are thrust through the wound closed, and opened in the anterior chamber to seize the iris. The iris is then drawn out of the wound, and as much of it as desired is excised by fine iridectomy scissors held firmly against the eyeball and parallel to the wound. The stump of the iris is then carefully returned to the anterior chamber, no portion of it being allowed to become incarcerated in the corneal incision. The delicate McClure iris scissors are the best for cutting the iris, but they are rather expensive, and not always obtainable. The eye should be thoroughly cocainized, and the operation should be done under antiseptic precautions; after the operation the eye should be thoroughly irrigated, a light bandage applied, and the eye kept closed until the corneal incision has become united. The incision may be made with the Graefe knife instead of the lance-shaped keratome."—(Gould and Pyle's *Compend.*)

7. See Rose and Carless' "Surgery" (1908), page 232.

8. See Rose and Carless' "Surgery" (1908), page 679; or Da Costa's "Surgery" (1908), page 552.

9. See Rose and Carless' "Surgery" (1908), page 1318; or Da Costa's Surgery (1908), page 1046.

10. See Rose and Carless' "Surgery" (1908), page 1061; or Da Costa's "Surgery" (1908), page 965.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), page 81; or Hirst's "Obstetrics" (1909), page 57.

Menstruation may be absent, owing to absence or imperfect development of the generative organs; also to stenosis, obstructions, or atresia of the genital tract; also to operative removal of the uterus or its appendages. Other causative factors are: Acute infectious diseases, anemia, chlorosis, obesity, drug habits, alcoholism, overstudy, lack of exercise, exposure to cold, and various emotional causes.

2. See Williams' "Obstetrics" (1909), page 211; or Hirst's "Obstetrics" (1909), page 389.

3. *Puerperal eclampsia* is an acute morbid condition, occurring during pregnancy, labor, or the puerperal state, and is characterized by tonic and clonic convulsions, which affect first the voluntary and then the involuntary muscles; there is total loss of consciousness, which tends either to coma or to sleep, and the condition may terminate in recovery or death. *Preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ. *Curative treatment:* (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

4. See Williams' "Obstetrics" (1909), page 842; or Hirst's "Obstetrics" (1909), page 625.

5. See Williams' "Obstetrics" (1909), page 274; or Hirst's "Obstetrics" (1909), page 409.

6. In *incomplete laceration of the perineum* any of the following tissues may be lacerated: Skin, mucous membrane of fourchette, constrictor vaginæ, transversus perinei, and lavator ani. In *complete laceration* the sphincter ani and the anterior surface of the rectum are involved, in addition to the structures named above.

For *repair,* see Williams' "Obstetrics" (1909), page 325; or Hirst's "Obstetrics" (1909), page 868.

7. MEMBRANOUS DYSMENORRHEA. *"Pathological anatomy:* When complete the membrane is a hollow cast of the interior of the uterus; it is the shape of an isosceles triangle, the base of which corresponds to the fundus of the uterus. At each of the truncated angles there is an opening, the small ones at the base indicating the position of the uterine ostia of the Fallopian tubes, and the larger apical opening marking the site of the os internum. A menstrual decidua is usually 2.3 centimeters in length and 2 millimeters in thickness. The inner surface is shaggy, as is best seen when the membrane is floated out in water. Histologically, the membrane consists of recent blood-clot, characterized by the presence of a large excess of leucocytes; fragments of organized tissue are found, consisting of small round cells with a small amount of delicate fibrous stroma, and sometimes portions of shed and partially disintegrated epithelium. No glands are found, nor are the large decidual cells characteristic of the decidua of pregnancy present. The condition is best described as one of exfoliative menstrual endometritis. *Symptoms:* The patient complains of severe intermittent pain, beginning with the onset of the menstrual period and reaching a maximum just before the expulsion of the membrane, after which the pain usually ceases. The membrane may come away whole, in several pieces, or in numerous shreds, and is usually discharged within forty-eight hours of the commencement of the menstrual flow. *Diagnosis:* The membranous cast must be distinguished from the decidua that comes away in cases of tubal pregnancy, or from the unimpregnated horn of a gravid uterus, and from the products of early abortion. The histological appearances will usually be decisive; in addition to which the history will generally serve for a diagnosis. In cases of deciduæ associated with pregnancy within or without the uterus there is always a history of one or more missed periods, except in some few cases of tubal gestation. The hemorrhage in cases of membranous dysmenorrhea is limited to the usual few days, while in cases where the member is decidual it may go on for one or several weeks. When the case has been under observation some time the regular painful discharge of membranes at monthly intervals is absolutely characteristic. *Treatment:* No drugs affect the formation of the membrane, although pain may be relieved by this means. The incidence of pregnancy sometimes effectually arrests the membranous formation, but not always. The best results are obtained from curetting, which affords at least a temporary relief; but it may require to be repeated."—(Sutton and Giles' *Diseases of Women.*)

8. The round ligaments are shortened when the uterus is retroverted, or retroflexed, and there are no complications. See Hirst's "Obstetrics" (1909), page 914; or Rose and Carless' "Surgery" (1908), page 1278.

9. *Ovarian dermoids:* Dermoids are "tumors furnished with skin or mucous membrane occurring in situations where these structures are not found under normal conditions." Ovarian dermoids may be lined with skin throughout, or only over a very small area. The skin may have hair, sebaceous glands, sweat glands, mammæ. There may be teeth, muscle, bone, horn, nails; very rarely brain-like tissue. The cavity of a dermoid cyst is generally filled with fluid fat.

10. The cause of icterus of the new-born is not known. It is found most often in premature and weakly infants, and in those born in maternity hospitals. The following theories have been held as to its etiology: "(1) *Obstruction to the outflow of bile* by (*a*) plugs of mucus in the common bile duct; (*b*) partial blocking of the bile ducts by desquamated epithelium, the result of hyperemia and catarrh of the ducts following on the changes in the circulation which take place at birth; (*c*) congenital narrowing of the bile ducts; (*d*) inability of the ducts to carry off the secretion of bile, which is considerable at first; and (*e*) delayed ligature of the cord. (2) *Pressure on the ducts from without* by (*a*) the portal and hepatic veins becoming distended in consequence of the changes in the circulation following birth; (*b*) swelling and edema of Glisson's capsule, the result of engorgement of the umbilical and portal veins—hence the jaundice is hepatogenous. (3) Closure of the umbilical vein, which leads to such a lowering of blood pressure in the capillaries of the liver that reabsorption of bile takes place. (4) The ductus venosus remains open and thereby allows some portal blood, which contains bile, to pass through it and enter the inferior vena cava."—(From *Aids to Diseases of Children.*)

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	July 12
Arizona*	Ancil Martin, Phoenix	Phoenix	July 4
Arkansas	F. T. Murphy, Brinkley	Little Rock	Nov. 8
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	Aug. 2
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	July 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 12
Delaware	J. H. Wilson, Dover	Dover	June 21
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	July 12
Florida*	I. D. Fernandez, Jacksonville	Palatka	Nov. 9
Georgia	T. H. Goss, Athens	Atlanta	Oct. 11
Idaho*	W. F. Howard, Pocatello		Oct. 4
Illinois	J. A. Egan, Springfield	Chicago	June 9
Indiana	W. T. Gott, Crawfordsville	Indianapolis	July 12
Iowa	Louis A. Thomas, Des Moines.	Des Moines.	
Kansas	F. P. Hatfield, Olathe	Topeka	June 14
Kentucky	J. N. McCormack, Bowling Green	Louisville	July 5
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct 18
Maine	F. W. Searle, Portland	Portland	July 19
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 21
Massachusetts*	E. B. Harvey, State House, Boston	Boston	July 12
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 14
Minnesota	W. S. Fullerton, St. Paul	St. Paul	June 14
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 11
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	June 13
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 4
Nebraska	C. A. Carr, Lincoln	Lincoln	May 23
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	July 6
New Jersey	H. G. Norton, Trenton	Trenton	June 21
New Mexico	J. A. Massie, Santa Fe	Santa Fe	July 11
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	June 28
N. Carolina	B. K. Hays, Oxford	Wrightsville	June 15
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	July 5
Ohio	Geo. H. Matson, Columbus	Columbus	June 13
Oklahoma*	F. P. Davis, Enid	Guthrie	July 12
Oregon	B. E. Miller, Portland	Portland	July 5
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg	June 21
Rhode Island*	G. T. Swarts, Providence	Providence	July 7
S. Carolina	H. H. Wyman, Aiken	Columbia	June 14
S. Dakota	H. E. McNutt, Aberdeen	Watertown	July 13
Tennessee	C. A. Abernathy, Pulaski	Memphis / Nashville / Knoxville	May —
Texas	M. E. Daniel, Honey Grove	Austin	June 28
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	July 4
Vermont	W. Scott Nay, Underhill	Burlington	July 12
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	T. C. McFadden, Seattle	Spokane	July 5
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	July 11
Wisconsin	J. M. Beffel, Milwaukee	Madison	July 12
Wyoming	S. B. Miller, Laramie	Laramie	June 22

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of May 28, 1910:

	Cases	Death
Tuberculosis Pulmonalis	542	166
Diptheria	461	40
Measles	1,331	26
Scarlet Fever	582	27
Smallpox	3	1
Varicella	185	—
Typhoid Fever	36	5
Whooping Cough	49	3
Cerebrospinal Meningitis	2	3
Malarial Fever	—	—
Totals	3,191	271

The Treatment of Cancer.—F. Durante goes over all the methods for the treatment of cancer without surgical operation that have been advocated in modern times, and finds them all wanting as far as a radical and permanent cure are concerned. Among the methods of treatment that are considered are the biochemical methods, the use of erysipelas germs to combat the cancer tissues, as proposed by Coley, cancer vaccines, serotherapy, the *x*-rays, radium, and fulguration. Not one of these agencies which have at first promised such good results has stood the test of time. The growths have gone on developing after being retarded in some instances for a time, or recurrences and metastases have taken place. Those cases that have seemed to be permanently cured he refers to incorrect diagnosis. The superficial epitheliomata are easily influenced by several of these remedies, but the deep carcinomata are unconquerable by any of them. He denies the selective action of rays and fulguration on the cancer cells, while he admits that physical methods act as a strong stimulus on cellular reproduction, disorganization of protoplasm, and molecular degeneration, when they did not produce an eschar.—*Il Policlinico.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 27, 1910.

		CASES	DEATHS
CHOLERA			
India, Rangoon	April 3–9	..	2
Philippine Islands, Manila	Mar. 20–26	2	2
Provinces—Pampanga	Mar. 20–April 9	17	15
Pangasinan	Mar. 20–26	1	1
YELLOW FEVER			
Brazil, Manaos	April 10–23	..	6
Para	April 24–30	7	5
PLAGUE			
Chile, Iquique	April 10–17	12	5
China, Amoy	April 10–16	..	1
India, Rangoon	April 3–9	..	41
Japan, Formosa	April 3–9	..	1
Peru, Lambayeque department	Dec. 17–31	24	9
Libertad department	Dec. 17–31	10	4
Lima department	Dec. 17–31	5	2
SMALLPOX			
Austria, Galicia	April 24–30	1	..
Canada, Halifax	May 8–14	2	..
Ceylon, Colombo	April 3–9	1	..
Chile, Antofagasta	April 16	..	..
7 cases lazaretto.			
Valparaiso	April 13	..	Present
China, Amoy, Kulangsu	April 16	..	Present
Hankow	April 3–9	1	..
Hongkong	Mar. 27–April 2	3	2
Shanghai	April 4–17	2	19
Deaths among natives.			
Tsingtau	April 3–9	4	..
Egypt, Cairo	April 17–23	1	2
Germany, general	April 24–30	9	..
India, Kurrachee	April 9–16	..	1
Rangoon	April 3–9	..	22
Italy, general	April 25–May 1	11	..
Naples	April 25–May 1	13	..
Japan, Formosa	April 3–16	5	1
Kobe	April 10–16	1	..
Mexico, Acapulco	April 17–23	1	..
In vicinity in a R. R. camp.			
Aguascalientes	May 1–7	7	..
Mexico	April 3–9	..	2
Philippine Islands, Manila	Mar. 20–April 2	13	..
Portugal, Lisbon	April 25–30	27	..
Russia, Libau	April 25–May 1	10	..
Odessa	April 24–30	38	9
Riga	April 17–30	7	..
Spain, Valencia	April 24–30	1	..
Vigo	April 24–30	..	1

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Original Articles.

NATURAL SELECTION AND OUR VISCERA.

BY R. G. ECCLES, M.D.,

BROOKLYN, N. Y.

A THEORY that makes intelligible many otherwise incoherent facts, and is not antagonised by any known fact is either true or so close an approximation to truth that it is a valuable and suggestive aid toward reaching truth. If the number of facts, that it puts a reasonable meaning into, accumulates with our advance in knowledge, conviction of its truth is certain to grow upon unbiased people. When there is no rival theory, having any scientific standing, the very least that common sense can demand is its provisional acceptance. The theory that natural selection is the chief agent in the production of all biological adaptations now occupies this position. It is without a rival, has explained multitudes of adaptations that are meaningless in its absence, and has put intelligibility into thousands of facts that were unknown to its original propounder. To Prof. Darwin this cumulativeness of evidence was its prime recommendation and Prof. Mendola tells us that "it is he who above any scientific worker of his time, taught us the value of cumulative evidence in establishing a new theory." Of the theory of natural selection Darwin wrote: "Now this hypothesis may be tested—and this seems to me the only fair and legitimate manner of considering the whole question—by trying whether it explains several large and independent classes of facts."[1] To Asa Gray he wrote: that he could not "possibly believe that a false theory would explain so many classes of facts" as natural selection did.[2] Evidently Darwin's old teacher, Adam Sedgwick, was, for some reason, mentally unable to appreciate the value of this kind of evidence, for he wrote to his former pupil: "You have deserted * * * the true method of induction, and started us in machinery as wild, I think, as Bishop Wilkin's locomotive that was to sail with us to the moon."[3] Tyndall must have come in contact with men like Sedgwick when he wrote: "There are men, and by no means the minority, who however wealthy in regard to facts, can never rise into the region of principles; and they are sometimes intolerant of those who can."[4] It is certain that Haeckel was not of this type for he wrote: "When we come to the application of this law, and seek to determine with its aid the origin of the various species of organisms, we are compelled to frame phylogenetic hypotheses that have essentially a deductive character, and are inferences from the general law to the particular cases. But these special deductions are just as much justified and necessitated by the rigorous laws of logic as the inductive conclusions on which the whole theory of evolution is built."[5] Sticklers for induction refuse to follow Darwin and Haeckel because they use deduction, but what sorry spectacles such sticklers would make should they adopt their one-sided principle in every-day life. Induction is imperative until the law or theory is established with considerable acceptable evidence, but that once reached, then the deductions or implications are its substantial fruits. The heuristic purpose is the chief purpose of a generalization inasmuch as it guides with a large degree of safety where experiment may be impossible. It also foreshadows the results of experiments and economically leads the investigator to the point where he can make discoveries. One of Darwin's important deductions was that "we may conclude that every detail of structure in every living creature is either now or was formerly of use directly or indirectly through complex laws of growth."[6] For half a century external and visible adaptations have been studied in the light of natural selection. Protective colorings, mimicry, curiosities in the forms of flowers aiding crossfertilization, and many strange adjustments to the external environment have been sought for, discovered, and explained. No effort of a serious nature has been made toward the explanation of visceral adaptations along these lines. Physiology has refrained from drawing Darwinian deductions and so Haeckel tells us that "the development of physiology during the last fifty years has been much more one-sided than that of morphology. It has not only failed to make much use of the comparative method which has given such great results in morphology, but it has also neglected evolutionary principles. Hence, in the last few decades morphology has far outrun physiology, though the latter is apt to put on superior airs in regard to its rival."[7] Bacteriology, protozoology, and pathology have also far outrun physiology in progress, but they have dragged the latter into the by-ways and highways of evolution in defiance of its attitude toward deduction. With prophetic vision the late president of Harvard University recently declared that, "in the future medical science must include the study of causes and consequences, which will carry the student through a large portion of the animal and vegetable kingdoms and particularly into the habits and habitats of their minute parasite forms."[8] He evidently sees that medical science is bound, before long, to be evolutionized. Pathology, through evolutionary ideas, is destined to revolutionize medical studies, and it is the belief of this writer that, as we now go to physiology for explanations of pathological conditions, it will not be long before we discover it necessary to explain the whys and wherefores of physiology by pathology. Disease seems to have preceded as a selective agent, and perhaps more, every new physiological level in the evolutionary ascent. The "every detail of structure in living creatures," referred to by Darwin, will probably be found to show their uses as protective against disease germs.

Already "the study of the protozoa has had its effect on every part of biology that is concerned with questions of historical descent," as has been declared by Prof. E. B. Wilson. He also tells us "that these creatures may have something to teach us in every department of thought into which evolutionary considerations enter," and that "the bacteria must look to their laurels with so formidable a competitor in the field," for "it is within the bounds of possibility that the discovery of the causal relation between protozoa and disease may one day rank with the greatest of those that general biology owes to the study of these simple animals."[9] It is among the protozoa that we find the most thorough specialization in regard to the food requirements of parasites. Their relations to their hosts and to the organs of their hosts is one of the most curious features in their lives. A thorough study of these relationships promises for the future the knowledge that we need in order to establish a scientific system of therapeutics. To discover why microorganisms select specific tissues to the exclusion of all others is to discover how to control their powers of proliferation and how to evict them with our remedies. Until we have a Darwinian science of medicine we cannot hope for a knowledge of the substances that attract and repel, evict and destroy, the various disease germs. It is through these peculiar tissue adaptations that we have secured our first glimpse of the immense antiquity of disease and of the great importance of parasitism in phylogeny. Of the protozoan class, sporozoa, Prof. Minchin tells us that, "as a general, though by no means universal, rule, each species of sporozoan is parasitic on a particular species of host, or on a limited number of allied species and is usually confined to definite organs or tissues of that host. Except for a brief period of their developmental cycle, they cannot exist apart from the very definite and limited environment to which they are exclusively adapted."[10] Prof. Calkins says of them: "These infect all animal forms from protozoa to man; one group lives in the digestive tract and the cavities of the body (*Gregarinidia*); another in the cells of the digestive organs (*Coccididea*); another in the muscle cells and lymph surrounding them (*Myxosporidida, Sarcosporidida*); and still another in the blood corpuscles and in the blood plasma (*Hemosporidida*)."[11] It will become evident to the reader on weighing the meaning of such facts that such a distribution cannot be fortuitous. It could only result from design or ages of natural selection. Take, as an illustration, a coccidian that, during its trophic stage, has its home within the cytoplasm of a cell. Why does it push the nucleus out of its way "often indenting or compressing it," while on the other hand, the *Cyclospora caryolyptica* enters into and destroys the nucleus? The latter "owes its specific name to its intranuclear habitat, which in this case seems to be an invariable characteristic."[12] The so-called Leishman body, found in kala azar, after making its way into the cytoplasm of some nucleated cell is able to multiply at the expense of the contents of the cytoplasm and "as multiplication goes on the cell increases in size and the nucleus is often displaced to one side."[13] Is it not fairly certain that these peculiar characteristics are evidences of an unadaptability, in the avoided or rejected tissues, for the respective organisms that avoid them? If we are consistent believers in natural selection are we not compelled to conclude that, as these different types of sporozoa "cannot exist apart from the very definite and limited environment to which they are exclusively adapted," that all connecting links between them have perished through lack of fitness? Are we not compelled to credit to the selection of the fit all such adaptations? When a protozoologist can tell us just what kind of animal and in what tissue of that animal we must look in order to find a given species of sporozoan, and in what other animal and organ we can find some other different species, such a distribution cannot be a matter of chance. It is surely more than accidental that the *Sarcosporidia* "with the rarest exceptions" confine their depredations to "the striped muscles?" Chance cannot be charged with always carrying *Coccididæ* to epitheliel cells and never to blood cells while taking the *Hemosporidia* to blood cells instead of to epitheliel cells.[14] "Liver cells, muscle cells, even heart cells, may all be destroyed by some form or other of protozoan parasite."[15] "In vertebrates the kidney is very often attacked (by *Eimeria nova*); in other cases among this phylum (*Coccidia*) it is not infrequently the spleen, and even in a few instances the testes, which is selected by coccidian parasites—never, however, the ovary—so that in this respect the predelections of *Coccidia* are the opposite of *Myxosporidia,* which frequently attack the ovary but never the testes."[16] Though fortuitousness may well be charged with carrying the resting forms of sporozoans into the intestinal tracts of their hosts, and though "the so-called 'selection' of locality" may be "a matter of mere passive resistance on the part of the parasite, that part being 'selected' where they are not destroyed by the reactions of the host, and where conditions of life are most satisfactory for nourishment and security,"[17] we must admit that the destructive reactions of the host have been determined by the evolutionary forces that produced the host. How else can we explain the parallelism of the phylogenetic changes of the totality of hosts with the totality of parasites? How happen these to both correspond—branch with branch—unless both have evolved, side by side—or rather, for much of the time, within and without each other?

If we next turn our attention to the bacteria we will find that they, too, are restricted—though in a less degree—to certain parts of the host. Prof. W. H. Park says: "Let us rub very virulent streptococci, typhoid bacilli, and diphtheria bacilli into an abrasion on the hand. The typhoid bacillus produces no lesion, the diphtheria bacillus but a very minute infected area, but the streptococcus may give rise to a severe cellulitis or fatal septicemia. Now place the same bacteria on an abrasion on the throat. The typhoid bacillus is again harmless; the diphtheria bacillus produces inflammation, a pseudomembrane, and toxemia, and the streptococcus causes an exudate, an abscess, or a septicemia. Finally, introduce the same bacteria into the intestines, and now it is the typhoid bacillus which produces its characteristic lesions, while the streptococcus and diphtheria bacillus are usually innocious. If we tried in this way all the parasitic bacteria we would find that certain varieties are capable of developing, and thereby exciting disease, only on the mucous membrane of the throat, others of the intestines, others of the urethra; some develop only in the connective tissues, or in the blood, while others, again, under favorable conditions, seem able to grow in or upon most regions of the body."[17] Prof. Roger has pointed out that injections of anthrax bacilli behave differently on reaching different

organs. "A quantity of anthrax bacilli," he says, "sixty-four times that which is fatal by the peripheral veins is completely annihilated by the liver." If *Staphylococcus aureus* is used instead of anthrax a somewhat similar effect occurs. If, however, we use streptococci these find in the liver excellent conditions for multiplication. Should we, on the contrary, direct the streptococci to the lungs they would there be likely to meet destruction. "The lung then represents a protective organ against streptococcus; it fulfils a rôle analagous to that exercised by the liver against *Bacillus anthracis* or *Staphyloccocus aureus*, except that it destroys pathogenic agents with less energy."[18] But neither bacteria nor protozoa have a monopoly of this habit of preference for certain localities in which to live. Metazoan parasites have the same habit and the various parasitic fungi that invade the higher plants show similar preferences. Emerson tells us that "Line in nature is not found," and this appears to be quite true in respect to parasitism. So narrow, indeed, is the dividing line between the saprophytic and the parasitic bacteria, that it has been bridged experimentally. "It is certain," says Prof. J. B. Pollock, "that among the fungi as well as among the bacteria, forms that for the most part live only on dead organic matter, that is, as saprophytes, may under certain special conditions become adapted to a parasitic life. They thus become the producers of new diseases. Though for the most part supposed new diseases are only a wider distribution of old diseases it is entirely possible for new diseases actually to originate by physiological adaptation. This has been proved in the production of plant disease experimentally."[19] With the changes of time any such new habit would become fixed and obligatory, for the old food that the parasite had deserted would become poisonous to it. With protozoa it has repeatedly been proven, experimentally, that becoming habituated to an abnormal food caused the original food to become fatal unless gradually restored. But what is the meaning of all these differences of toxicity of different organs for different parasites, and how happens it that, as protective devices, they are all so inadequate? Not one of them shows perfection. They all taper into absolute nonprotection, so far as some pathogenic germs are concerned. Says Prof. Wm. H. Welch: "The acceptance of the explanation of physiological adaptations furnished by the doctrine of organic evolution helps us * * * in the study of pathological adaptations" but, he says, on another page, "the teleological conception of a useful purpose in no case affords an explanation of the mechanism of an adaptive process."[20] Everywhere, in a study of disease processes, the fact has to be faced that they all utterly fail at some point where we, if we could have had our desires, would have improved them. In every one of them we have a complete explanation in natural selection. In not one of them have we the slightest intimation of special design—unless natural selection, itself, is designed. The parasites have kept pace with the protective appliances and, in order that they might live, natural selection has, apparently, selected them in accordance with their ability to break through the barriers of poisonousness that were heaped up against them. The work has extinguished neither, but compelled the one to match the other just as the warships and forts of contending nations have had to keep pace with each other. As war has been the active cause in building up and perfecting of forts and Dreadnoughts, so disease has apparently been the active agent in building up the chemical structures which constitute our organs.

With the failure of poisonousness as a protective device against parasites natural selection seems to have provided us with a supplemental device. Variation having failed to supply sufficient poisonousness for selection to work upon evidently showed itself as a fitness in another direction. By increasing the sizes of organs beyond the actual, immediate requirements it has stayed, but not stopped, the fatality of disease. In the case of our lungs, "life may continue," says Prof. Meltzer, "though a great part of the lungs be destroyed, if only the disease that caused the destruction came to a standstill. We know that in some cases of pneumonia one lung can be entirely consolidated without seriously impairing the process of ventilation. Furthermore, a patient whose thorax was freely opened to evacuate a one-sided pleural abscess has, after the opening, less dyspnea than before. In empyema as in pneumonia, it is essentially the infection and intoxication with their reactions which cause the apparent disturbance in the respiratory mechanism, and not so much the mechanical interference with the ventilation of the corresponding lung. Since the classical experiments of Regnauld and Reiset many investigators have stated that compression of one lung or a unilateral pneumothorax exerts very little influence upon the respiratory exchange of gases. Hellin reported, recently, a series of experiments in rabbits in which the right lung was completely removed. The right lung of the rabbit has four lobes, and is much larger in volume than the left; that means that more than one-half the lung tissue was removed. Most of the animals survived the operation and some lived a year or longer. * * * We see, then, that the normal process of respiration can be carried out with at least one-half of the lung."[21] If we only need one-half of the lung capacity which we possess, why has nature compelled us to carry around so much, apparently, useless weight? Why is the strain of supplying this extra lung structure with digested food placed upon the digestive organs? Why are the excretory organs thus forced to assume the extra work of getting rid of such waste? We have not far to look for a satisfactory reply. Let us ask what would happen to multitudes of animals if they were brought into the world with only enough lung tissue to serve them during perfect health? In an attack of pneumonia, tuberculosis, or any other disease that interfered with the function of the lung, would such animals be able to live a single day? The prompt destruction that would occur would quickly exterminate them. Is not, then, this excess of lung an adaptation to check the speedy ravages of disease? Is it not evident that an increase in the size of a lung, or the addition of another lung, when lungs were first used to aerate the blood, would be of decided selective value? Under the strain of pulmonary diseases natural selection would, necessarily, have been at work. Either it would seem to have supplied this extra lung tissue or it came by miracle. Prof. Adami tells us that "We know from experiment that three-quarters of the liver, for example, may be removed from the healthy animal with no pronounced disturbance of the bodily functions, that whenever one-fifth or less of the pancreas is left in the dog it may be weeks before diabetes shows itself, that only when fifteen-sixteenths of the thyroids are removed may the dog succumb.

In this enormous reserve of material and force may truly be said to lie the secret of the continued existence of living beings."[22] What, if not disease, could these adaptations be selected by? In each of the organs referred to disease is of selective value along the path they have come. Given heredity, with sufficient time, and disease with variations would surely seem to be all that is needed to do the rest. Concerning our kidneys we are told that "one kidney can be removed with entire impunity, if the other kidney is normal. The amount and the composition of the urinary secretion remains practically unaltered and this even soon after the removal of the kidney. That can only mean that normally the kidney has an abundance of tissue which can do at a moment's notice at least twice the normal amount of work. From the experimental work of Tuffier, Bradford, and others, we know that at least two-thirds of both kidneys may be removed without serious detriment to the animal's life and to the secretory function of the kidneys. We know that the average quantity of urine, as well as the normal quantities of its various constituents may be greatly reduced without any visible detriment."[23] From the viewpoint of natural selection the surplus kidney is only enough to have succeeded in tiding its possessors over the dangers of disease, long enough to enable them to have sufficient progeny to take their places in the procession of life. Anything short of this would have meant extermination. The necessities of the past, and not the needs of either the present or the future, had everything to do with its amount. Our humanitarian instincts would cause us to wish for more in many instances in which it could lengthen the life of some dear friend. None of us have any too much. Our protection, with the surplus, still remains imperfect, but no more so than we would expect it to be if natural selection has been its banker. But this increase in the sizes of the various organs, which disease seems to make necessary, requires another balance. "No great change is possible," says Prof. Brooks, "without the coordinated modifications of all the correlated features."[24] Increase in the sizes of lungs, liver, kidneys, and other organs means more work for the stomach to do their digesting, the kidneys to do their excreting, etc. Each increment of increase in size must be balanced by another increase through added work. This, in turn, reduces the proportion of reserve needed to hold disease at bay. Another addition will be required to balance this. Should environing conditions increase to a still greater extent the danger from disease, increase in organ size would continue to be of selective value. A growing increase in the sizes of organs would mean a growing increase in the sizes of the animals that possessed such organs. Is it possible that growth in size, from ameba to mastadon, has resulted from continuous adjustments toward disease? It looks that way. The controlling tendency that would hold back from giantism would be the food supply. In failure of supply the over-large animal would perish. Anything that would restrict the quantity or quality of available food would favor the production of dwarfs. The larger an animal, other things being equal, the better should be its chance for life in the presence of ample food and under the menace of disease. The smaller an animal, other things being equal, and under the conditions mentioned, the shorter should be its life. Small animals appear to be, as a rule, short lived, but they make up for this by such devices as resting stages, alternation of generation, and ability to multiply with great rapidity. In such ways they tide over the vicissitudes of cold and heat, drought and famine, etc.

In the organs so far considered, all of them required, under the most favorable of circumstances, some fraction of their tissue to make the life of the possessor possible. We now come to the consideration of an organ that, from one point of view, seems to be almost superfluous. In 1876 Prof. Czerny, of Heidelberg, Germany, removed the entire stomach of a dog, kept the animal alive until 1882 when it was shipped by him to Prof. Ludwig, of Leipzig. Ludwig and Ogata were studying the physiology of digestion and asked Czerny to let them have his dog for examination. On receiving the dog they killed it and examined its digestive organs. It was in good health and had then lived for more than five years without a stomach."[25] In 1895 Prof. Schuchardt excised the stomach of a patient, leaving only a minute fraction of three fingers in width at the pyloric end. This patient lived two and a half years after the operation, and was during this time perfectly well."[25] In 1897 a Zurich surgeon, named C. Schlatter, exhibited a patient at a medical congress, in Otten, from whom "he had completely extirpated the stomach." This was eight weeks after the operation and in the mean time she "had put on 4.4 kilos in weight."[25] The hazardous character of experiments of this kind keeps them from frequent repetition but the mere fact of success, if only in one, would evidently mean that the peculiar function performed by the stomach is not, directly, of life and death value. That it must have a function of extreme importance is evident to every Darwinian, otherwise its survival in all sorts of animals, and with no signs of any tendency to atrophy, would be unaccountable. Its digesting function—so far as digestion alone is concerned—could, apparently, be dispensed with. As a storage reservoir, for the gradual supply of food, its benefit is evident but not absolutely indispensable. As a protection against the constant introducing of pathogenic microorganisms it seems to be the chief guard of the body. As a place for the "splitting up of the proteins into numerous larger and smaller cleavage products" for the "presentation of the largest possible surface of attack to the trypsin," as stated by Abderhalden, and for thus hastening digestion and getting the food quickly away from theft by parasites, it is doubtlessly also beneficial.[26] Above all else, to which all the other functions seem subsidiary, is the part it takes in defending the body against the growing adaptations of disease germs. On masticating our food we insalivate it. Before the days of millers and cooks this task was a more difficult one than now. On entering the stomach the food is alkaline and contains the diastase ptyalin. Under normal conditions this alkaline, ptyalinised mass digests, in the warm stomach, for about three-quarters of an hour. Then it is rendered acid by the gastric juice, and continues acid for three or more hours. On reaching the duodenum it becomes alkaline again, to, once more, become acid lower down in the digestive tract. Pavlov and Parastschuck have shown us that the glands of Brunner, most probably secrete an enzyme which, like pepsin, acts in an acid medium.[26] It is thus evident that parasites, on gaining entrance to the alimentary canal, run the gauntlet of exposure to (a) alkali, (b) acid, (c) alkali, and (d) acid, successively. To be compelled to repeat-

edly readjust metabolism to diametrically opposite conditions must seriously hamper proliferation, where it fails to bring about destruction. Germs normally accustomed to acid habitats cannot be at home in alkaline ones and those used to acid surroundings are far from being favored by alkaline. The successive steps of digestion, when considered in relation to the germs, show a still more pronounced protective character. The first step, in the digestion of bread, grain, etc., is the dissolving away of the starchy covering of the vegetable albumin, and this means the laying bare of all germs that happen to be enmeshed in the starch. In mastication multitudes of germs must be ground into the food-mass that could only be reached by such a preliminary diastatic fermentation. The first step in the digestion of protein is the dissolving away of the covering and binding connective tissue of meats. With the teeth this is torn apart, but again the microorganisms are ground into the mass during mastication. Only by the removal of the connective tissue can there be safety from disease through digestion. We should remember in this connection that "connective tissue is scarcely attacked at all by trypsin, while it is readily digested by means of pepsin in acid solution"[26] For meat to reach the duodenum without the removal of the tough fibers of connective tissue would, evidently, be hazardous to life, when pathogenic germs happened to be thus shielded. Primitive man, before the use of fire, must have swallowed blood with his meat. But "blood serum and serum globulin are not attacked by trypsin, although both are digested without difficulty by gastric juice."[27] Without stomach digestion we can see that here again would have been a serious menace to life through disease infection. Enmeshed in serum and in serum globulin pancreatic digestion could not have coped with the germs. That hungry savages and many kinds of beasts do not hesitate swallowing putrid food is well known. If pepsin, like ptyalin, could be destroyed by the germs of putridity, the protective power of the stomach against disease would be very materially impaired. It has, however, been experimentally demonstrated that "a putrid solution of pepsin in distilled water one month old digests fibrin as readily as a fresh solution."[28] Instead of germs being able to destroy pepsin it, in conjunction with hydrochloric acid, seems to be able to destroy pretty effectually most invading microbes. "The gastric juice," says Adami, "is particularly active in destroying bacteria. The number taken in at each meal must be great * * * nevertheless, a few hours after food the duodenum may be found quite sterile."[29] Bunge tells us that "the antiseptic action of the gastric juice was noticed more than a hundred years ago by Spallanzani. He found that by moistening meat with gastric juice he could prevent decomposition for many days. But when, *ceteris paribus*, water was used instead of gastric juice, an unbearable putrid odor was speedily developed. A snake had swallowed a lizard. After sixteen days Spallanzani opened the stomach; the lizard was half digested, but gave no odor of decomposition."[30] That the function of the gastric juice, or at least the hydrochloric acid which it contains, is more than that of being a digestive agent is seen in the now well-known fact that it is poured out when pure water is introduced into the stomach.[31] Unless this is protective against germs, it would be hard to conjure up any other reason for its occurrence. The ingestion of honey or syrup is also met by a prompt outpouring, by the stomach wall, of acid. When ordinary food, that needs digesting, is introduced there is no such promptitude in its appearance. These other substances are all likely to carry infective material and the rapid appearance of the acid is a decided fitness. We are told by Bunge that "a strong point in favor of the view that the antiseptic action of the gastric juice constitutes its chief importance is found in the fact that, in a whole series of the lower animals, the commencement of the alimentary canal secretes a fluid very rich in mineral acid, but containing no ferment, and having no special action on the food. This important fact was first noticed by the zoologist Troschel."[32] As milk is in a fluid condition, and so able to proceed down into the intestines for digestion, what can be the meaning of the curdling by rennet? It contains nothing that tryptic digestion is not quite able to dispose of. The writer can see but one important fitness in this that could have had selective value. The germs of putrefaction and of disease, one or other, or both of which this fluid is always pretty certain to contain, are, by the coagulation, solidified into a mass that must be liquefied again before proceeding on its journey. During this liquefaction it is usually sterilized and thus made safe. This, then, is one of the most interesting and useful of the adaptations of digestion. As the food passes from the stomach into the duodenum it goes through the pyloric orifice, not as a total, but in a sifted or selected order. The partly digested carbohydrates pass through first, the partly digested proteins then follow, and finally the fats.[33] The latter are usually retained long after the others, particularly if in abundance. Is there anything of selective value in this? We all know how a duck's feathers behave when water is poured upon them. What about germs coated with fat in respect to the 0.3 per cent. hydrochloric acid sulution? This is largely water and would behave much like water as a hinderer of the action of the gastric juice. Fat sterilization would require longer than that of any other part of the food, and so we find that it is retained longer, so as, most probably, to be partly hydrolyzed by lipose. In this sterilizing of food the cell walls of the bacteria and the coverings of the sporozoa must be penetrated before they can be destroyed. Wells tells us that "numerous investigators have shown that the insoluble bacterial cell wall consists chiefly of chitin."[34] We have already learned that "a few hours after food the duodenum may be found quite sterile." It is, therefore, certain that the chitin is, somehow, dissolved during stomach digestion. Little seems to be known about the digestibility of chitin, notwithstanding its great importance to pathology and the simplicity of such an investigation. Being chiefly composed of glucosamin it is likely that the double action of the ptyalin and the pepsin digestion may be concerned in its solution. Should this prove to be the case, it will be the more interesting as an adaptation against disease. But, notwithstanding the many devices that act as barriers to the passage of parasites into the intestines, some get there. The protection here, as elsewhere, is imperfect. There is no evidence of anything more than such protection as would be expected from natural selection. A designed or purposeful protection should be far more perfect than any of these display. In the case of intestinal sporozoans the adaptations are peculiarly faulty in that they appear to demoniacally favor the parasites rather than the hosts. The very devices

of digestion that have been selected as protective have, by variations favorable to the parasites, become injurious to their hosts, for "only in their proper host do the digestive juices have the effect of liberating the sporozoites without harming them."[35] If such an adaptation is preordained by purpose what can be thought of it? If not at all digested they would pass through without doing harm. If wholly digested they would be harmless. It is the partial digesting that makes them dangerous. Turning our attention to the malarial parasite and the mosquito we learn that "Ross and Grassi found that certain genera of mosquitoes, *e.g. Culex sp.,* are incapable of fostering the human parasite, while all species of the genus *Anopheles* are particularly susceptible."[36] Why is it that an *Anopheles* can take acute enteritis from our malarial parasites when the *Culex* cannot? It is a matter of digestion. Prof. Minchin tells us that "if a human being suffering from malaria is bitten by an *Anopheles* mosquito * * * the mosquito draws into its stomach various stages of the parasite along with the blood. * * * All stages of the schizogonous cycle are digested. * * * The gametocytes alone are able to resist the action of the digestive juices. * * * The maturation of the gametes and their subsequent conjugation take place in the stomach of the mosquito. * * * If a malarial patient be bitten by a mosquito of any other genus than *Anopheles* * * * then not only the schizonts, but also the gametocytes, are digested by it. *Culex,* on the other hand, is the intermediary for the *Hemoproteus* of birds, and when it bites a bird infected with this genus of parasite, it digests all the stages except the gametocytes. *Culex*, in fact, stands in the same relation to the malarial parasites of birds, as *Anopheles* to those of man. Should an *Anopheles,* on the other hand, bite a bird infected with *Hemoproteus,* it will digest every stage of the parasite, gametocytes and all."[37] If due to natural selection all this is just as might be expected. If due to any other cause it baffles human understanding. Let the gametocytes of human malaria vary but slightly in the chemistry of their envelopes and, if the variation made them digestible to *Anopheles* mosquitos, human malaria would quickly disappear from the earth. Let them vary in a way that would defy the digestive powers of *Culex* mosquitos and almost every part of the earth would become dangerous for man. On how slight a turn does human comfort thus depend! The merest change in the covering of the gametocyte of a parasite or the slightest alteration in the gastric juice of an insect could thus increase or decrease the population of the earth to a most alarming extent. How few of us realize the slimness of the thread of fate.

It was long thought that the sole use of digestion was the conversion of insoluble into soluble foods. This we now know was a mistake. Food of all kinds, like the words and sentences on this page, are built up of elementary molecules—the alphabet of bodily, living structure. The number of these biological letters in protein is—as far as yet known— not far from the number of letters in the alphabet. Every living body is put together in a way much like that of a book with its sentences and ideas. Our food—in the condition in which we eat it—bears almost exactly the same relationship to our bodies that a galley of used type does to a printing office. Until it is completely, and perfectly, distributed it probably cannot be reused. Every letter must be separated from every other in order to be in fit condition for setting up again. Mann tells us that "the albumin, taken as food, is converted in the alimentary canal of the higher animals by means of the four proteolytic ferments, pepsin, trypsin, erepsin, and arginase into primary crystalline dissociation-products, the amino-acids, etc., which are then absorbed in this form."[38] It is thought by some physiologists that a small residue of protein may be left undissociated, just as if some printer, in order to be economical, would save whole words of type from a form he was distributing, because these words occurred with considerable frequency in the new book that was to be set up from them. Should some crazy printer try to go too far in this kind of economy the reader can imagine what sort of book he would produce should the words occur throughout its pages in utter disorder. In what is known as anaphylaxis some such event transpires within the body but this we will have to deal with more at length in another paper. As a protection against such a disaster "the intestine forms a solid barrier between the heterogeneous compounds in the food and the homogeneous building material for the blood and tissues, the composition of which has been established by the entire development of the given animal species."[39] "The whole problem of protein metabolism," say Rosenau and Anderson, "seems to be an adjustment in the sense of a defense. The power to assimilate and use foreign protein is not achieved without a certain amount of violence to the body."[40] The history of the phylogenetic development and differentiation of protein, through reaction against parasites, gives us the key to the seeming mystery of the need of any such defense, and that will be considered at another time. There is at least one form in which heterogenous protein is constantly being carried into the circulation undigested. Strange to say that form is the very last one that could have been suspected by physiologists or pathologists, reasoning from current belief among them. Reference is here made to what is known as Stöhr's phenomenon. It was first shown by Stöhr that phagocytes constantly leave the circulation, enter the intestines, pick up bacteria, and carry them back into the circulation with them. The current opinion of medical men has been that bacteria can only gain access to the blood through some lesion, or by virtue of some weakening influence that permits them to pass through the intestinal wall. Prof. Adami tells us that it is wrong "to imagine as it is too often taught that the hindrance to the entrance of bacteria into the tissues is, under all circumstances, complete in the healthy individual. A certain number of microbes is always gaining admission—nay, is being actively introduced by the cells of the organism. But under such circumstances they do not cause infection. In health they tend to be destroyed very soon after their reception. The evidence that this is the case is now overwhelming. * * * That such leucocytes as have escaped into the lumen of the gut and have returned can and do pass into the blood stream has been demonstrated with admirable precision by Prof. A. B. Macallum."[42] Metchnikoff tells us that "the digestive organs are furnished throughout with a defensive apparatus against microorganisms; this consists in an accumulation of lymphoid tissue in the form of patches or groups of solitary glands—the tonsils, Peyer's patches, and the solitary glands of the intestines. These organs produce a large number of phagocytes which are

able to come in close contact with the microorganisms."[43] The reader will notice that these very glands are active centers of diseases. Of the first named we have been told that they—the tonsils—constitute "the battlefield in which the first fight occurs between bacteria and the leucocytes."[44] Another writer says: "Certain it is that there is a growing clinical and experimental evidence that the tonsils are the portals of entry for the infectious material in a wide range of diseases, among which are pericarditis, myocarditis, endocarditis, arthritis, chorea, neuritis, adenitis, glandular fever, nephritis, pleurisy, tuberculosis, iritis, phlebitis, osteomyelitis, various other streptococcus and staphylococcus septicemias, Hodgkin's disease, and possibly even certain forms of leukemia."[45] This looks like a terrible impeachment of the tonsils as protective organs. From the viewpoint of natural selection it simply means that these are the enemies we now have to fight, that they have varied in ways that overcame our resisting powers, that in this fort the phagocytic soldiers battle with them until compelled to surrender, or until death has overcome them, and that our resisting power is, most emphatically, a very limited one, under these conditions. To look at protection as a designed purposefulness is to be compelled to conclude that, for man, the purpose must have become a very faulty affair. The position of the tonsils might lead us to conclude, as the author just quoted has done, that the tonsils must be the portals of entry of all the diseases let loose from Pandora's box. The fact is that these may be the last of a chain of forts to be conquered. The disease may, or may not, have entered by this portal. "Experiments have proved that bacteria and colored substances; such as carmine, etc., injected into the blood reappeared in the tonsils and were discharged by them into the palatal cavity. Bacterial infection of the tonsils might therefore be produced either by an immigration of bacteria from the mouth into these organs or by their emigration from the circulation."[46] This taking of bacteria and other noxious substances from the blood, by the tonsils, and discharging the same into the digestive tract seems to be quite as important a function as the taking up of bacteria, by the phagocytes of the tonsils for immediate destruction. As we have seen the stomach can dispose of a lot of them. The using of bacteria, as food, by the leucocytes is a hereditary trait that can be best considered when we come to discuss anaphylaxis. That there are two distinct types of phagocytes should not be lost sight of by the reader as this division of function among them corresponds to a division of labor that has become strongly differentiated in our digestive apparatus. "The cellular army of defense," says Meltzer, "is made up of two types; the microphages, the polynuclear leucocytes whose abode is in the bone marrow; and the macrophages, the large mononuclear cells which have their barracks in the lymph nodes and lymphoid tissue. According to Opie one of the effectual weapons of these warriors is their intracellular proteolytic ferments. But the ferment of the microphage is active in an alkaline medium, while that of the macrophage requires for its activity an acid medium."[47] Adami speaks of these as "two broad groups of phagocytes, each having the power of acting more particularly upon one set of substances; the microphages (polymorphonuclear leucocytes, eosinophiles, etc.), and the macrophages (hyaline leucocytes, endothelial cells, and fixed phagocytes);" the former he finds "more particularly active in opposing the bacteria of acute disease, the latter those of chronic disease."[48] In their methods of digesting, these two kinds of phagocytes represent gastric and duodenal activity. We have found that one of the most important functions of the digestive apparatus is that of destroying disease germs. We here discover that acid and alkaline digesting phagocytes perform similar functions. Let us now inquire the origin of digestion and of the digestive tract. Prof. E. Ray Lankester informs us that "the lowest multicellular animals provided with a digestive sac or gut, such as the polyps, have that sac lined by digestive cells which have the same ameboid character as 'phagocytes,' and actually digest to a large extent by swallowing or taking into their individual protoplasm raw particles of food. Such particles are inclosed in a temporary cavity, or vacuole, into which the cell protoplasm secretes digestive ferment and other chemical agents. Now there is no doubt that such digestive vacuoles may burst and so pour out into the polyp's stomach a digestive juice which will act on food particles outside the substance of the cells, and thus by the substitution of this process of outpouring of the secretion for that of ingestion of food particles into the cells we get the usual form of digestion by juices secreted into a digestive cavity."[49] It thus appears that digestion had its beginning in a process much like that pursued by the phagocytes of the tonsils. Finding their foes too much for them it became necessary to eject them and have them digested outside of rather than within their protoplasm. We certainly could not wonder at this if, at any time, they found foes such as the protozoa have to contend with. Dr. E. Penard, in a recent illustrated article which appeared in the new German microscopical journal, *Mikrokosmos,* states that a rotifer, *"Proales latrunculus,* sp.n., which lives parasitically within and on the heliozoon, *Acanthocystus turfacea* * * * allows itself to be engulfed in the usual rhizopod fashion by its unsuspecting host, but no sooner has the envelope closed on the rotifer than it expands its ciliary wreath and proceeds to eat up everything it can find in the larder, then it attacks the protoplasmic walls and feeds on these. A terrible struggle now goes on between the host and its prey, which usually lasts about six hours and nearly always ends in the death of the rhizopod. * * * In the summer of 1904, Dr. Penard found nearly half of all the *Acanthocystos turfacea* afflicted with this parasite."[50] The long continued selective action of such parasites as the *Proales latrunculus* would soon extinguish a colonial group of protozoa unless variation steadily brought to their aid some such device as the sac, or digesting pocket, of a gastræa animal, into which they could be injected and digested. From such a sac, or gastrula, Haeckel tells us, the intestinal tract of the higher metazoa was produced.[51] His theory explains so perfectly the many facts of embryology and comparative anatomy, bearing on this question, that most zoologists have accepted it as a true generalization. The polyp, or hydra, which Professor Lankester refers to in the quotation given, is a favorite animal for illustrating that branch of the animal kingdom known as the cœlenterata, or animals that possess a hollow space for an intestine. To the student of embryology it is known as one of the simplest of the two-layered or diploblastic animals. Its outer skin-layer is the primitive example of the ectoderm and the invaginated layer, that constitutes the in-

terior of its gut, is one of the simplest of endoderms. Unlike animals higher in the scale, up to and including man, it has no middle layer or mesoderm. To compare its simple structure with the complexities of our own is to see what evolution has done for us in differentiating our many tissues. Prof. C. S. Minot declares that, "The importance to pathologists of a thorough knowledge of the genesis of the tissues from their germ layers can hardly be emphasized too strongly" and, as he has given one of the best classifications ever made, it is here reproduced for the reader's benefit.[52]

CLASSIFICATION OF THE TISSUES (Blastoderm).

A—Ectodermal (Epiblast)	B—Mesodermal (Mesoblast)	C—Entodermal (Hypoblast)
1 *Epidermis*	1 *Mesothelium*	1 *Notochord*
a Epidermal appendages	a Epithelium of peritoneum pericardium pleura urogenital organs	2 *Epithelium of*
b Lens of eye	b Striated muscles	a Digestive tract
2 *Epithelium of*	2 *Mesenchyma*	Esophagus
a cornea	a Connective tissue	Stomach
b olfactory chamber	Smooth muscle	Liver
c auditory organ	Pseudoendothelium	Pancreas
d mouth	Fat-cells	Small intestine
(oral glands)	Pigment cells	Yolk-sack
(enamel organ)	b Blood	Large intestine
(hypophysis)	c Blood vessels	Cecum
e anus	d Lymphatics	Vermix
f chorion	e Spleen	Rectum
Fetal placenta	f Supporting tissues	Allantois
g amnion	cartilage	(bladder)
3 *Nervous system*	bone	b Pharynx
a Brain	g Marrow	Eustachian tube
optic nerve		Tonsils
retina		Thymus
b Spinal cord		Parathyroids
c Ganglia		Thyroid
d Neuraxons		c Respiratory tract
		Larynx
		Trachea
		Lungs

There is one very important thing shown in this table which my readers should not overlook. That is, the fact that the brain and spinal cord are produced by the same layer as the skin. Phylogenetically our whole nervous system is but an improved and sensitized skin. It came, by successive variations, from the skin of our polyp-like ancestors. Tucked away in the cavities of skull and spinal vertebræ our brains and spinal cords look like anything other than their original progenitor—the skin. The embryo, by epitomizing our evolutionary history in its development, tells the tale of the humble origin of our noblest tissue. As the skin is now, and always appears to have been, an organ whose chief function is that of resisting the aggressions of parasites, the nervous system should show its relations, in function, to its ancestral tissue. The skin always has been the most completely exposed part of the body in relation to pathogenic microorganisms. We learn that "the cutaneous sensory fibers are distributed through the whole length of the dorsal half of the brain wall as far forward as the superior colliculus. The roof of the midbrain is still in part a primary cutaneous sensory center, even in man. This gives the strongest morphological support to the account of the evolution of the cutaneous, auditory, and visual primary and secondary reflex centers and the cerebellum out of a primitive longitudinal column or zone whose functions were at first simple cutaneous sensory."[53] If we stop to consider how intimately connected with the skin the brain must be we will see that even now a very large part of its work is that of protecting us from disease germs. Think of the sensitiveness of the skin at every minute point of its surface, to pain from injury. It cannot be pricked with the finest needle without giving forth its cry of danger. But danger from what? Surely a needle prick is not of selective value in itself. Without infection from slight wounds natural selection could have had no chance to give us so pain-sensitive a skin. But all this pain—pain that travels from every minute fraction of an inch of the entire surface of the body—exists or is produced in the brain. The nerves of touch that make us sensitive to contact, the nerves of heat that make us sensitive to high temperatures, the nerves of cold that make us sensitive to low temperatures, the nerves that regulate perspiration and thereby the temperature of the body-cavity, the nerves that produce itching, the nerves that produce tickling, all are mechanisms that, directly or indirectly, warn of danger from germs. It is impossible to discover selective value in any of them if disease is left out of the problem. Indeed, so much of the brain is concerned with the regulating of the skin, that "Dubois, the Dutch anatomist, stimulated by the work of Snell, has brought forward evidence for the view that when, within the same order, several species of mammals similar in form, but differing in size, are compared with one another, the weight of the brain is found to be closely correlated with the extension of the body surface, and by inference with the afferent system of neurons."[54] If a relationship so close as this exists between the neurones of the brain and of the cutaneous surface then an exceedingly large part of the brain must have been selected because of the benefit derived from them in warning of disease. Even if it is less perfect than Dubois imagines the fact that he thought it probable is evidence of a very profound relationship. If we leave the consideration of the skin and turn directly to the question of the evolution of the cerebral cortex we learn that it formerly "was olfactory in function, the hippocampal formation" being its earliest appearance.[55] In the lower mammals the sense of smell appears to be of intense importance. Prof. Bardeen states that "In reptiles and fishes it makes up half the brain" and "the earliest cortical relations are with the sense of smell only."[56] In its beginnings the sense of smell probably had to do solely with the selection of food. It was of life and death value that some such device be selected in order to be able to discriminate between wholesome and unwholesome food. Things that had to be avoided as dangerous, such as decomposing bodies, would kill off all animals that failed to take a dislike to them through their smell. Only those lived that developed such a sense of dislike. Food that was good would be selected because of a pleasant flavor. It is not generally known that flavor, even in ourselves, is connected with our nerves of smell and not of taste. As the organ of smell became more and more sensitive it would come to be used for other purposes. Smell, then, was, most likely, protective from disease so that the earliest of sensory activities of the brain, as it developed from skin, continued to intensify and improve the mechanism of immunity. If we now inquire about its latest achievements we learn, from Prof. J. A. Lindsay, that "it was in the interest of the developing organism that the centers presiding over the mechanism of speech * * * should be located in one, rather than in both hemispheres. It is entirely in accord with this theory that the right side of the cerebrum should contain potential speech centers, and that these should be capable of successful and adequate development when the centers on the left side are destroyed by disease."[57] Look where we will, among all the adaptations of our

viscera, and at every turn and from every viewpoint we find that natural selection, through parasites, is the only theory that seems capable of putting meaning into them. Without this theory there is but chaos and darkness before us.

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ON SOME ERRORS IN THE SEARCH FOR THE GONOCOCCUS IN THE VAGINITIS OF CHILDREN.

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When a subject has been worn as threadbare as that of the microscopic detection of the gonococcus, it seems incredible that the simple procedure of collecting the exudate in vaginitis and spreading it on a slide for microscopic examination of the gonococcus could be so faulty as often to defeat the very purpose for which it is undertaken. Nevertheless, this is a fact. It has been supposed that the transference of the exudate from the vestibule or the vagina to the slide by means of a cotton swab, such as is used in taking cultures from the throat, would be thoroughly reliable; that is, when the secretion is spread on the slide the presence or absence of the gonococcus would indicate the presence in or the absence of the organism from the vagina.

At the Willard Parker Hospital, in the scarlet fever, diphtheria, and measles wards, and in the other hospitals of the Department of Health of the City of New York, we have for years taken this procedure at its face value, supposing that it gave accurate information in determining the question of the gonococcus in its important influence in our management of this prevalent, troublesome, and persistent malady in little children. Now it turns out that the method is far from providing a certain means of detecting gonococcus, and frequently fails in cases without appreciable discharge. When a method is not fully reliable it is time for the substitution of one which is more certain and trustworthy. The new pipette method proposed here is so simple that it seems like making much of a small matter in according it any extended text. But the method deals with a troublesome and a rather common malady, and as it often happens that important phenomena are disclosed and handled with methods of trivial operation, no apology is needed for a seemingly inconsequential procedure if it helps us better to detect and to manage an intractable and easily transmissible disease.

Under any circumstance specific vaginitis in children is serious. From one standpoint it is perhaps less so than in adults, in that the uterus and tubes are seldom involved; however, it is in other respects far more serious because of the danger of ophthalmia. But everyone knows that in hospitals, especially in those for contagious diseases, the disease is particularly vicious because of its liability to spread through the wards unless the greatest vigilance is exercised. We have to be on guard constantly to catch the patient at the very inception of the disease, indeed with the detection of the gonococcus to anticipate its appearance, and equal care is imperative in not sending a child home prematurely, to infect its companions.

When vaginitis is fully developed the gonococcus determination is hardly necessary to tell us what is going on. Nor when pus is pouring out of the vagina or urethra does anyone need a microscope to know what to do or to make a diagnosis, for he would only be making sure of what he already knew. To be sure, the microscope will give the secondary information as to whether the discharge is nonspecific or the contrary. In such cases, when

the aid of a miscroscope is to a certain extent a laboratory refinement, the swab device works very well, as indeed anything else which will get the exudate spread out uniformly on the slide. The method is excellent when the disease is so obvious that its application is hardly necessary.

This whole matter of the detection of the gonococcus, regarded from a practical standpoint, becomes of real value in the very beginning and the declining stages of the discharge. These are the stages where the greatest danger of widespread infection exists for the simple reason that they are not heralded and placarded with the obtrusive cardinal manifestation of the malady, namely, the discharge. Here we are absolutely dependent upon the microscope, and here where it is important to single out vaginitis cases on admission to the hospital, to apprehend the incipient cases, to detect the gonococcus when the secretion is only faintly purulent or scanty and hidden in the vaginal fornices or otherwise not obvious, here it is that the device with the swabs sometimes leaves us in the lurch.

Whether the vaginal exudations without the gonococcus, the non-specific vaginitis cases are infectious or not is exceedingly difficult to determine without inoculation experiments. From time to time we find a profuse nongonorrheal vaginitis in which the leucocytes contain several small bacilli with tapering ends lying side by side. Apparently this form is infectious. Occasionally there are also nonspecific cases in which there are intracellular cocci, but distinctly smaller than the gonococcus. And rarely a discharge is met in which the leucocytes show no bacteria of any kind. The only organisms present are extracellular and seem to be merely the ordinary saprophytes of the healthy vagina. This form of vaginal discharge seems to be due to a simple catarrhal exudate accompanying at times measles and scarlet fever. The products of inflammation complicating the course of these exanthemata pass into the vagina and sweep out with them the ordinary vaginal bacterial flora.

The most sensible plan, I think, in the examination of these nonspecific and nondescript discharges is, that while a negative report may be given as far as the gonococcus is concerned, in the question of isolating these children, we should be guided more by the general structural appearance of the exudate than the matter of the bacterial content, because we cannot tell whether these several bacteria associated with the nonspecific cases are infectious or harmless. It is difficult to describe or lay down any set rule regarding the structural appearances of the smear which indicates a dangerous or suspicious discharge, but one learns from experience that a certain preponderance of leucocytes, or an exudate almost entirely purulent, justifies the diagnosis from mere vaginal hypersecretion (from uncleanliness for instance), and the recommendation of isolation, even though the gonococcus is not present. A few leucocytes scattered among a large content of vaginal epithelial scales, although the smears may be laden with various kinds of bacteria have no special significance. In the routine microscopic vaginal examinations at the Department of Health hospitals (comprising at times several hundred children) I have followed this plan of dealing with the nonspecific or indifferent discharges, largely according to the structural appearances of the exudate, reporting, for instance. "Gonoccoccus absent: recommend isolation and observation for several days from the largely purulent character of discharge and slight relative content of desquamated vaginal epithelium." Considering the volume of vaginal discharge, both benign and infectious, and the catarrhal conditions in measles and scarlet fever that we have to contend with, this policy has worked out very well. It places one on the safe side with many children having discharges which are not gonorrheal, but nevertheless if infectious a menace to the ward. If the discharage is benign no harm is done to the child in isolation. From what has been said it is apparent that adherence to a rigid rule in the absence or presence of gonococcus in the determination of this question of vaginal discharges may bring about diagnostic blunders in two ways. The observer might find organisms indistinguishable from gonococci in a vaginal secretion without the structural earmarks of a true vaginal inflammation and so condemn a child with mere profuse secretion to the vaginitis ward, and on the other hand, he might, in reporting the absence of the gonococcus, leave an infectious child in the ward. Some judgment must be exercised independent of, or at least in conjunction with, the question of the morphology of bacteria in these secretions. The structural character of the secretion must be taken into consideration, and at times this is just as important a factor as the bacterial determination.

The reason for the frequent failure of the dry swab method is quite simple. Unless the discharge is profuse, the exudate on the absorbent cotton is caught in its interstices, and the result is that much of what we wish to have on the slide is retained by the cotton. Not infrequently in thin, serous, and scanty discharges nothing but fluid is expressed from the swab to the slide, while abundant gonococci remain in the leucocytes sticking tenaciously within the meshes of the cotton fibers. In attempting to release the exudate in the preparation of the smear, the swab is rubbed and pressed about on the slide; the cellular contents may be torn off the cotton fibers with considerable mechanical injury so that the structure of the material on the slide, especially the leucocytes, is highly distorted and most unfavorable for the detection of the gonococcus. Quite frequently also it is difficult to spread the exudate evenly and uniformly on the slides with the swab; thus the cells are heaped on top of each other and conceal the gonococci. Occasionally the narrow vaginal orifice in children wipes the surface layer of the exudate off the swab as it is being removed.

The intact leucocyte cell body is the *sine qua non* in the diagnosis of the gonococcus. Without this we lose the foothold of certainty. This is especially true of the vaginal secretion, which brings in difficulties not encountered in discharges from the male urethra. In the vaginal discharge we cannot take the free cocci into account, because while the male urethra exudate contains as a rule no adventitious bacteria and only those of a specific or nonspecific urethritis, the vaginal discharge and the healthy vagina often contain among them cocci which cannot be distinguished morphologically from gonococci.

If one were to make the diagnosis on the presence of free gonococci-like organism, many children, healthy as far as vaginitis is concerned, would be wrongly put in the vaginitis ward. These smears with distorted pus cells are, therefore, misleading and often quite worthless. It is truly astonishing to discover that hundreds and hundreds of gono-

cocci may be lost or concealed in the smears from these cotton swabs or retained on the cotton. It should not be understood that the deformity of the leucocytes is characteristic of all swab smears. It occurs extensively, however, in quite a large proportion of them when the secretion is very thin or viscous, and especially when the swab is allowed to dry in the air momentarily, or through a conjunction of both factors. Occasionally the volume and consistence of the exudate are such that the film is in good condition and offers the proper conditions of accurate diagnosis.

Besides these drawbacks, it is questionable whether the swab device is wholly harmless. No one would think of using a similar procedure in the male urethra, because it would denude the epithelial layer and damage the lining membrane. The introduction of a dry cotton swab into an inflamed and sensitive vagina, twisting it about to collect the exudate, must injure the lining walls if only to a slight extent. And since as we are told the deeper layers of the epithelium and the membrane on which it rests act as barriers against invasion of the gonococcus into the circulation or the lymph spaces and its propagation to remoter parts, this aspect of the procedure is hardly a negligible factor. In the final and healing stages of vaginitis it is also important not to interfere with the restitution of the epithelium.

A very much better way to obtain the exudate is to collect it in glass tubes so that one can see what the content of the vagina is, and incidentally not lose it in transferring it to the slide. For this purpose ordinary medicine droppers are the most convenient; they are about the length of the average child's vagina and manipulation of the rubber bulb collects the secretion. Occasionally the sharp cutting edge of the dropper needs rounding off in the flame. The tubes, of course, may be sterilized and used over again, kept in bichloride solution before being applied, and the children are hardly aware of their introduction, which is more than can be said of the swab. Sometimes the pus is so scanty that instead of filling the lumen of the tube it sticks to the sides of its walls and cannot be transferred to the slide. In such instances it is well to fill the tube with a drop or two of water, or, better, a 1-5000 bichloride solution before introducing into the vagina, and by compressing and expanding the bulb make an emulsion of the exudate. The advantage of this is that the whole vaginal contents are obtained where the secretion is scanty, the bichloride fixes the cellular elements at the same time, and they are in perfect form when dried on the slide. Salt solution is less preferable, for it seems to contract the leucocytes. Exceptionally in very young children, or where the vaginal entrance is very small, it is necessary to draw out the tubes to a finer caliber, although when partly filled with the bichloride solution they need only be inserted into the ostium and the exudate washed out into their lumen.

This method is perfectly adapted to the study of structural cellular details of the exudate, which under the generic title of the "cytodiagnosis" of urethral and vaginal discharges came into prominence some two or three years ago. Up to this time observers had largely restricted their study of these exudates to the detection of the gonococci. The advance of the technique of staining blood and differentiation of the various white blood cells, and their constituent granules suggested a similar study in urethral and vaginal discharges. Pappenheim, Janowski, Joseph, Palano, Posner, and several other observers took up the subject and tried to turn the study to a practical account in diagnostic and prognostic value. They found various types of leucocytes, such as mast cells, eosinophiles, small and large lymphocytes, globular nucleated polymorphonuclear leucocytes, vacuolated, and other types of degenerated cells, and attempted to show that the prevalence or absence of one or another type of these various cells corresponded to some particular phase of the disease and hence was of diagnostic value. At the request of my friend, the late Dr. Robert W. Taylor, I went over this subject, not only in the male urethral inflammations in various stages, but also in vaginitis, using the various methods of blood smear technique, and feel quite sure that while the subject may be exceedingly interesting from a theoretical standpoint, it does not work out at all in practical diagnostic value, for the results are too irregular and contradictory. Thus the eosinphiles are liable to occur in the early stages, but they occur at times equally well in the late and chronic stages, and so on, with various other constituents of the exudate. There are but two signs indicative of particular phases in gonorrhea, and even these are rather vague and indefinite, namely, the presence of red blood-cells, indicating a beginning stage of gonorrhea, and the appearance of considerable epithelium, mucus, and the decrease of the leucocytes, showing that the process is nearing its end stages, which is a good deal like saying that the shower is over when the rain drops cease falling.

In contrasting these two methods at Dr. Park's suggestion I followed several cases in the vaginitis wards, systematically controlling the swab smears with tube method; sometimes immediately afterwards, sometimes twenty-four hours later. Here are the results as regards the absence or presence of the gonococcus indicated respectively by the minus and plus signs.

Table No. 1.

	Feb. 9, '09. Dry swab smears.	Feb. 10, '09. Control medicine dropper.
Clara N.	—	+
Dora A.	—	+
Dora K.	+	+
Annie H.	+	+
Sadie D.	+	+
Mary A.	+	+
Lucia	+	+
Kate M.	—	+
Caroline	+	+

Table No. 2.

	Feb. 12, '09.		Feb. 13, '09.
	Dry swab.	Moist swab.	Medicine dropper.
Rosie G.	+	+	+
Sadie L.	+	+	+
Helen A.	—	+	+
Annie O.	+	+	+
Anna P.	—	—	+
Ella S.	+	+	+
Fannie S.	+	+	+
Mamie G.	—	—	—

These tables need no comment. It will be seen that in many instances where the swab method has given a negative decision the gonococci are, nevertheless, present, as shown in the smears from the medicine droppers. In Table No. 1 the dry swabs gave positive results in 6 out of 9 cases. In Table No. 2 the suggestion of moistening the swab was carried out, giving slightly better results. These children ranged between the ages of one and six or eight years, and the results in each case were con-

trolled by staining with Gram's method. It is the custom at these hospitals to examine all of the suspected children twice a week for gonococci and all cases on admission. I have tried not to fall into the rather natural tendency of accentuating the value of a measure by exaggerating the defects of what it is designed to correct, for the swab smears have always been taken by the interne physicians of the hospitals,* and represent, I think, on an average the results obtained in hospitals in general when the method is used. Perhaps the swabs might have been taken more carefully, especially if one had in mind their imperfections and the tables are not wholly fair, but the procedure is certainly inferior to and less reliable than that of tubes. This is especially to be emphasized when the gonococci are very few in number, for they may be lost entirely in the swabs even when moistened.

A striking instance of the value of the new method is the case of Katie L., 5 years old, admitted with scarlet fever. The swab smears were negative. While the child was still on the examination table I was astonished to find fully half of the medicine dropper tube (plus two or three drops weak bichloride solution) filled with pus hidden in the vaginal fornices and which was reeking with gonococci. There was hardly any external evidence of the discharge, and this child, if we had relied on the swab method result, would have been sent into the ward to infect other of the inmates.

Another interesting case is that of Ellen F., 3 years old, who had been in the diphtheria ward some three weeks. This ward, on the sixth floor of the Willard Parker Hospital, contained 24 children. Ellen had no discharge, no signs of vaginitis, no gonococci on admission or any other time as far as could be determined, when suddenly, on March 27, 1909, a discharge developed. The swab method failed, but the medicine dropper disclosed abundant pus cells with gonococci. No other children had vaginitis in the ward, and a question of great interest arises: How did Ellen develop a specific vaginitis three weeks after admission when the examination was negative and when there were no cases in this ward to infect her?

These cases are not very rare and their consideration, which is beyond the confines of this paper, seem very important not only for study of gonorrheal infection in particular, but for the rôle of pathogenic bacteria in general. Apparently the explanation in consonance with the theories of the present day is that such children are gonococcus carriers; that such gonococci do not provoke any pathogenic action in these particular children until some complicating congestion or light catarrh, incident to diphtheria and certain of the exanthemata, provides the suitable opportunity. We hope, during the ensuing year, to see if, by an accurate method of examination of admission cases, this can be substantiated, and to learn whether these children belong to the class of bacterial carriers, as we have come to know them in connection with typhoid fever, diphtheria, etc.

This investigation will not only require the washing out of the vaginal contents into the bichloride tubes, but probably also depositing the cells, before transferring to the slides, by the centrifugal machine, since the scanty collection of cells will be dispersed in a considerable volume of fluid.

*So far as I can learn, the swab method is quite universal in the various hospitals in New York City, which contain any considerable number of children.

A third instance of the accuracy of the tube method worth mentioning, perhaps, is that of a declining discharge of a girl of 15 years. An unequivocal decision of the question of the gonococcus was highly important because medicolegal consideration involving the matter of criminal assault entered into the case. The physicians to whom the gonococcus determination was referred were unable to settle this question one way or the other, because smears prepared in the conventional way from absorbent cotton swabs showed such mutilation or destruction of the leucocytic cell bodies that no intracellular gonococci were found, and they declined, quite properly, to make a diagnosis on the presence of free "coffee bean" diplococci amid the variegated bacterial flora.

As a matter of fact gonococci were present, but exceedingly few in number, as was disclosed by flushing out the vaginal fornices with a tube filled with a few drops of 1-1000 bichloride solution, These smears showed the classical indubitable picture of groups of gonococci within the bodies of perfectly preserved leucocytes.

The swab procedure is equally bad in determining the nature of inflammation or discharges from the conjunctiva. This is so very important that it needs no elaboration. Among other forms we are constantly meeting with simple catarrhal conjunctivitis in measles and scarlet fever, diphtheritic conjunctivitis, and at times an inflammation accompanied by the pneumococcus, Morax-Axenfeld, or Koch-Weeks bacillus, but we never can be sure without the microscope, whether the case may not be one of gonorrheal ophthalmia.

I know of at least one case of very early gonorrheal ophthalmia in which the swab method utterly failed to show the very few gonococci present disclosed by the tube procedure. Exudates from the conjunctiva should be allowed to flow into capillary tubes. If such exudates are thick and viscous they may be drawn up into the tube by a piece of attached capillary rubber tubing and expressed on the slide and emulsified with weak bichloride solution to make the smear spread thin and uniformly. The same may be said of the examination of cases of otitis and discharges from the ear, sinuses, etc.

A trivial suggestion in the staining of the smears, although very likely gratuitous, may be of service to those having occasion to make these determinations in large numbers. The fixing of the smear may be discarded. The film can be flooded with almost any of the polychrome solutions, washed in water and examined while wet under the cover glass or afterwards dried for permanent keeping. In fact, the washing in water may be omitted and a drop or two of the polychrome solution, if not too opaque, may be allowed to flow in a capillary sheet over the film underneath the cover glass and the examination made directly. An advantage of this is, besides saving time, that the gonococci appear to swell slightly and approach more nearly their size and shape in the living condition, which is of service in comparing them with a gonococcus-like organism somewhat smaller in size.

Tuberculosis in Australia.—The death rate per 10,000 from tuberculosis in Victoria, Australia, has fallen from 14.58 in 1890 to 9.58 in 1907, and in Melbourne and suburbs from 20 in 1890 to 11.6 in 1907. The fall is attributed to the aggressive campaign against this disease, including the registration of tuberculosis cases, the erection of institutions for treatment, and the general improvement of sanitary and working conditions.

THE THERAPEUTIC POSSIBILITIES OF DIRECT BLOOD TRANSFUSION.*

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"Judiciously employed, transfusion will surely form a valuable, often life saving, resource; injudiciously employed, it will surely become discredited." This is the closing paragraph of Crile's book on transfusion, and it emphasizes admirably the lesson taught by the more than five hundred carefully written pages of his work.

That this procedure has, by the efforts of many men, been put upon a safe basis as a therapeutic measure, is a matter of the utmost importance. It is still too early to estimate its full value, or comprehend its possible dangers, but it is a subject worthy of the fullest discussion, and each bit of experience coming to the individual is worthy of report, whether the result has been successful or unsuccessful.

Crile's work was published last year, and so completely covered all the ground, that it is proper to quote his conclusions:

"Transfusion, when properly safeguarded, may be safely done. In pernicious anemia, toxemia, certain drug poisons, leukemia, acute hyperthyroidism, carcinoma and uremia, it has been of no value. In tuberculosis and chronic infections it has certain value. In human sarcoma there is some evidence of value, though it is not yet proved. In pathological hemorrhage it is of marked value. If done in time, transfusion is specific in acute hemorrhage. In suitable cases it seems to be almost specific in the prevention and treatment of shock."

From this we see that whenever there is a secondary anemia of vital centers, whether from hemorrhage, or from disturbance of the internal circulatory mechanism, we have in transfusion a means of treatment which is superior to any other. On the other hand, in all forms of disease, with the possible exception of tuberculosis and some other chronic infections, its use has been attended with very little success. This is what would be expected, reasoning on *a priori grounds*. In the first instance, transfusion surely and inevitably replaces the biological elements, the absence of which is producing the pathological condition. In the second instance, the blood acts, if it act at all, by altering biological processes, and this is a matter of great uncertainty and of the utmost complexity.

In using a transfusion, we may, however, hope to bring about such alteration through the bactericidal power of the introduced serum, through the addition of immune bodies, through the activity of the healthy phagocytes or through the introduction of unknown substances existing in the blood of a normal person, which have become vitiated in the patient. That such a hope has little justification in experience up to the present time is disappointing, because in many conditions the knowledge we possess of certain pathological processes and their antagonism by the living organism would seem to argue strongly in favor of transfusion as a therapeutic measure. The pyogenic infections are cases in point. A living bacterial organism here gains admission to the body of an individual, and, finding a suitable medium, rapidly develops. The body defences of the individual come to the rescue, and the bacteria may be destroyed with the return to health of the individual, with or without surgical intervention. In case this defense is not sufficient, the bacteria increase still farther, and the death of the individual may result.

That this defense lies to a great extent in the blood is an established fact. The serum contains bodies which act either as inhibitors to the life of the bacterium, or as activators to the blood phagocytes, or as neutralizing agents to the toxins, in any case making less the evil effects of the bacterial activities.

The usual clinical study of the white blood cells gives us valuable evidence of the way the battle is going, and in many cases a proper prognosis can be arrived at in this way. This, interpreted, means that under the stimulation of the invading organisms, the circulating cells become more numerous and more potent when the contest is turning in favor of the body cells, and less so when they are being overwhelmed by the microorganisms. Experimentally, and clinically also, there is indisputable evidence that the serum contains bacteriolysins. When, therefore, we are confronted by a patient suffering from an infectious process, we might with reason hope to aid his defenses by means of a transfusion. And could we obtain as a donor one who had recently recovered from the same infection, we would have further ground for hope by the possibility of introducing immune bodies with the elements of the normal blood. The agglutination of the typhoid bacilli by the serum of a patient recovered from this disease is an expression of this process. This reaction may exist in the serum over long periods in some instances. Since practically every typhoid patient shows the presence of the bacillus in the blood, a transfusion from a person recovered from typhoid ought to exert a very beneficial effect. In those cases especially where the outcome depends on the power of overcoming a toxemia, that is, in such patients as show the so-called typhoid condition, a transfer of a blood containing typhoid agglutinins should be of value.

The work of Hiss and Zinsser with the watery extracts of leucocytes is also worthy of note in this connection. They found that such an extract of the leucocytes, obtained in the exudate from a rabbit's pleura under the influence of aleuronat, had a decided influence in saving the life of animals receiving an ordinarily fatal dose of various living microorganisms. This favorable influence, too, they believe was slightly increased if the rabbit yielding the leucocytes was first rendered immune to the particular organism.

Further investigation showed that this property was not bactericidal, but what they termed endoantitoxic that is, due to an antitoxin which existed within the leucocyte, and was given up only upon its destruction. This last they inferred because living leucocytes in similar bulk seemed not to possess the efficiency of the extract. These experimental findings were put to the clinical test, and in epidemic meningitis, pneumonia, and later erysipelas, (Lambert) they seemed to be of value.

These results, taken in conjunction with the well-known bactericidal power of whole blood, would seem to indicate that transfusion should exert a beneficial influence on these and allied conditions. Hiss' observation that only the extracted leucocytes were useful, would not be a counter indication, since

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the life of the leucocyte is short, and hence the large number introduced by means of a transfusion would soon, in their death, give rise to the same endoantitoxin. The fact remains that, clinically, both acute and chronic infections, with the possible exception of tuberculosis, have not shown themselves amenable to such treatment. It must be remembered, however, that the total number of cases in which it has been tried is small, and in most of these the conditions were unfavorable, transfusion being used only as a last resort.

Certainly this problem is worthy of further experimental and clinical study, and the writer feels that, notwithstanding the unsatisfactory results up to the present time, transfusion as judged from experimental findings, should be a valuable aid in the treatment of septic conditions. In chronic infections it ought to be possible to increase the efficiency of the donor's blood by subjecting him to a treatment of vaccine made from the infecting organism. The writer attempted this in one instance, with the result reported below.

The possibility of an hemolysis taking place under such conditions must be borne in mind, as also the danger that the donor might become, at least locally, infected.

An attractive problem at the present time is presented in the possible efficiency of transfusion in cases of malignant disease. In discussing this, however, it is necessary to emphasize the inherent difficulties present because of our vague ideas concerning the pathogenesis of neoplasms.

The theory concerning this which has the greatest amount of fact to substantiate it, is the one which attributes neoplastic growth to a lawless development of body cells which are in some way released from their normal constraining influences.

For our purposes, two factors in this theory are of especial importance. First, the control which one group of body cells, through their function, exerts over the growth of other groups, and, second, the part that altered nutrition plays in the development and growth of tumors. It is these factors which hold out a partial explanation of the spontaneous regression of tumors, of their regression under experimental conditions, and of the immunity to tumor growth which seems to be conferred when such regression has occurred.

Medical literature has contained in the past instances of the spontaneous cure of cancer in the human subject, and about fifteen of these seem to be well authenticated.

Wehr in 1883 first described the spontaneous regression of lymphosarcoma in dogs. Since then, and mostly within the past five years, similar observations have been made by others, not only in the dog, but in rats and mice.

Gaylor and Clowes observed the spontaneous cure of mice inoculated with the Jensen tumor. They found that these mice were much more immune to future inoculation than were normal mice. This immunity could be conferred by injecting mice with the serum of cured animals. On the other hand, Loeb found that a regressing tumor of a rat, if planted in another part of the same animal's body, would grow rapidly. Investigation by other authors also failed to find any evidence that the serum of immune animals contained anything which is inimical to the growth of tumor cells. Beebe and Crile showed that dogs could be cured of lymphosarcoma by exsanguinating them and transfusing them from a dog who had spontaneously recovered from this tumor, and dogs so cured were thereafter immune. But recently Beebe has demonstrated that the immune blood of one dog does not confer immunity to the donor in a transfusion, unless the latter have a growing tumor at the time of the exchange. Finally, it must be emphasized that many animals of a given species are naturally immune to neoplasms which grow rapidly and fatally in others of the species. And within very narrow limits the neoplasm which grows well in one species, will refuse to grow in another species.

A complete summary of the work done along these lines is found in Ewing's Harvey Lecture, "The Cancer Problem," and this is strongly recommended to the careful study of any one interested in the subject.

While these experimental findings are contradictory and to some extent inexplicable, they demonstrate two facts. First, that a susceptible animal may be rendered immune to malignant growths, after which its body fluids contain something that inhibits malignant growth in other animals of the same species; and second, that this immunity differs from that existing toward infections, and is probably due to the development of an unfavorable soil for the growth. Application of these facts to the problem of human cancer is very tempting, and in transfusion the method of their application may exist.

Hodenpyl's recent experiences in bringing about a cure of cancer by the injection of the peritoneal exudate from a person spontaneously recovering from cancer is the first practical step in this direction. Spontaneous cures of cancer in the human subject are so rare, and the coincident factor of obtaining a body fluid from such a person without detriment to himself, is so much rarer, that the advantages to be gained from this precise method must of necessity be very limited. The fact, however, is clinically established that cancer can be eradicated from the human subject by the aid of some material produced in another human recovering from cancer. Applying to this fact the results obtained by Gaylor and Clowes, and Beebe and Crile, we may justly hope that patients so cured will have in their blood elements which will retard the growth in a third patient. Furthermore, every surgeon can recall cancer cases in which he has perforce done what he considered an incomplete operation, and yet a permanent cure has resulted. Such a patient may have recovered by virtue of his natural resistance, which only needed to be relieved of a part of its burden to become effective. Such a patient may therefore be an immune, and his blood may have curative value.

That we have no definite knowledge of the nature of these elements, or of the exact way in which they accomplish the result, does not detract from their practical efficiency. There are many important considerations, however, which must be borne in mind in putting into practice such therapeutic measure. Beebe and Crile found it necessary to exsanguinate completely or almost completely the dog suffering from lymphosarcoma, before the transfusion of an immune blood, in order to get the best results. Of necessity, then, a most vigorous bleeding of the immune donor must be practiced to replace the lost blood of the donee. Neither of these can be done in the human subject, for obvious reasons. Gaylord has shown that a tumor which is regressing will take on new growth if its host is bled or otherwise depressed. Therefore we must be certain that

our cured donor is completely cured, otherwise his gift of blood to another sufferer may result in a recurrence for himself. One such clinical experience was personally reported to me, in which a patient with apparent stationary cancer was used as a donor. His cancer immediately entered on a much more malignant phase.

Weil and others have shown that normal blood is markedly hemolyzed by the serum of a cancer subject. It may be that in the same way the red cells of the immune person would be destroyed. This has not proved to be so, however, in the animal experiments. This aspect of the use of transfusion has been presented to you because the cancer problem is such a serious one, and our means of combating it are, after all, so meagre that any phase which has a sound basis on experimental and pathological evidence is worthy of careful consideration. But let us consider it judiciously, and let us not run into the error of discrediting what may be of value, by a careless or injudicious application of it. The writer has used transfusion thirteen times in eight patients. One of these was done for acute hemorrhage in a ruptured ectopic pregnancy, prior to doing the laparotomy. The rupture had occurred about twenty-four hours previously, and on admission to the hospital the patient was in a very critical condition. The pulse was soft and thready; the respiration was shallow and rapid; the hemoglobin registered, 39 per cent. (Dare). The woman's husband was used as the donor, the radial artery being inserted into an arm vein. The flow continued for about twenty minutes, when the donor showed evidence of the hemorrhage and the patient's hemoglobin registered 62 per cent.

The ruptured ectopic was then operated on, and an uneventful recovery followed. Two other infusions, one for Dr. Eliot and one for Dr. Hawkes, were made as preparation for radical operation in case of malignant disease. In each the immediate result was satisfactory, and the major operation was exceedingly well borne, which had seemed doubtful without the aid of transfusion. Three cases were done for sepsis, one being acute and two being chronic. In none was any permanent good accomplished, all of the patients ultimately dying. One of these cases, in a patient of Dr. Bovaird in the Presbyterian Hospital, is worthy of a moment's consideration. He was a young man suffering from septic endocarditis, with a streptococcus blood infection which had produced a marked secondary anemia, the blood examination being: Hb., 49 per cent.; red blood cells, 2,800,000.

On the first occasion one sister was used as the donor. The artery-in-vein method was used, and a very satisfactory flow resulted. After the operation the blood examinations gave the following:

Second day—Hb., 70 per cent.; red blood-cells, 3,260,000.

Third day—Hb., 70 per cent.; red blood-cells, 3,250,000.

Sixth day—Hb., 62 per cent.; red blood-cells, 3,220,000.

Seventeenth day—Hb., 49 per cent.; red blood-cells, 2,880,000.

The immediate result was therefore very satisfactory, but the good was not sustained.

The second transfusion from another sister exactly duplicated the first. At the end of four weeks a third transfusion was attempted, but the technique was faulty, owing to the difficulty of utilizing the saphenous vein. No arm vein was available, as the previous transfusions and the many blood cultures taken had damaged all of them. The failure here was particularly disppointing, because the first donor was being used, and she had been prepared over a period of three weeks by receiving vaccines made from the patient's infecting organism. The small amount of blood transfused had only a transient effect for good, and the patient died some weeks later, when autopsy showed large infected vegetations on the heart valves and infected thrombi in many organs.

The seventh patient was suffering from osteosarcoma of the femur. He was transfused twice, a friend being used as the donor. One operation was entirely satisfactory from a technical standpoint, one only partially so. Neither showed any result in altering the progress of the growth, and later he consented to amputation.

The remaining patient was under the care of Dr. Freeman, of Orange, suffering from a pernicious anemia in an advanced form. She was transfused four times, twice with complete success, twice only partially so. A marked improvement resulted each time, but the introduced blood was slowly hemolyzed, and at the end of a few weeks she was back again at the starting point. Death finally resulted. The condition of primary anemia is a tempting one to treat by transfusion. A consideration of its pathology, however, forces one to the conclusion that such treatment can accomplish nothing. The destructive agent to the red cells is not removed by the operation, and the introduced cells undergo dissolution. In a certain number of cases, however, an anemia which presents a picture closely allied to a primary anemia, is in reality secondary to some remediable cause. In such cases, a transfusion, while in no sense curative, might tide the patient over a critical period, and thus be the indirect means of preventing a fatal outcome.

The one patient in the eight who derived a permanent benefit was suffering from hemorrhage. Her life was probably saved by the operation, as she would have hardly withstood the necessary laparotomy without the transfusion. As before stated, however, the failures in other conditions do not make a hopeless outlook, and the operation of transfusion holds out a promise of benefit in septic cases, and a possibility in malignant growth.

The septic cases reported above are not a fair test of any therapeutic measure, as they were all in what might well be accepted as a hopeless stage of the disease, at the time of operation. A wider appreciation of the value of transfusion ought to result in a greater success than has heretofore attended it, if the use of it is not so long postponed.

Undoubtedly one of the factors tending toward its not being more generally used, is the difficulty of its technique. Dr. Crile reports no operative failure in a large series of cases, but this has not been the fortune of many of us. His success proves, however, that the difficulties can be overcome, and it makes it imperative that those of us who have faith in its efficiency, should make ourselves as proficient in its performance as he has become. The papers of the evening dealing with methods are therefore very timely.

A second difficulty that has arisen in the experience of some of us has been the obtaining of a donor. Usually a relative can be secured, but this is not always possible. The unfortunate appearance in the public press of a story attributing the death of a working man to his having acted as a donor to

his friend, will still further add to this difficulty. It is therefore important to report that the facts in this case, after careful investigation, do not in the least justify such a conclusion. His death could not be even indirectly considered as resulting from the giving of his blood. It is only just, however, that we should give every care to the comfort and well-being of a donor, and that he should be fully informed concerning the amount of inconvenience that may be expected as the result of the operation.

27 East Sixty-third Street.

BENIGN OBSTRUCTION OF THE PYLORUS.

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Benign obstruction of the pylorus, while not so very rare, occurs much less frequently than obstruction from malignant disease. The obstruction may be caused from within the lining of the pylorus, in the wall, or from pressure from without. Of the causes we may mention, ulcer and its after effects, pylorospasm generally due to erosion or fissure, hypertrophic gastritis, effects of strong acids or alkalies, pressure on the external surface of the pylorus, syphilis, tuberculosis, gallstones, foreign bodies, and a few others chiefly of interest as pathological rareties. The more important of these will be taken up later.

Before describing the symptoms, it might be well to consider the effects of an obstruction on the tissues of the stomach. The obstruction in practically all cases is a gradual process, being only very slight at first, and gradually increasing until complete stoppage occurs. This gradual process naturally incites the stomach to greater activity, increasing the strength and frequency of the peristaltic movements. This overwork brings about an hypertrophy of the muscle, especially of the fibers near the pylorus. This hypertrophy takes place in nearly every case of benign obstruction, except in those cases where the stomach is already the seat of marked myasthenia. This stage of overexertion and hypertrophy of the muscles gradually passes into that of complete loss of muscular power and atrophy. This is brought about by the overwork, the poor circulation within the stomach wall, the unhealthy condition of the mucous membrane, and the poor general health. The secretion of gastric juice is, as a rule, increased, the time of secretion prolonged, or it may be continuous.

There is also often an increase in the acidity. If the case is far advanced there may be a marked decrease in the acids and ferments or they may be absent. In cases preceded by chronic gastritis we find a subacidity or an absence of acid from the first. The previous conditions of the secretory organs and the cause of the obstruction materially modify the character of the gastric juice. The mucous membrane becomes very susceptible to injury and bleeds easily. The size of the stomach may remain normal or nearly so for some time, especially if the muscles are strong enough to force food through the pylorus, or if the vomiting is frequent. The wall finally becomes stretched and may extend down to the pelvis. We rarely see the same degree of dilatation in obstruction due to malignant growths. Where the stomach is the seat of an ulcer or there has been a perigastritis, we may have irregular dilatation, due to cicatricial tissue.

The signs and symptoms may be divided into those referable to the alimentary tract, and those of the general system. Those of the alimentary tract may be divided into those of the stage of muscular overwork or compensation and those of retention. These two divisions may be fairly well defined, in some cases, while in others the first division is practically absent. The symptoms of one gradually pass into those of the other. Peristaltic increase is characterized by crampy pain and the sensation of something alive and moving in the stomach. Cramps may be very frequent and severe and are generally worse shortly after eating. They are relieved somewhat or entirely by the emptying of the stomach. The pain often radiates to the back and chest. Vomiting during this period may occur only occasionally, or may take place shortly after each meal, or but once a day. This symptom depends primarily on the extent of the obstruction and secondarily on the cause. The other symptoms at this period are largely those of the causing factors.

When the dilatation and stagnation are marked the muscular contraction and cramps decrease and become more spasmodic. The sensation of fullness and pressure and distress after food increases as the disease advances until, as a patient expressed it to me, he felt as if he had a fifty-pound lead weight in his stomach all the time. The vomiting, as I stated above, at first may occur only once every few days, but later takes place nearly every night or morning, or after eating, especially of a meal containing solid foods or alcoholic drinks. The amount vomited at first is small; later it may amount to two quarts or more and contain food taken days and weeks previously. When the dilatation becomes excessive and the muscular power weak the stomach may not be able to empty itself and there may remain a considerable residue always in the stomach. During this period the vomiting becomes less frequent and really amounts to an overflow which takes place principally when the patient lies down. The complete cessation of vomiting is a grave symptom. The crampy pains of the first stage are absent or materially decreased late in the disease and are replaced by a dull, more or less steady pain which at no time may be severe, but causes the patient considerable anxiety. All pain and cramps may be practically absent in a case from the very first. Neuralgic pains are severe in some cases, especially those due to ulcers or erosions, but may occur in cases in which we are reasonably sure no ulceration exists. The peristaltic unrest unaccompanied by cramps may extend well into the stage of retention and stagnation and cause the patient more uneasiness than all his other symptoms. This unrest is frequent in benign stenosis, but rather rare when malignancy is the cause.

The appetite is good or may be increased so long as the muscular power of the stomach is fairly good, but as retention and stagnation increase, the appetite decreases and in advanced cases is lost. On the other hand thirst generally increases as the condition becomes worse as there is practically no absorption from the stomach and little fluid passes into the intestines, so that the thirst is a fair indicator of the degree of the obstruction. The bowels become markedly constipated, the movements being hard, small, and dry; the greater the obstruction the dryer and smaller the stool. Pyrosis at times may be marked and very frequent. Belching occurs practically in all cases and the gas expelled may be very

offensive depending upon the variety of fermentation and character of the decomposing food. Decomposing food or gases forced into the intestines may cause diarrhea, but more often bring about fermentation without diarrhea and the patient has added to his already large number of symptoms those of intestinal fermentation. Dizziness is present in all cases and may be very marked. Headaches are frequent, but are probably more severe in cases with intestinal fermentation.

The general manifestations are those of lack of nutrition. They depend on the amount of food passed into the intestines, upon the amount of water lost by vomiting, and upon diminished absorption. The loss of weight depends directly upon the completeness of the obstruction. The patient first loses the fatty tissues, later the albumen of the muscles, so that a state of extreme emaciation supervenes. The patient complains of weakness, dyspnea, and sleepiness, tires after slight exertion, and the extremities, especially the legs, become cold and numb. The skin becomes dry, scaly, and sallow. While these patients become extremely emaciated they do not have the cachexia which goes with malignant disease. In the final stages tetany may develop; this may be very slight or severe and terminate life quickly. In any case it is a very grave complication and generally terminates fatally.

Having briefly reviewed the subjective symptoms we will turn our attention to the objective signs, which are obtained by inspection, palpation, percussion, auscultation, transillumination, tube-palpation, duodenal bucket (Einhorn), and lastly the analysis of the stomach contents.

Inspection in advanced cases yields important results as we can often see the greater curvature throughout nearly its entire extent, lying below the umbilicus; occasionally peristaltic or rarer antiperistaltic waves may be observed. By percussion the extent of the dilatation may be fairly accurately defined.

Occasionally by palpation we are able to feel the thickened pylorus, or other causes of obstruction, and also the peristaltic movements which may cause a decided stiffening of the stomach wall for a few moments. This stiffening is peculiar to pyloric stenosis and is only felt during the period before the muscles become exhausted. Transillumination, inflating with air, and tube-palpation are also of value in determining the size and position of the stomach.

One of the latest means of determining the patency of the pylorus is the duodenal bucket of Einhorn. This consists of a small gold bucket, similar in shape to the stomach bucket, attached to a silk cord. The bucket is placed in a capsule and swallowed by the patient and not withdrawn for twelve hours. Its contents are examined for pancreatic ferments and if found, we are reasonably sure it has passed into the duodenum, thus proving the pylorus is still patent. If the obstruction is due to an ulcer we may obtain a blood stain on the silk cord, thus giving us a clue as to the site of the ulcer. Auscultation is of little importance.

The examination of the stomach contents yields very important results. By simply examining the material vomited, or withdrawn, we are often able to find out that food has remained in the stomach for a day or more. We also obtain definite information as to the extent of the obstruction by the quantity vomited or withdrawn. If this simple method gives unsatisfactory results we wash out the stomach in the afternoon and have the patient eat a meal of steamed rice, or some other easily detected substance, and then withdraw the stomach contents the following morning and if rice is still present in considerable quantities we are sure an obstruction is present. After marked retention and stagnation have taken place the stomach content is very characteristic. It smells like sour beer, especially when hydrochloric acid is present and contains copious remnants of food in a partial state of decomposition. These remnants may be from food taken several days previously. It may have a decided odor of sulphuretted hydrogen, which odor rapidly disappears if the contents are exposed to the air. Blood is frequently present, especially in cases with ulceration. The stomach contents if placed in a beaker will divide into three layers, an upper frothy, a middle clear, and a lower layer composed of the solid materials. Occasionally, we find bile in the contents, and if it is constantly present it speaks for a stenosis of the lower duodenum. Chemical analysis usually shows a decided increase in the total acidity. By microscopic examination we find yeast cells, sarcinæ, blood cells, and numerous bacteria. Sarcinæ find a favorable medium for growth in the stomach contents which contain hydrochloric acid but do not thrive so well when hydrochloric acid is absent and a large amount of lactic acid present. When lactic acid is present in considerable amounts we often find the lactic acid bacilli.

The urine is often alkaline, the amount small and of a high specific gravity; the greater the obstruction the less urine is passed. We possess, in the amount of urine passed, a fairly accurate measure of the degree of the insufficiency of the pylorus. The chlorides are decreased in grave cases and acetone is occasionally found.

An exact diagnosis of the cause can be made in a considerable number of cases, especially when due to ulcer, hypertrophic gastritis, and pylorospasm. When due to ulcer we can usually obtain a history of ulcer dating back a considerable length of time, or the history of an ulcer cured perhaps years before. With the evident ulcer symptoms accompanied by hemorrhage from the stomach and followed sooner or later by signs of obstruction, our diagnosis is easy. Without the above symptoms our diagnosis as to cause may be impossible.

The hypertrophic form generally occurs in early adult life and has a history of chronic gastritis dating back for some time. It is subject to numerous remissions and exacerbations. The gastric juice is decreased or absent and lactic acid may be present. The diagnosis between ulcer and spastic stenosis, I believe, can only be a tentative one in many cases, as both are characterised by cramp-like pains, and marked gastralgia, especially at the height of digestion. But if we have a patient giving a history of more or less constant pylorospasm followed by retention, without hemorrhage, we may decide against ulcer. The hypertrophic form is the most amenable to treatment. The diagnosis of stenosis from acid or strong alkalies is made entirely by the history. When we are in doubt as to the cause it is well to give potassium iodide to find out if syphilis is at the bottom of the trouble. A decided history of gallstones followed by pyloric obstruction should make us think of obstruction in the duodenum from a large stone or pressure on the duodenum from a gall-bladder distended with stones. In many cases we are unable at first to make a differential diag-

nosis between the causes, or even whether the obstruction is benign or malignant.

A history dating back a considerable time, a fair general condition, without cachexia, an increase of hydrochloric acid, stomach contents which are not fetid in character, symptoms which have been intermittent in character, that is, remissions followed by exacerbations, and retention for a few days, followed by emptying of the stomach through the pylorus, all point toward a benign growth, but are not positive, as we occasionally get all these symptoms in cancer. Finally, in a considerable number of cases, we have to wait and see if proper treatment brings about more or less permanent relief. In cancer cases the improvement is of short duration.

The prognosis is unfavorable, especially when the obstruction is due to organic changes. The cases of hypertrophic gastritis often respond well to treatment and at times are relieved permanently. The ulcer cases may be relieved for months or even years, but ultimately arrive at that condition where an operation is necessary.

The complications of the condition are few, among the most important are hemorrhage, tetanus, and rupture of the stomach.

The treatment consists largely of the proper diet and lavage. The character of the diet depends on the completeness of the obstruction, the cause, and the general health of the patient. The most satisfactory method of feeding is to give four or five small meals, the food to be fluid or semisolid, as milk, gruels which have been strained, prune pulp, eggs boiled two and a half minutes or raw, and other substances of like character. If the pyloric obstruction is partially patent, we may give solid food finely divided. We must also be governed by the state of the gastric juice, with hydrochloric acid present in fairly large quantities the patients digest proteins well. When hydrochloric acid is absent, proteins are best given predigested. Butter is the best form when the natural acid is present. The amount of fluid taken should not exceed 1,500 cubic centimeters. When the vomiting is excessive, the pain marked, or the signs of complete retention are present, or hemorrhage frequent, we should feed by the rectum for a week or two. When the amount of urine falls below 800 cubic centimeters, we should give normal saline solution by rectum. Lavage is of the greatest importance, as a means for keeping the stomach free from decomposing foods and relieving the overexertion of the muscles and also for the relief of pain and distress. The addition of alkalies or antiseptic to the wash water is of practically no value. The time for lavage is governed somewhat by the extent of retention and the symptoms. As a rule the early morning is the time of choice, but on account of pain, nausea, and a decided desire to vomit, it may have to be washed out at any time during the day. In very advanced cases lavage may be demanded twice a day. A proper abdominal bandage should be applied. The medical treatment is largely directed toward stopping fermentation; for this purpose I believe chloral hydrate the most satisfactory. Opium in some form may be required for the pain. Vomiting, if not relieved by lavage, will not be relieved by medicine. The bowels are best moved by oil injections.

The question of when to operate depends largely on the character of the obstruction and its completeness. The social condition of the patient may also have a decided voice as to the time of operation. If he is so situated that he can have the proper diet and rest, operation may be postponed, but if he cannot have the proper medical treatment, operation should be performed early. In the large majority of cases the medical treatment should be directed toward getting the patient in as good a condition as possible for an operation. If in doubt as to whether the case is benign or malignant, advise operation before the patient has arrived at that stage in which neither the patient nor operator have a fair chance.

109 West Eighty-second Street.

CEREBROSPINAL MENINGITIS OF FULMINATING TYPE;

ACCOMPANIED BY ACUTE OTITIS MEDIA SIMULATING MASTOID INVOLVEMENT.

By SAMUEL HORTON BROWN, M.D.,

PHILADELPHIA.

Sporadic cases of the infectious fevers always present unusual symptomatology and consequently are not infrequently confused with other more common affections. Meningeal complications being not uncommon in the course of ear disease, it is usual to attribute the former to the latter, but the case I am about to report illustrates the necessity of constant vigilance in all cases if embarrassing circumstances are to be avoided.

In this case, the patient was a robust working man of about 29 years of age, who had never been sick enough in his life to require the attention of a physician for anything of any duration. He had had headaches from time to time and occasional colds. At the beginning of this last illness he was seized on a Sunday afternoon with a bad headache and pain in the right ear. The latter increased in severity until he felt compelled to call in a physician, and it was my privilege to see the man late that night. The symptoms all pointed to a condition of acute otitis media with slight mastoid involvement and treatment appropriate to that condition was prescribed. He was advised not to return to work on the following day but to consult his family physician, a colleague of mine, or in his absence to avail himself of my services.

During the early morning hours the tympanic membrane ruptured and a few drops of pus were discharged. His intense symptoms were relieved, but he consulted my confrère in the morning and returned to work that afternoon. Early in the evening he again complained of headache, and it progressively increased in severity until my colleague was again called and prescribed something which relieved him temporarily. Very early the next morning I was asked to see the man, as he was said to be in convulsions. Upon examination he was found to have a high fever, there was no discharge from the ear, he was semiconscious, and having convulsions in rapid succession without intermissions of more than a few minutes. The seriousness of the man's condition was very obvious, and the only treatment that suggested itself, in view of the history of ear trouble, was the opening of the mastoid. Accordingly, at my suggestion, he was removed to the German Hospital and operated upon the same day by Dr. Barton Potts. Before beginning the operation it was thought advisable to make a lumbar puncture, which was done and the cerebrospinal fluid was examined subsequently.

This examination showed the presence of the *Diplococcus intracellularis* in great numbers.

Pending the report from the pathologist, the operation proceeded, and the right mastoid was opened. The bone was found extremely dense and there were very few granulations and scarcely any pus. The left mastoid was also opened but nothing of interest found. The patient continued to have convulsions after the operation and eventually lapsed into coma and died within twenty-four hours. The patient's condition was so far advanced by the time the report was returned from the laboratory that resort to Flexner's serum was out of question. The postmortem examination showed cerebrospinal meningitis with purulent exudate at the base of the brain most marked on the left side.

The infection doubtless was secondary and its point of access was through the diseased middle ear. The history of contagion could not be obtained. Why such a severe grade of infection should attack one in so robust health affords considerable speculation. The condition was negative in all respects except those mentioned. The entire illness consumed but seventy-two hours and was attended by most marked suffering. Whether the early use of antitoxin would have been of value is questionable.

1901 Mt. Vernon Street.

A NEW GASTROSCOPE.*

By MAX EINHORN, M.D.,

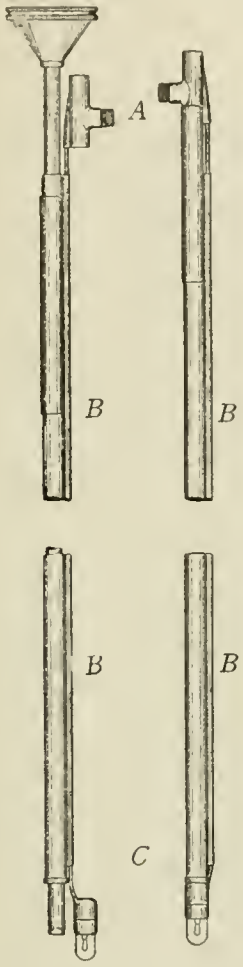
NEW YORK.

The gastroscopes which had been used thus far, have a lamp at the end and an optic arrangement above the lamp on the side of the instruments. It is, therefore, possible to obtain merely a lateral view of the organ, namely, of that piece lying opposite the window. It appeared to me that it would be of advantage to modify the instrument in such a manner that the lamp end piece could be pushed out of the way when inspecting. For then a view straight down would be possible.†

In December, 1901, I had Wappler & Co., of this city, construct a gastroscope on this principle for me. The instrument consists of a hollow metallic tube at the upper part of which there is an adjuster (A), and at the side of which is a groove (B), containing a rod with a lamp on its end (C) (lamp carrier). This rod can be moved up and down, and can also be rotated. At its upper part the rod contains an attachment for current connection.

When inserting the gastroscope the lamp just closes up the opening of the tube and serves as an obturator. The adjusting piece is pushed upward and holds the lamp carrier and the tube together in such a manner that no change in position between the rod and tube is possible. When the lower part of the instrument has reached the stomach, the adjuster is slipped downward. The lamp carrier is pushed somewhat down and rotated to the side. In this manner the lamp is taken away from the lower end of the tube and the latter free for use. A direct view of a very minute piece of the stomach wall is now immediately made possible. The field of vision is considerably enlarged by inserting telescopes into the metal tube—one with a lens at its end permitting inspection of the entire area straight forward, the other with a side window, allowing vision of the side of the stomach opposite the window.

The accompanying figure illustrates the above arrangement. The Electrosurgical Company of Rochester constructed a similar gastroscope for me



about five or six years ago. I have used this gastroscope on patients at my office as well as in the German Hospital, off and on, for several years. At some future date I shall write on this instrument and its application, more fully.

20 East Sixty-third Street.

*Demonstrated at the meeting of the German Medical Society of New York on May 2, 1910.

†Elsner has very recently described a similar instrument in the *Berliner klinische Wochenschrift.*

Vaccination and Smallpox in Germany.—In a pamphlet issued by the Council on Defense of Medical Research of the American Medical Association, Dr. Schamberg of Philadelphia says: "Since the law of 1874 went into effect in Germany there have been no epidemics of smallpox in that country. The disease is frequently introduced by foreigners, particularly on the frontier, but smallpox can find no foothold. In 1899 there occurred in the German Empire, among 54,000,000 people, only 28 deaths from smallpox; these occurred in 21 different districts, the largest number in any one district being three. Not a death from smallpox occurred in a large town. In 1897 there were but five deaths from smallpox in the entire German Empire (54,000,000 population). Furthermore, for a period of thirteen years, in a population comprising two-fifths of the total inhabitants of Germany, there were only five instances of death from smallpox in successfully revaccinated persons. Germany has taught the world how to utilize Jenner's great discovery so as to exterminate epidemics of smallpox. The German Vaccination Committee of 1884, referring to the influence of the compulsory vaccination law, said: 'The remarkable and persistent decline in Prussia since 1875 can be due only to the vaccination law of 1874, because all other conditions remain the same in the two other countries (Austria and Germany). The only difference is that in Prussia the revaccination of all school children at the age of twelve years was made compulsory in 1874.'"

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, June 11, 1910.

THE CUTANEOUS REACTION IN LEPROSY.

STUDIES of immunity have brought forth many facts of great scientific value, but as yet we have not been able to gauge correctly their true importance. For example, in some ways it has been somewhat disconcerting to discover that when an animal has been injected with certain foreign protein substances, under some circumstances, instead of becoming resistant to the protein the animal in its reaction may become more susceptible. This hypersensitiveness in the case of guinea-pigs has been shown to last a year and even longer and may be present as long as the animal lives. Von Pirquet observed in 1907 that if the skin of a tuberculous patient was scarified and moistened with a drop of Koch's old tuberculin, within from twelve to forty-eight hours, an urticaria-like swelling or a papule surrounded by a reddened area appeared. In the case of a positive reaction a slight reddening appears in about twelve hours and the swelling and redness reaches its maximum in from twenty-four to forty-eight hours, lasting four or five days or longer.

Oscar Teague of the Biological Laboratory, Bureau of Science, Manila, published in the *Philippine Journal of Science,* October, 1909, No. 5, Vol. 4, a preliminary report of a similar cutaneous reaction in leprosy. Wooley, in April, 1907, suggested that, since the lepra bacillus had not been grown on culture media, nodules obtained from a leprous patient be extracted in a salt solution and the resulting extract be used as a vaccine in treatment. Teague recognized that it was but a short step to use such an extract in an attempt to obtain a cutaneous reaction in lepers such as von Pirquet had observed in tuberculosis. It was hoped that in this manner an aid to diagnosis of doubtful cases of leprosy might be obtained. As the bacillus of leprosy is more like the tubercle bacillus than other pathogenic organisms, extracts were prepared in a similar way to that employed in the preparation of old tuberculin. Four different extracts were made as follows: (1) from nodules taken from living lepers; (2) from the nodulous skin of a dead leper; (3) from the spleen of a dead leper; (4) a control from the skin of a cholera corpse. The material thus obtained was cut into small pieces, or ground in a mortar in case of the spleen, and extracted in 5 per cent. glycerin. It was then heated on the water bath until the volume was reduced to about one-tenth of the original. Fifty lepers were vaccinated with these extracts, a control vaccination with the extract of skin from the cholera case being made in each instance. In two or three cases there was a doubtful reaction, but otherwise the vaccinations were in all respects like the controls.

These experiments, it is needless to say, were of great interest, and as the consensus of opinion with regard to von Pirquet's cutaneous reaction seems to be that it is a specific reaction for tuberculosis, further experiments as to leprosy on similar lines in Manila will be attentively followed. The hypersensitiveness produced in some circumstances by the injection of certain toxic substances may be employed usefully from a diagnostic standpoint, and thus the hypersensitive reaction as the immunity reaction may be utilized in medicine.

CONSTIPATION IN INFANCY.

THE regulation of the passage of fecal material through the colon of the newborn infant, and its final evacuation, is more purely a reflex than is the case in the adult, in whom a voluntary psychic element is added to the physiological. In most properly fed infants Nature produces rhythmic contractions of the rectal wall resulting at fairly regular intervals in the normal evacuation of the bowel. So long as this rhythm is maintained and recurs at least once and not more than four times a day, the bowels are said to be regular. When, however, any influence interferes with the rhythm of the process, either diarrhea or constipation results. The former is usually due to direct irritation from undigested food or intestinal intoxication. The latter may be due to one of many causes. Aside from the cases of disturbance of the central nervous system and mechanical obstruction to the gut, which as a rule are obvious, many more obscure factors have been mentioned in explanation of chronic constipation of infancy. Much stress has been laid upon the anatomical peculiarities of the child's colon, its proportionally greater length, and increased convolutions.

Another far too common cause of constipation in the infant is the indiscriminate and unintelligent use of castor oil, the action of which, though purgative at first, is to produce after the first cleaning out an obstinate constipation.

In *The Practitioner* for May, 1910, Pritchard of London lays stress upon the unfortunate results following the administration of this drug in infants, especially during the first few days of life, calling attention to the natural rhythmic nervous impulse which produces defecation. He emphasizes the fact that such reactions of the nerve centers depend upon past experiences, and their regularity is due to the establishment of a habit. Meconium, owing to the physical properties, is just sufficiently lubricant and stimulating to call forth the proper number of movements a day, and thus is given the basis for the physiological rhythm of nerve impulses, which, after a few repetitions, becomes a habit, and thus insures to the baby, in the absence of other disturbing factors, regular and normal

stools. If, however, before this habit is firmly established, a purgative dose of castor oil is administered, the whole rhythmic nervous mechanism is upset; not only by the complete emptying of the bowel is the stimulus for future movements removed, but when meconium or fecal matter does again appear its irritating action is so meager, compared to that of the oil, that the nervous center takes little or no cognizance thereof, the feces remain overtime in the rectum, and the nervous rhythm is either completely destroyed or so lengthened that the intestinal contents become dry and hard and constipation inevitably results. After quoting Still's statement, that he knows of no drug which is responsible for more chronic constipation in infancy than castor oil, Pritchard says, "I would go even further and say that I know of no series of doses of purgative medicine which are responsible for so much constipation at any time of life as the single dose of castor oil which cleans out meconium from the bowel of the newborn infant."

This theory of Pritchard's is distinctly ingenious and fits in well with clinical observation. The use of castor oil in the infant, except where a single clearing out is required for an acute intestinal infection, is certainly a most harmful procedure, but one whose drawbacks are not in the least recognized by the lay public, and not sufficiently widely appreciated by the medical profession. It is an easy matter, requiring but little thought, to tell a mother whose baby has not had a movement for two days to give it a good cleaning out with castor oil. It is a very different matter, requiring much mental exertion during the following weeks or months, to again establish the regular rhythmic cycle of intestinal evacuation which is necessary for a proper functional activity of the digestive system.

THE STRESS AND STRAIN OF LITERARY LIFE.

Brain exertion, or rather undue mental effort, induces fatigue, possibly to a greater extent than does excess of physical exertion. Like the muscles, the brain is liable to fatigue, and mental strain will affect injuriously the digestion and will bring about changes in the blood and consequently will injure the circulatory system. In *Cassel's Magazine* for May, Sir Malcolm Morris discourses instructively in regard to the bad influence the mental stress and strain of literary life may exert on the body. A man who engages in literary or journalistic work at high pressure draws largely upon the fount of vitality, and in most cases will suffer for his recklessness in the long run. Brain work carried to the point of fatigue for a continued period will, in most instances, cause actual waste of tissue, and will produce various phases of dyspepsia, not infrequently culminating in chronic intestinal autointoxication, bringing in its train neurasthenia in its many manifestations. One of the main causes of mental strain brought to the breaking point is night work with lack of sleep. Want of healthy exercise and unsuitable diet are other important contributory causes. Eyestrain also is a factor of considerable importance when considering the ill health of many literary men. The fact also must be taken into account that at the commencement of their careers, and sometimes throughout their careers, literary men are forced to contend with poverty with its accompaniments of anxiety and worry, and are unable either to work or to live in the manner best fitted to conserve their health.

To take a few examples of well-known literary men, Carlyle's name is one of the first to suggest itself. He was notoriously of the bilious type; his bilious temperament tinged all his writings and saturated some of his work. Moreover, he is said to have been an injudicious eater, and perhaps smoked more than was good for him. However, his constitution was sound, for he lived to a green old age. Darwin, again attained old age, although he was a martyr to headaches which, according to George M. Gould, were wholly due to eyestrain. Spencer was another indefatigable worker, who suffered much from dyspepsia, but who reached an age beyond the ordinary span of life. Tolstoi is a conspicuous example of the literary man who, while taking full toll of his brain powers, has lived on the whole a healthy life. Mark Twain, throughout his life of seventy-five years, enjoyed fair health; he worked hard, and played hard, his sole excess being in the consumption of cigars. Anthony Trollope was most probably the best example of a well-known writer who lived by routine, that is to say, so far as his literary output was concerned. He wrote so many words a day, no more no less, and spent the remainder of his time in exercise and amusement.

There have been literary men of genius who have absolutely killed themselves by burning the candle at both ends. Balzac was undoubtedly one of these. He would work unceasingly for days and nights at a stretch, consuming large quantities of black, strong coffee, and he would amuse himself in the same strenuous manner. Poe is another man who committed suicide in a somewhat similar way, although there was maybe a strain of degeneracy in his mental and physical make-up.

The list of celebrated literary men who have shortened their days by mental stress and strain is long, and the list of unsuccessful and mediocre literary men who have done the same thing is far longer. As a rule, those who have made a name are not compelled to use their brains to excess and need not deny themselves rest and amusement, but those who have failed must do both.

The Use and Abuse of Gastroenterostomy.

During the thirty years since the operation of gastroenterostomy was first performed the use of this lifesaving procedure has increased tremendously, and the technique has undergone radical changes until now in many clinics at whose heads are men with especial reputations as gastric surgeons, it is at least a weekly, and at times a daily, happening to have one or more patients put upon the table for this operation, and in such clinics the mortality in benign cases has dropped to the inconsiderable figure of one or two per cent. First used only in cases of organic obstruction of the pylorus, the indications have increased until by many men

the operation is performed as a routine in cases of ulcus ventriculi, gastric dilatation, gastroptosis, tetany, infantile pylorospasm, and as a palliative measure in many cases of carcinoma. During the past decade, especially during the first few years of the new century, the operation became almost a fad, and in some quarters the opinion seemed to prevail that this radical operation was a panacea for each and every form of indigestion. That experience, however, has not warranted this extreme idea is emphasized in an article in the *American Journal of the Medical Sciences* for May, 1910, in which Deaver, while insisting that gastroenterostomy is, when properly indicated, one of the most valuable of surgical procedures, warns against its indiscriminate use, especially in cases of the various forms of gastric neurosis. There is no class of patient that is more anxious to have an operation performed upon himself than the neurotic, especially when the neurasthenia has taken upon itself the symptoms of indigestion, and abdominal pain or discomfort, and there are many sad instances of men and women, often themselves members of the medical profession, who are traveling from one gastric surgeon to another, pleading with each to open the abdomen and so change the course of the alimentary tract that their sufferings may be relieved. In such cases a laporotomy will at times discover some organic lesion which is amenable to surgical treatment, but much more frequently such interference only aggravates the existing symptoms. In such cases, showing the classical symptoms of neurasthenia, it is far safer to refuse operation entirely, or at least after an exploratory laparotomy to back out, after as little interference as is necessary to confirm the diagnosis. In such a case the continuation of the operation is nothing better than meddlesome surgery, and its results, as Deaver says, are nothing short of a catastrophy. The warning is thoroughly timely and coming from a man with an established reputation as an abdominal surgeon, it carries no small weight. While the knife is of inestimable value in the cure of a gastric disorder located in the hypogastrium, it is rarely of use, and is often an abuse, in the treatment of one whose origin is in the cerebrum.

Intestinal Fermentation and Cancer.

Since Fischer in 1906 reported the powerful action of scarlet-red in stimulating the growth of epithelium, this chemical compound and others, closely related thereto, have been the subject of considerable study, both from the clinical and the experimental aspect. Not only have local superficial applications of the substances been found to stimulate the healing of indolent ulcers by rapidly covering the granulations with epithelium, but from the experimental side, also, injections into animals have caused epithelial proliferation in the course of a few days, the resulting epithelial new growth being of a type which, microscopically, is indistinguishable from carcinoma. Recently, furthermore, Stober reported similar results from the injection of scarlet-red and of its component, amidoazotolus, into a man, the inoculation having been made a few days before amputation of the part so treated. In the *Münchener medizinische Wochenschrift* for May 3, 1910, the same author and L. Wacker add one more link to the chain of evidence of the chemical stimulation of epithelial proliferation. These authors deemed it advisable to repeat these experiments, but instead of using purely synthetic compounds, to use more or less closely related substances formed in the animal body under normal and pathological conditions. They naturally turned their attention to such chemical compounds as are known to be in excess in cases of carcinoma in man. The association of intestinal fermentation with its resulting increase of indol and skatol in the feces and urine has long been observed, and has formed the basis of several theories as to the etiology of cancer. The present writers, therefore, inoculated indol, skatol, and the simpler compound, pyridin, into the ears of rabbits. Within fifteen days definite epithelial new growths were found at the site of injection. Those produced by pyridin were the least typical, those from indol and skatol were more so, while those which resulted from an injection of indol followed by skatol were the most striking of all. The micropathology of these new formations was indistinguishable from that of squamous cell carcimona; all the signs of rapid growth, formation of cell nests, and invasion of the surrounding tissue were in evidence. These findings are distinctly of interest, and will probably be used as evidence by those who believe in the intestinal origin of cancer.

News of the Week.

Optometry Course at Columbia University.—The astounding announcement is made by Columbia University of the establishment of a course in optometry, to begin September 28, 1910. The new course is made a part of the department of physics and is, it is needless to say, independent of the medical school. The course is to be for two years, and graduates will receive certificates from the university's board of extension teaching. The lecturers who are to teach the various phases of optics and optometry have been selected from the members of the faculty in the department of physics, with the addition of several special lecturers who are practical optometrists. This news would be funny, were it not so serious. It is bad enough that the State gives these persons the legal right to fit glasses without being able to test the eyes properly and without the necessity of a knowledge of the relation of ocular to general pathology. It is worse to give them the moral support of a quasi degree from a great university.

Yellow Fever in Italy.—A despatch from Lugo, Italy, dated June 1, reported thirty cases of yellow fever and nine deaths within a few days.

No Hookworm Investigation in Texas.—Owing to a failure of agreement between the Rockefeller Commission and the State Board of Health of Texas, it is stated that the former will carry on no work in the State of Texas.

The State Civil Service Commission will hold examinations on June 25, 1910, for the following positions: Second Assistant Physician, State Hospital Service, $1,500 to $2,000 and maintenance. Trained Nurse, State Institutions, open to men and women, $420 to $600 and maintenance. Applications should be filed on or before June 18, 1910. For detailed circular and application blank, address State Civil Service Commission, Albany, N. Y.

Vital Statistics for New York State.—The State Department of Health's bulletin for April gives a birth record of 16,557 and a death record of 12,835.

The morbidity record for contagious diseases was headed by measles with 9,931 cases. Other infectious diseases were scarlet fever, 4,412; tuberculosis, 3,969, and typhoid fever, 332.

Columbia University Commencement.—At the commencement exercises of Columbia University held June 1, 1910, the degree of Doctor of Medicine was conferred upon seventy students of the College of Physicians and Surgeons. The honorary degree of Doctor of Science was conferred upon Dr. William James Mayo of Rochester, Minn.

The New York Homeopathic Medical College and Hospital held its fiftieth anniversary in New York recently. The semicentennial was made the occasion for a reunion of the alumni, and in the neighborhood of 700 attended.

The Western Reserve University.—The medical department of the Western Reserve University has recently absorbed the Cleveland College of Physicians and Surgeons. Announcement has been made of the donation by Mr. H. M. Hanna of the sum of $250,000 to the endowment fund of the medical school.

Charitable Gift.—Nathan Snellenburg of Philadelphia has made a gift of $5,000 to the Jefferson Hospital for the endowment of a free bed in memory of his son, Milton L. Snellenburg, who died in that institution several months ago.

"The Tuberculosis Preventorium for Children" has applied for incorporation in Manhattan. The purpose of the organization includes the management of the present institution at Farmingdale, N. J., and the founding of other similar farms, as the need for them becomes evident.

Memorial to King Edward in Pittsburg.—At a meeting held in Pittsburg on June 5, and attended largely by Englishmen living in that city, the sum of $25,000 was subscribed towards erecting a memorial to the late King Edward VII. The committee in charge recommended that the money be used for a King Edward Memorial Building, to be a part of the proposed tuberculosis hospital in Pittsburg.

The Hungarian Hospital Association has applied to the New York State Board of Charities for approval of its certificate of incorporation. The purpose of the association is the maintaining of a hospital at which Hungarian patients can be treated by those who know their language.

The Hempstead Hospital, which has been built by Mrs. O. H. P. Belmont, will have a house staff composed entirely of women physicians. The hospital will be general in character.

The Sea Breeze Fresh Air Home at Coney Island opened for the season June 1, 1910.

The New York Academy of Medicine is desirous of adding to its library the reports of the committees that have been appointed from time to time to investigate questions of public health. Harbor pollution, the alcohol question, the prevention of tuberculosis, the prevention of occupational diseases, the sanitation of tenements, the sanitation of workshops, the effect of prolonged hours of labor, the social evil, and congestion of population are some of the topics about which information is desired. The Academy is not starting any investigation of its own; it is only trying to get the reports of past and present investigations undertaken by others. The Academy of Medicine will be very glad to receive copies of reports of this nature, and also any information concerning the appointment, the organization, and the work of committees or commissions engaged in this research.

Dinner to Dr. Ladinski.—A dinner was given June 1, 1910, in honor of Dr. L. J. Ladinski, president of the Medical Board of the Beth Israel Hospital in New York. A loving cup was presented to the guest. Announcement was made that Mr. Max Ruben had donated $5,000 toward the building fund of the hospital.

Sir Felix Semon, Physician Extraordinary to the late King Edward VII, is on a visit in America. He landed at San Francisco from Japan, May 28.

Dr. Charles A. Hodgetts of Toronto, Canada, has been appointed medical advisor to the Public Health Committee of the Dominion Commission or Conservation.

Dr. Edward Payson Fowler of New York City has given his valuable medical library, consisting of more than a thousand volumes, to the New York Academy of Medicine.

The Canadian Society of Superintendents of Training Schools meeting at Toronto, May 25, elected the following officers: *President,* Miss Mackenzie of Ottawa; *Vice-Presidents,* Miss Brent of Toronto, and Miss Stanley of London; *Secretary,* Miss Scott of Toronto; *Treasurer,* Miss Robinson of Galt; *Auditors,* Miss Matheson of Toronto, and Miss Young of Montreal. Next year's meeting will be held in Niagara Falls, simultaneously with that of the Canadian Hospital Association.

Sir Francis Seymour Haden, the founder and president of the Royal Society of Painter Etchers, who died in London, England, June 1, 1910, was for many years a practising physician. He was born in 1818, graduated from the University of London and the Sorbonne in Paris, and received the M. R. C. S. in 1857.

Obituary Notes.—Dr. Samuel L. Dutton of Chelmsford, Mass., died May 27, 1910, aged 75 years. He was a graduate of the Harvard Medical School in 1860, and was a member of the Middlesex District Medical Society, the Massachusetts Medical Society, the American Medical Association, and the Loyal Legion.

Dr. Francis X. Weil died at York, Pa., on May 20, at the age of 69 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1869 and was a member of York County Medical Society and the Medical Society of the State of Pennsylvania.

Dr. Calvin Anderson of Madison, N. J., died suddenly of heart disease, May 26, 1910, aged 69 years. He was a graduate of the College of Physicians and Surgeons of New York in 1865, a member of the Morris County Medical Society and the Medical Society of New Jersey, and attending physician to the All Soul's Hospital in Morristown. At the time of his death Dr. Calvin was serving his second term as Mayor of Madison.

Dr. Richard J. Egan of New York died at his home, May 24, 1910, aged 46 years. He was a graduate of the New York University Medical College in 1886.

Dr. John Dolway Wilson of London, Ontario, died at his home, May 16, 1910, aged 52 years. He was a graduate of Trinity Medical College in Toronto in 1882. Dr. Wilson was an ex-mayor of the City of London.

Dr. William A. Mogk, formerly of Ann Arbor, Mich., was found dead in the Sand Canyon near

Bakersfield, Cal., May 18, 1910. He was a graduate of the University of Michigan in 1898.

Dr. Thomas Frank Flowers of Atlanta, Ga., died May 22, 1910. He was a graduate of the Atlanta College of Physicians and Surgeons.

Dr. William Krause died at Philadelphia on May 30 as a result of poisoning by illuminating gas. He was 64 years old and was graduated from Jefferson Medical College in the class of 1884.

Obituary.

HENRY GRANGER PIFFARD, M.D., LL.D., New York.

Dr. Piffard's death, which occurred from pneumonia on Wednesday of this week, removes one of the best known of the older generation of New York physicians. He was born in Piffard, Livingston County, N. Y., on September 10, 1842. He was educated in one of the military schools in Sing Sing, and from there went to the University of the City of New York, whence he was graduated in 1862. He received the degree of M.D. from the College of Physicians and Surgeons in 1864, and then served for eighteen months as interne in Bellevue Hospital. He was professor of dermatology in the Medical Department of the New York University for thirty-five years, having been appointed to the chair in 1875. He served about fifteen years as surgeon to the City Hospital, then known as Charity Hospital, and on retiring was made consulting surgeon to that institution. He wrote a number of works on subjects connected with dermatology, and was a frequent contributor to periodical medical literature. He was particularly interested in recent years in radiology and the newer applications of electricity in therapeutics. Dr. Piffard was a man of engaging personality, quaint humor, and rugged honesty, who had a host of friends in spite of his fearless and sometimes blunt speech. He was polemical by nature and was always ready for a discussion, the warmer the better, but retired from it, whether victor or vanquished, on the best of terms with friend and foe. The medical profession of New York has lost a member whom it will sorely miss.

ELIZABETH BLACKWELL, M.D.

Dr. Elizabeth Blackwell died at her home in Hastings, England, June 1, 1910, aged 89 years. Born in England, Dr. Blackwell came to America with her father at the age of 11 years in 1832. In 1845, determining to study medicine, she applied to many of the American medical schools for admission, but was refused, until finally the Geneva Medical College admitted her. In 1849 she was graduated at the head of her class, being the first woman to receive a medical degree in America. Later she studied in Paris and London. In 1851 Dr. Blackwell began practice in New York in the face of strong opposition. In 1854 she founded the New York Infirmary for Women and Children, and in 1868 the Woman's Medical College of the New York Infirmary for Women and Children. During the Civil War Dr. Blackwell was influential in organizing the National Sanitary Aid Association. In 1869 she returned to England, practising in London and Hastings. There she founded the National Health Society of London, and assisted in organizing the London School of Medicine for Women.

Correspondence.

FORTY-THIRD ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION.

(From Our Regular Correspondent.)

Toronto, June 3, 1910.

Although several sections were held on the morning of June 1, the day on which the annual meeting of the Canadian Medical Association was opened, and to which reference will be made later, the meeting was formally opened at the general sessions in the convocation hall of Toronto University on the afternoon of June 1. It may be said that the faculty of the university gave the use of its handsome, convenient, and commodious buildings to the association, which, needless to say, afforded every advantage for such a gathering. The addresses of welcome were given by Hon. Dr. Pyne, Minister of Education for Ontario, representing the provincial government; Acting Mayor Ward, representing the city of Toronto, and by R. A. Falconer, president of Toronto University, representing the university. The chair was taken by the retiring president of the association, R. J. Blanchard of Winnipeg, Man. Dr. Adam H. Wright of Toronto, the new president, was inducted and made his opening speech. This speech was humorous and apropos and dealt with the general practitioner. Dr. Wright gave it as his opinion that the family physician was by no means dying out, but was very much alive and kicking. The speaker delivered himself of some very decided views in regard to present-day methods of manufacturing the general practitioner, and said that the modern medical student was too much crammed. He said that while our college professors were studying methods in medical education many of our general practitioners were watching the situation with a very deep and intelligent interest, and a large number of them perhaps thought that it was unwise to endeavor to stuff a quart of material into a pint pot. Many of them also believed that our teachers should teach less in order that our learners might learn more. A certain proportion favored Fletcherization because of their belief that the intellectual pabulum given to our students should be properly digested and thoroughly assimilated. Dr. Wright held that the physician of the present day was too greatly machine made and he poked fun at the methods of up-to-date surgeons who are wont to array themselves in a night cap, a mask, a night gown, mittens, and top boots when about to operate in a well-equipped hospital of the day. He ended by saying that men of the Lister type were needed to teach our students and practitioners. Some of our shining lights nowadays, in hospitals and in medical societies, appeared to aim at giving exhibitions of their own skill instead of imparting some practical knowledge to the every-day doctor, knowledge that would help him while working in the country or in the backwoods, where theatrical costumes can scarcely come into general use. After some general business had been dispatched, the report of the Toronto Milk Commission, or rather of the Milk Commission appointed in June, 1908, by the Canadian Medical Association, was presented by its chairman, Dr. Charles J. C. O. Hasting of Toronto. The report is in book form and is a somewhat voluminous review of the work done by the commission during the past year. According to the chairman, the objects of the campaign for purer milk have been sought through an investigation of the part played by milk in the causation of infant mortality, in the spread of communicable diseases, and as a cause of tuberculosis. Stress was laid on the vital importance of a pure milk supply, especially for babies, and statistics were quoted to show the high rate of infant mortality among infants fed on raw dairy milk. This is the second commission that has reported in Canada recently on the milk question. The former commission was appointed by the Government of Ontario, and its findings showed that the milk supply of Ontario generally was unsatisfactory and that that of Toronto was distinctly bad. The report presented to the association seems to demonstrate that the milk supply of Toronto is at any rate rapidly improving, and it is predicted that before midsummer at least one-half of the milk consumed in Toronto will be a clean and safe food for human use. However, the report fully bears out the statement made in the former report that the milk supply generally in Canada is capable of vast improvement, and concludes with these words: "In view of the facts here presented, is

it too much to hope that our federal, local, and municipal legislatures will realize that human life is at least worthy of as much consideration as is farm stock and agriculture?" A marked feature of the report was the belief expressed in the efficacy of pasteurization as a means of safeguarding milk from contamination. Reference is made to the installation of a pasteurizing plant in the Children's Hospital, Toronto, the gift of Mr. J. Ross Robertson. Number of gallons pasteurized per day is fifty gallons. The average bacterial count of milk supplied to the hospital in the week just before the installation of the pasteurizing plant was 11,400 per c.c., while the count for six days after pasteurization was 36, 64, 18, 8, 50, and 64, respectively. A remarkable showing and presumably strong evidence in support of pasteurization.

The next speaker was Dr. Charles E. North of New York City, who devoted the time at his disposal chiefly to explaining the objects of the New York Milk Committee. He said that the Canadian Medical Association had a far wider scope than that of any American milk commission of which he was cognizant, and then he went on to say that New York City had the worst milk supply of any city of this continent. He accounted for this unfortunate state of affairs mainly for the reason that inspection was obviously insufficient. There were 40,000 dairy farms to be inspected, and the inspectors were, of course, too few in number to be of much practical use. Again, New York is supplied with milk from great distances, another reason for rendering inspection at the source of supply more or less futile. Dr. North, at some length, elucidated the objects of the New York Milk Committee. He confessed that he had little hope that certified milk would prove itself of any great value in New York City or in other very large cities. For one thing, the price of such milk was prohibitive to many people. He also confessed himself skeptical as to the elimination of tuberculosis among cows—at least, if it were possible, it would be a very long time in coming. He, too, pins his faith to pasteurization of milk in default of being able to insure the supply pure at the source. He pointed out that in New York, among the profession generally, there was scant trust in the merits of pasteurization, but this did not alter his opinion on the matter. Naturally it was needful to procure a clean milk before pasteurizing, but, given this, a properly pasteurized milk was a healthy food for infants. He did not think its nutritive properties were injured by the process. He had made experiments by injecting raw and pasteurized New York milk into three hundred guinea-pigs; half of those injected with raw milk had died, one injected with pasteurized milk commercially treated had died, and none injected with certified milk had died. The last two speeches made in this discussion were, from many points of view, the most interesting and the most instructive, and neither of these was by a medical man.

Professor A. McGill, Dominion Analyst, insisted upon the necessity of specific definitions of pasteurized milk being given. The scientific and the legal ones must be made alike. However, it was of little use to define pasteurized milk according to the processes it underwent legally, if there were no recognized scientific methods of discovering by tests whether these processes had been used. They could discover the bacterial contents in those milks and go on that basis if that were made the legal definition. Inspection of every plant would be very difficult and expensive in order to discover whether the processes had been followed. J. G. Rutherford, Veterinary Director-General of Canada, in the course of his remarks, said that any abnormality in the cow relating to its health or its diet was liable to give rise to changes in the qualities and properties of milk, and so affect those who drank it. He gave a list of several articles of diet which, if partaken of by the cow, would injuriously affect the health, and especially of children, of those who drank the milk. He also mentioned various complaints to which cows are addicted which should preclude the use of the milk from cows in such condition as a food. Mr. Rutherford holds very strong views as to the spread of disease by milk, and is a firm upholder of the theory that milk transmits tuberculosis to human beings and thinks that tuberculosis should be attacked in the cow, as the stamping out of the disease among cattle would remove one of the great sources among human beings. Dr. J. C. Fagin of British Columbia told of the good results which were flowing from their system of dairy inspection and by the agency of the tuberculin test the percentage of the effective stock was on the increase. The main feature of the symposium seemed to be the belief that it is idle as yet to hope for good results from inspection—at any rate, such results that will insure to large towns a pure milk supply. In the case of very large cities like New York inspection can effect but little. As milk cannot be obtained there on a large scale from sources free from contamination, pasteurization must be used. The sense of the meeting in Toronto appeared to be that pasteurization does little or no harm to the nutritive qualities of the milk.

In the evening of June 1 another general session was held in convocation hall, when the address in medicine was delivered by Dr. W. P. Herringham, physician to St. Bartholomew's Hospital, London. The address was a singularly clear exposition of the onset, course, and treatment of chronic diffuse parenchymatous nephritis. Dr. Herringham is a really good speaker, with the gift of lucidity, and, though he had chosen, as he said, a humdrum subject, he rendered it peculiarly illuminating to his audience. He said that in England acute nephritis was of rare occurrence. He had met with one case of primary nephritis due to exposure in a boy of fourteen. The disease usually commenced in an insidious manner and he gave examples drawn from his own experience of certain phases of the malady. The first case described was that of a well-grown, well-nourished girl of twenty-three years, who outwardly had little appearance of disease save a slight puffiness under the eyes. Her retinæ were natural and heart normal, but urine was passed in enormous quantities. Albumin in small quantities was found in the urine. Iron was ordered and change to a dry climate. At the present time she did not appear to be materially worse, although she had had albuminuria for seven years, and undoubtedly the kidneys were structurally diseased. Some beautiful plates were displayed on the screen showing lesions in glomeruli. However, as the speaker pointed out, such lesions were not the only lesions, nor was the presence of albumin in the urine the only symptom. Lesions occurred of the tubular epithelium. But the greatest damage effected by an attack of nephritis was the delicacy of constitution left and the liability to recurrence. It was impossible to wholly repair the damage, but relief could be administered. There was, the speaker pointed out, a very considerable amount of ignorance as to the exciting cause of nephritis. It was frequently a sequel to scarlet fever, influenza, and pneumonia. It was caused by septicemia arising from bacilli or toxin acting perhaps upon a lowered general system. It was due to zymotic disease or chill, although such a claim appears to somewhat beg the question, and no one who had had much experience of nephritis could support that position. To look for the cause in toxemia by false metabolism or in intestinal autointoxication might comfort both patient and doctor, but did not give a satisfactory explanation of its relapse and spread. A patient suffering from chronic Bright's disease resembled in many respects a town of which the drainage system was out of order. The fact that diet was an important feature in the treatment of the disease was emphasized, and as an example of the good influence upon health of a spare diet the case of Luigi di Conari was referred to, who fared well and lived to a green old age on twelve to fourteen ounces of food a day. The nitrogenous constituents of food threw more work upon the kidneys than did the carbohydrates and hydrocarbons, and therefore in the diet of a patient with Bright's disease the former constituents should be limited. On the other hand Dr. Herringham did not advocate the restriction of the diet to fish or special foods. Light, ordinary diet did not increase the quantity of albumin and he had found that patients did better on flesh food than on milk food. The diet then might be composed of fish, poultry, or flesh of any kind, as he did not recognize any distinction between the different forms of flesh except in fiber, which, in itself, of course, had some influence on the digestion. After all, appetite was the best digestive. While strict moderation should be observed with regard to quantity of food taken, there was no need for like precautions as to variety. Alcohol was not indicated in these cases, but even here justice might be tempered with mercy and those who had been accustomed to the use of alcohol might be allowed a small quantity of beer with their meals. Tea, coffee, and cocoa were irritants to the kidneys, as were also condiments, and even common salt was not well tolerated in some cases. Exercise and fresh air were beneficial, but the effects of exposure should be guarded against,

and warm clothing should be worn, and especially around the loins. If due precautions were taken, patients with chronic nephritis might live for years. In cases of chronic nephritis in which urine was scanty, in order to avoid uremia excretion of urine must be encouraged. For this purpose milk is sometimes efficient, but oftentimes diuretic drugs must be employed. Saline diuretics, citrates, carbonates, etc., act by stimulation. Cardiac drugs, digitalis, squills, act by directly stimulating the voluntary muscles of the heart and arteries, and the alkaloids, which stimulate the cardiac tissues and renal cells. Of these Dr. Herringham was of the opinion that caffeine and theobromine were the best. Such alkaloids as tea, coffee, or cocoa acted favorably on occasions. But the beverage to which the patient was unaccustomed should always be employed. For instance, if tea were the customary beverage, coffee should be used, and so on. For cardiac weakness cardiac tonics should be administered, and if saline diuretics did not effect their object alkaloids should be given a trial. The blood symptoms were often very difficult of control. When the bleeding was copious patients might be laid prone on their faces, but the remedy was generally ineffective because it was almost impossible to retain them in this position for a sufficient length of time. When hematuria was persistent resort should be had to iron, gallic acid, hamamelis, ergot, and sometimes to oil of turpentine, but there were cases in which the hematuria could not be stopped. Attention was drawn to the manner in which renal disease differed in its course. Although of the same origin, from a certain point the disease branched off into two forms, presenting clinical features almost as distant as the two poles, and seemingly quite distinct forms of disease. Those with the typical large white kidney died from asthenia as a rule, while those with small, contracted kidney, generally young, died very frequently from acute uremia. The main object in bad cases was to attempt to increase the flow of urine. In this connection Dr. Herringham deprecated the alarm which is often felt at the high blood pressure which is an accompaniment of Bright's disease. He regarded this in the light of compensatory action and did not look upon it as a serious symptom in the case of the young, whose arteries were elastic and could bear a remarkable amount of pressure. In the elderly, in those over fifty or more, it was undoubtedly a cause for much alarm, as in these cases the arteries were brittle and frail. For the relief of edema the safest way, if possible, was to drain the skin by means of canulas. Sometimes venesection might be advisable. It was reasonable to suppose that when the poison in the blood overstepped the bounds of tolerance that bleeding might reduce the poison to just below the lethal dose and prolong life for a time. The life of a person suffering from severe Bright's disease was always hanging by a thread, and the wonderful thing was that such an individual lived as long as he often did live. Dr. Herringham thought that the presence of the poison in the system for a considerable period might establish a certain degree of immunity of its own and thus enable the patient to continue to exist in a highly diseased condition.

Among general business of interest transacted after the reading of the above paper was a recommendation by the executive council of the association that an association journal should be brought out forthwith, with Dr. Andrew McPhail of Montreal as editor, and the further recommendation was made that this journal should absorb the *Montreal Medical Journal*. The report was adopted after some discussion. Dr. T. G. Roddick then produced an amended bill on Dominion registration. The clauses in which it differed from the one formerly presented by Dr. Roddick were read and accepted, with slight emendations. The principal change was that the Canadian Medical Association council should not determine the qualifications necessary for matriculation in the study of medicine and for obtaining the provincial license, this, as heretofore, being regulated by the provincial authorities.

Polyneuritis.—Portilla defines the disease as the simultaneous alteration of many nerves owing to an infectious, toxic, or diathetic origin. He differentiates it from tabes and from anterior poliomyelitis, and describes the course of the disease which is favorable in peripheral cases. Prognosis is unfavorable if there are contractures and in alcoholic cases; reincidence is common.—*Crónica Médico-Quirurgica de la Habana.*

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE LATE KING—GLAUCOMA—WORD BLINDNESS—TREATMENT OF LUNACY—SOLID CARBON DIOXIDE—PELLAGRA—OBITUARY.

London, May 20, 1910.

One subject has dominated the thoughts and the conversation of the public throughout the week. The late King, his death, his funeral, his activities, his character, his objects, his hopes, seem to have absorbed attention wherever men met. Even the profession has been as much occupied with these things as every other group of citizens and as zealous to display its loyalty. Some have naturally talked over the nature of his illness. Not a few have asked one another in the presence of the official report whether a hint should not have been conveyed that his constitution might fail sooner than was expected. But the difficulty of so doing has been generally recognized and the course taken by the physicians approved. We have dwelt on his interest in the progress of medical science and practice as evinced by his patronage and support of cancer research, of the sanatorium treatment of tuberculosis, and of his long work on behalf of hospitals. One of the London hospital funds, you will remember, is called after him as its founder. These are examples, but it may be said, as it has been often enough, they are not to be regarded, showing merely his interest in medical matters—an interest shown in many other ways—but as affecting all his subjects, and, indeed, all humanity, and especially the poor and suffering. In fact, among the many characteristics ascribed to him one of the most striking is that he was in everything human—a man—and therefore interested in all pertaining to man. So as occasion offered he was at home with the scientist, the theorist, the artist, the sportsman, and every other group of citizens, as he was, of course, with the medical profession, to which he always acknowledged his indebtedness, and which he delighted to honor. Of the national honor accorded him and the national sense of loss and regret for him you have every information on your side, even as we have on this.

The Ophthalmological Society had an interesting meeting on the 5th inst. Mr. H. Herbert of Nottingham described his small flap incision for glaucoma, which has been described as a form of "subconjunctival paracentesis." With a narrow Graefe knife a small rectangular sclerocorneal flap is cut subconjunctivally, its base at the limbus. This flap can be forced forward a little under the conjunctiva by the intraocular pressure. Probably it tends to shrink slightly in volume from temporary deprivation of its direct blood supply. He gave the results of eight cases operated on two years ago. One failed, two so far are unknown. In the others the tension has been reduced to normal by linear filtering cicatrices. For some months he has made a rather broader flap. Combined iridectomy, peripheral or complete, according to the state of the iris, seemed advisable if the pupil did not contract well under eserine. The object of the operation is to secure the linear filtering cicatrix, which is sometimes a chance result of ordinary iridectomy and to which Mr. Herbert thinks the success of iridectomy is due.

Mr. Priestley Smith had been struck by the success and by the slight disfigurement caused. Mr. Allport reported eleven cases of success under Mr. Smith's control. Mr. F. R. Cross agreed that the fistulous opening favored a more permanent result. Mr. Laws had performed the operation fourteen times without a failure. Mr. Allport had done twenty cases with satisfactory results.

Mr. H. Fisher then read a paper on congenital word blindness, or inability to learn to read, of which he had met with four cases (three boys, one girl). He thought as more cases were reported there might be a group in which heredity might be traced from failure of development of the visual memory centre for words which he supposed resided in the left angular gyrus. A second group he ascribed to limited hemorrhage over the same gyrus. This might occur as a birth injury, and if so the larger head of the male child would account for the greater frequency of word blindness in boys. For children with this defect he urged that private, special tuition was desirable. He considered that an endeavor should be made to train a vicarious visual memory center in the right hemisphere. This seemed to him more likely to succeed than the ordinary method of learning to read. He approved the "look and say" method. The child must take the word as its unit of study—not

the separate letters. The method had been perfected in the "delightful reading box system" of Miss Mason, which he had used with great satisfaction in one of the cases he had related.

Mr. Batten could not agree that a word blindness was due to defect in the angular or marginal gyrus. Bastian attributed it to a commisural defect. These cases as a rule could read figures well. He knew a butcher's boy who could take orders on his round and deliver them correctly. He was impressed with the plan of teaching Mr. Fisher had described.

Mr. Treacher Collins said such cases were frequent, but too often overlooked or attributed to stupidity on the part of the child. Some were atrocious spellers. He suggested that they had visual memory for words, but did not recognize them when a letter was misplaced.

Mr. Doyne objected to the term "word blindness." There was defect, but it was not pathological. It was more common in boys than in girls. Those affected would read their lessons aloud in order to learn them.

At the Medico-Psychological Society Mr. Street opened a discussion on the question as to whether we are doing as much in the way of treatment of mental disorder as might be done. Though much had been written about treatment there were not many encouraging results to report, and the recovery rate had not improved during the last thirty years. He thought a higher form of moral treatment than occupation and recreation might be of use. He believed in discussing with a patient his mental symptoms, whether they were delusions or suicidal inclinations. He had found the plan beneficial, especially in melancholic and alcoholic cases.

Mr. E. P. S. Gane read a paper on the serum treatment of general paralysis proposed by Dr. Ford Robertson which he had tried in six cases, using diphtheria antitoxin which had the advantage of being standardized. Further, Dr. Anderson's researches suggested that the cause of the disease was an organism allied to the bacillus of diphtheria. In four of the cases he had no change to report. So in the fifth, but that was so advanced that nothing could have been expected. There was, therefore, only one which he could think somewhat improved during the treatment. The grandiose ideas and delusions left the patient and his mental power seemed somewhat improved.

Solid carbon dioxide is coming into use. It is not exactly a caustic, inasmuch as it does not act chemically, but kills the tissue by freezing. Yet the action of the brief application made is not such as we see in an ordinary frost bite. It seems more to resemble radium, over which it has the advantage of not being costly. It is practically as easy to use as a chemical caustic. The momentary application is painless and the reaction almost so. Anesthesia is, therefore, unnecessary. Those who have employed it are usually well satisfied. Some who have not seen it used are a little distrustful, as they think of frost bite, but all who have tried it assure us that such reaction never occurs, perhaps because the intense cold is only applied for a few seconds. After treatment resolves itself into protection from sepsis.

The "Prana" apparatus for producing "carbon dioxide snow," made by "Aerators Limited," has been fitted at several hospitals. A portable model is now supplied by the same makers, enabling the practitioner to produce the snow quickly and economically. The snow can be cut by a knife, manipulated by a spatula, and formed into pencils by forcing it into tubes or moulds. This requires a little care at first and may be a disadvantage to the very busy. But I hear that "Aerators Limited" are about to put at the disposal of operators small tubes enclosing a pencil ready for use.

Dr. Sambon, chief of the Pellagra Commission, reports that the *Simulium reptons* is the carrier of the contagium. Captain Siler, U. S. Army, who went out with the commission, has returned and he has expressed to the committee on pellagra the importance of continuing the campaign under Dr. Sambon.

The death is announced of Mr. Astley Cooper, Deputy Inspector-General of Fleets and Hospitals, who entered the Royal Navy as surgeon in 1857 and retired in 1889. He served in the Chinese expedition of 1857-1859, which included the blockade of the Canton River and capture of the city. He was also in the North China expedition in 1860. As P. M. O. he was at Shanghai during the repulse of two attacks; was landed from the "Perseus" in 1869 and present at the capture of three walled villages near Swatow. In the Egyptian war of 1882 he was fleet surgeon of the flagship ("*Minotaur*"). He was awarded the China medal and Canton clasp, the Egyptian medal, and the Khedive's star.

Mr. Creswell Baber, surgeon to the Royal Ear Hospital, died on the 14th inst., aged 59. He was a St. George's Hospital student and later served the resident appointments and the demonstratorship of anatomy. He took the two college qualifications in 1871-1872 and the M.B. Lond. in 1873. He became surgeon to the Throat and Ear Hospital at Brighton, where he practised for some years, but later he had also consulting rooms in London. He had been president of the Laryngological Society and was honorable secretary to the International Otological Congress. He contributed papers to the *Phil. Trans.*, the *Journ. Anot. and Phys.*, the *Micros. Journ.*, the *Archives of Otol.* etc., generally on subjects connected with his specialty.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

DIAGNOSIS AND TREATMENT OF NASOPHARYNGEAL POLYPI—PROVISIONAL HEMOSTASIS BY MOMBOURG'S METHOD—TREATMENT BY DISINTOXICATION.

PARIS, May 10, 1910.

MICHAUX has studied the history of periosteal and central fibromata of the superior maxillary bone. Rouvillois recalls that the observations published of nasopharyngeal polypi are rare. He reports the case of a patient whose death made a strong impression upon him, for at the autopsy there was found in the sphenoidal sinus a prolongation of the nasopharyngeal polypus, of which there had been no sign at the time of the operation, and whose existence had been unperceived, and had been the cause of death by hemorrhage. These cases of penetration of the sphenoidal sinus by nasopharyngeal polypi are so much more interesting because the invasion of the sinus is only the first stage of intracranial penetration, and it seems that this last is not very exceptional. The insertion of fibrous nasopharyngeal polypi is often ethmosphenoidal. From the point of view of operation the author prefers the method of tearing away rather than curetting, for the last leaves fatally in place the concealed prolongations of the tumor, while the tearing process often extirpates them at the same time with the principal tumor. As a preliminary operation the ligation of the two external carotids is especially to be recommended as a method of hemostasis, immediate and secondary, in case of prolongations unperceived. Kirmisson states that nasopharyngeal polypi have their implantation at the base of the skull, and not on the anterior face of the vertebral column, contrary to that which has been formerly believed. But this insertion at the base of the skull may be much more extensive than has been thought. He condemns the operations by the natural passages, which, according to him, may result in disasters. He believes that hemorrhages are always occasioned by portions of the polypus left behind. Quénu is a partisan of the double ligature of the external carotid as a preliminary to the operation on nasopharyngeal polypi. He is a partisan of the ideas of Kirmisson and counsels us not to operate by the natural passages. Sébileau thinks that nasopharyngeal fibromata have not in general extended insertions, but usually have an implantation that is narrow and circumscribed. He believes that their implantation does not take place at the base of the skull, but more often on the wall of the upper nasal fossæ, on the vomer, and the palatine bone. According to him, these polypi have always an implantation that is single and never a multiple one. Sébileau thinks that the best method of access to the nasopharyngeal polypi is by the natural retropalatine way. When one is obliged to create a way of access for himself, and to give light one should never employ resection of the superior maxillary bone, which is an operation that is uselessly mutilating and condemnable. As a method of treatment Sébileau prefers tearing away, which makes the removal of the prolongations more sure. It is important in these operations not to delay; when we have wounded the tumor it begins at once to bleed and continues to bleed until it is entirely removed. When we cannot be content with the natural passages, Sébileau prefers the palatine method, which gives light, but less than we might think. He condemns the resection of the superior maxilla, which, according to him, should never enter into the discussion. Possi, *apropos* of the gravity of the hemorrhage in the course of ablation of the naso-

pharyngeal polypi, recalls that the severe syncope has been attributed by him to hemorrhage of the bulbocerebral. He believes that the syncope is due not only to the amount of blood lost, but to the rapid subtraction of the blood from the neighboring encephalic organs. Potherat thinks that nasopharyngeal polypi should be operated on by the buccopharyngeal method. It is not necessary to have recourse either to section of the palatal curtain, nor of the palatine bone, nor to laryngotomy. He believes that it is necessary, first of all, to detach the tumor by appropriate instrumentation from its insertion, and from the entire extent of its insertion. The natural passages will in the immense majority of cases be sufficient by themselves to permit a successful operation.

Auvrey recalls the methor of Mombourg for obtaining hemostasis in the lower portion of the body by compressing the waist with a rubber tube. Mombourg applies the tube slowly between the lower border of the thorax and the crest of the ilium; he passes it two or three times around the waist, making forcible pressure until the pulsations cease in the femoral artery. Auvrey has studied the results furnished by this new method of hemostasis; it constitutes a method of obtaining perfect hemostasis in the regions situated below the umbilicus. The accidents that may result from this application result from the action of the pressure of the elastic band on the circulation and secondarily on the heart. Very important modifications have been observed which must be considered as due to blood tension, at the moment of the putting in place of the elastic tube and of the removal of the elastic compression. There have been noted also passing nervous phenomena and passing paralysis of the bladder and rectum. The method of Mombourg should be applied with extreme caution; should be an exceptional procedure and not a matter of choice; it should be applied only in young subjects in whom the cardiovascular and respiratory apparatus are absolutely healthy. Morestin said he had employed this procedure once, and although hemostasis was perfect, cardiovascular troubles showed themselves at once which placed life in peril.

Guelpa made an interesting communication before the Medical Society of Paris on the treatment of the organism by general disintoxication. According to him the organism is constantly subject to intoxications due to the food, and to combat these toxins he proposes the following treatment: for two to four consecutive days he orders the patient a complete fast, permitting him to drink water at will. At the same time he takes care to order during the fast a free saline purgation. Under its influence and contrary to what would have been expected, the sensation of hunger disappears, there is no malaise, and the fast is perfectly well borne. Guelpa believes that food plays a double rôle: it brings both nutritive materials necessary to life, and also, and above all, it has a mechanical action in the intestine, in virtue of which it stirs up the intestinal contents and brings with it all the toxic elements. He believes that the sensation of hunger does not result from the necessity which the organism is under of renewing its forces, but much more from the necessity of disinfection experienced by the organism, which is brought about by the passage of the alimentary materials into the intestine. By the treatment which he proposes he succeeds in eliminating completely the waste of the organism and in clearing out the intestine, and the results that he obtains are very interesting. In diabetes, for example, he completely suppresses the sugar, and as a result of several periods of such treatment he cures the patient. In gout he has obtained remarkable results—the deformities of the articulations have disappeared, pains have gone, and tophi have been absorbed. Finally, in the general treatment of obesity or arthritism, Guelpa has obtained results worthy of attention; the body becomes more alert, the mind more clear, for it is to be remarked that under the influence of the disintoxication treatment the nervous system is relieved of toxins rapidly, and an intelligence more active and more markedly potent can be easily exercised and cerebral labor is well sustained and continued.

Hysterical Angina Pectoris.—Forchheimer says that in hysterical angina pectoris we find rudimentary and normal attacks. He has seen a house epidemic of hysterical angina, following the death of the father of the family; every one of the hysterical children had angina. As it is six years since the occurrence took place, and all of them have had no recurrence, it must have been of psychogenous origin.—*Illinois Medical Journal.*

Progress of Medical Science.

Boston Medical and Surgical Journal, May 26, 1910.

The Cause of Gastroptosia and Enteroptosia, With Their Possible Importance as Causative Factors in the Rheumatoid Diseases.—J. E. Goldthwait and Lloyd T. Brown present an elaborate illustrated paper on this subject. They discuss the normal position of the stomach, normal position and character of the duodenum, effect of faulty posture on the position of the stomach, effect upon the duodenum of the downward displacement of the stomach, gastromesenteric ileus, effects of gastroptosia and enteroptosia upon the normal secretions of these organs with the systemic effects, the position of the pancreas and reasons for interference with its function, general results from all these conditions, congenital features in the etiology of gastroptosia and enteroptosia, type of the child with the visceral ptosis, general infections and treatment. They also refer to the importance of the cervical fascia in the visceral support. Of course, the various poses men tioned interfere with the normal course of the contents through the gastroenteric tract and as well with the proper discharge of secretions at the various points. It is in the ileum and the colon that the bacterial contents are chiefly found, and it is probable that under the conditions named they may develop in such quantities or reach such a degree of virulence that the individual becomes unable to resist and undesirable absorption takes place. Probably many cases of infectious arthritis occur in this way, and whether the bacterial element is in excess simply as the result of retention of fecal matter in the colon or whether as the result of interference with the functions of the viscera, the proper amount of digestive fluids, upon which the control of the development of the bacteria must to a considerable extent depend, is not present in the bowel, it is impossible to state. When such disturbances of normal chemical or bacteriological balance do exist it is apparently a matter of accident whether the systemic disturbance takes the form or arthritis, or some of the other structures become involved, and the frequency with which other lesions are met with in connection with the arthritis in the same individual becomes at once understandable. Of the arthritic conditions, the type in which there is the true peripheral inflammation, the infectious arthritis, and the type in which the peripheral inflammation is one of degeneration or atrophy, the atrophic arthritis, the infectious element probably acting centrally, are probably both to be explained in this way, and none of the cases seen since these visceral changes have been appreciated has failed to show its presence. The same is true of the hypertrophic form, in which for a long time the expression "disturbance of metabolism" has been used to suggest that some systemic disturbance other than bacterial is the causative factor. It seems probable that such a condition as here described may be the cause of the disturbance of the metabolism.

New York Medical Journal, May 28, 1910.

Animal Parasites Found in the Intestines of Native Children in the Philippine Islands.—Of fifty-one persons examined by I. W. Brewer, 47, or 92.2 per cent. were infected as follows: *Ascaris lumbricoides*, 38, or 76.4 per cent.; *Trichuris trichiura*, 26, or 51 per cent.; hookworm, 18, or 35.3 per cent.; cestodes, 3, or 5.9 per cent., and amebæ, 3, or 5.9 per cent. Of the children, 28 were males and 26 females. Physicians in the United States rarely consider animal parasites when treating children. Most of the test books on diseases of children, which are largely based upon hospital statistics derived from institutions in large cities, speak lightly of the animal parasites. However, during the past decade we have learned that the hookworm is of the greatest importance in the pathology of the Southern States, and it is very probable that if the feces of children in small towns and the rural communities are examined we will find that other parasites are much more common than is generally believed.

The Influence of Alcohol on Trauma.—F. S. Dennis says that there are three cardinal symptoms which should be considered in every case of alcoholism associated with trauma. These are tremor, insomnia, and delirium, with no fever disturbance, and he calls special attention to delirium tremens occurring as a sequel to trauma. This treatment calls for elimination of the toxemia, enforcement of sleep, administration of cardiac stimulants, maintenance of nutrition, alleviation of gastritis, necessity of restraint, attention to atony of the bladder, and cleansing of the oral and nasal cavities. For insomnia, the potassium bromide in 20-grain doses, with 1/100 grain of hyocine repeated hypodermically p.r.n. seems to give the best

results. Paraldehyde is a most important adjuvant. Strychnine is one of the best remedies to counteract the cardiac depression. It may not be advisable to cut off whiskey immediately. During the onset and attack of delirium tremens is not the time to reform the patient. Alleviation of gastritis may be effected by washing out the stomach with a 3 per cent. solution of boric acid in hot water, to which a dram of sodium bicarbonate is added. If this is not practicable, ten-grain doses of pancreatin combined with twenty of bicarbonate of soda or cerium with soda are beneficial. Finally, the prophylactic treatment is recommended in all cases of trauma in patients addicted to drink to avert the distressing and long continued sequelæ of alcoholism, to prevent an outbreak of delirium tremens, to ward off the condition known as wet brain, to reduce the tendency to insanity, and to lessen the mortality. The removal of any and of all of these conditions is a reason for urging the prophylactic treatment in these cases of trauma in which there is associated an alcoholic history. The necessity of these prophylactic measures becomes apparent when it is considered that more than 50 per cent. of the patients with trauma recently admitted to my hospital service have been shown to be addicted to alcohol, and that delirium tremens, with all the unpleasant sequelæ, is likely to develop in these cases, and in some cases with a fatal result.

Modern Methods in Pancreatic Diagnosis.—W. G. Lyle gives his experience in the clinical laboratory of one of the New York hospitals. He mentions a set of cases in which undoubted pancreatic disease has been marked by no loss of fat. The foods may have contained abnormally small amounts of fat, this substance having become distasteful to the patient or the fat ingested may have been of a kind readily absorbed as milk, or possible there has been an increase in the activity of the stomach lipase, in all which cases this condition occurred early in the disease. Friedman has lately demonstrated the presence of a strongly active autohemolysin in the pancreatic juice, which is analagous to serum hemolysin. When this enters the circulation through tissue destruction it brings about the same results as other hemolytic substances. This body is activated by human blood serum. The author recommends in all cases of suspected pancreatic disease that oil be given and trypsin tested for in the stomach contents with the casein method of Cross. Regarding the Cammidge reaction, the author says that at present a great difference of opinion exists among clinicians regarding the value of this test. Schum has investigated it from the chemical side and reports unfavorably. The reaction is found positive in other diseases, such as tuberculosis, etc., where the pancreas is not involved. It is possible that this may be due to a functional disturbance in the pancreatic secretion, effecting sugar metabolism, without any definite, anatomical lesions in the gland itself. Brugsch states that a small carcinoma will produce a greater interference in the activities of this gland than a much larger nonmalignant growth. This was demonstrated in one of our recent cases, in which there was a very small carcinoma, but a large loss of fat in the stools. If it can be proved that the Cammidge reaction may be produced by a disturbance of the internal secretion of the pancreas, without corresponding anatomical changes, then its value as a diagnostic help in determining diseased conditions is very much lessened, especially from a surgical standpoint. Moreover, as long as it is uncertain what substance causes the reaction too much reliance cannot be put on a positive result, unless confirmed by other tests. However, it should be tried in all suspected cases.

Journal of the American Medical Association, May 28, 1910.

Pancreatitis.—A. J. Ochsner insists on the importance of this condition. The infection undoubtedly passes into the gall bladder, also through the common duct, and then there is a chance for it to be diverted into the pancreatic duct, especially if there is obstruction from gallstones or edema below the point at which the duct of Wirsung enters the common duct. In his cases, the irritation of the common duct has been due quite as often to the passage of infected sandy bile as to the presence of gallstones. The difference in the statistics as to the frequence of pancreatitis accompanying gallstones is probably due, he thinks, to the observers basing the diagnosis on their judgment of the enlargement of the gland. What might seem pathological to one, might seem normal to another. All surgeons with large experience in this line seem to agree that pancreatitis patients almost always suffer from gallstone disease, especially if the gallstones lodge in the common duct. The colon bacillus is the most common cause of the infection, though frequently associated with the streptococcus and staphylococcus according to Egdahl and others. The pancreas once infected, a vicious circle is developed by the swollen organ obstructing the common duct passing through it, thus favoring the development of microorganisms above this point and also backing them up into the pancreas. This is the cause of the benefit derived from free drainage by cholecystostomy. All these facts seem to show that the accepted theory that, barring the rare occurrence of metastatic infection, pancreatitis is due to infection from the alimentary tract through the biliary passages or, according to Maugaret, through the lymphatics of these passages. In violent acute cases destroying the gland parenchyma, the cause is the retrograde injection of virulently infected bile and pancreatic juice. In the chronic forms, on the other hand, the secreting cells of the acini are more readily destroyed than the islands of Langerhans. The diagnosis has until recently been made only incidentally during operation, but latterly more attention has been given to this point and the diagnosis is made before and confirmed by the operation. The Cammidge reaction seems to Ochsner, from his own researches, to require too much of the observer to be useful except in expert hands, but he believes it to be of value. If we add to the symptoms of cholecystitis an area of tenderness, from 5 to 10 cm. long, to the right of the umbilicus over the middle of the right rectus abdominus muscle and can exclude duodenal ulcer we have the typical symtoms on which to base the diagnosis. There are cases, of course, in which both these conditions are present, but in these it is possible to determine the necessity of an exploratory incision and, if the indications for this are not clear, then it is usually safe to keep the patient under dietetic treatment for further studies. In advanced cases there is usually marked emaciation and anemia, frequently with peculiar roll-like areas of fat on the front and sides of the chest and abdomen. In chronic pancreatitis the treatment consists primarily in establishing free drainage and removing concretions, keeping the bowels and stomach normal by proper diet and hygiene. Early operation greatly improves the prognosis, though in mild cases of acute pancreatitis surgical treatment is not indicated. If the local irritation is removed by gastric lavage and exclusive rectal alimentation the obstruction to drainage through the common duct will generally soon subside, and the conditions will be favorable for recovery. Simple drainage of the gall bladder has in his experience always relieved the condition during the attack, except in cases in which a severe cholangitis coexisted, in which case there has been a mortality of about 20 per cent. The operation should be as simple as possible and without rough or unnecessary handling of the tissues. Even in violent acute cases a proportion of patients will recover if the abdomen is quickly opened and simple drainage introduced. Patients in whom the extravasation of pancreatic juice has caused fat necrosis are least likely to recover. Jaundice lacking, it is best to limit the operation to localized areas of infection or necrosis, controlling hemorrhage by fine catgut sutures and having free drainage of the entire area. With jaundice, simple drainage of the gall-bladder, removing loose gallstones is indicated. Stones impacted in the duct are best left alone.

Treponema Pallidum.—F. B. Gurd advocates the "India ink method" as the most valuable method of finding the spirochete for the general practitioner. The technic is simplicity itself. Scrapings from the superficial necrotic layer of an ulcerating surface, or the superficial epithelium of an abdominal lesion are taken and the serum which exudes is placed on a slide and an equal amount of ink added. The ordinary commercial India inks are usable. The serum and ink are then thoroughly mixed and smeared over the slide so that a pale brown color results. The material dries in a minute or slightly more and is ready for examination on placing the oil for immersion directly on the smear. The spirochetes, if present, show as clear white spirals, the red blood cells as clear circular areas, and bacteria and debris as clear white rods and dots. It is important that serum with a minimum amount of mucous material or fibrin is used, as otherwise the mucus, etc., would take up too much of the color material of the ink. If too much serum is used the albuminous matter seems to precipitate the stain and a granular appearance is produced which is worthless for diagnosis. If too much ink is used the smear is too large and more time is required to examine it. It is perhaps not possible yet to speak definitely of the reliability of this method, but in every case it seems to have demonstrated the organisms when present with a minimum expenditure of labor and time. Practically only two or perhaps four organisms need considering in the differential diagnosis, and only the *Spirochæta refringens* in lesions elsewhere than in the mouth and intestines. This organism is especially easy to identify by

this method, from its coarse body and broad curves. In the mouth the *Spirochæta dentium*, the *Sp. buccalis* and the spirillum of Vincent may be found. The presence of the latter with the fusiform bacillus and the larger size and smaller number of its curves renders confusion almost impossible. The *Sp. buccalis* is also easily distinguished from the treponema with its short deep curves. The *Sp. dentium* is more likely to lead to error. Its body is finer than the other forms and the curves shorter and more close together. Its body is, however, always definitely thicker than the treponema and one never finds more than five turns in the diameter of a red blood cell, nor are the extremities drawn out like those of the treponema. A useful point in diagnosis is noticed by Coles, *i. e.* that if the number of turns in a spiral of a syphilitic spirochete in the diameter of a red blood cell are counted these will be found to be six or seven. The motion of the live organism as shown in the dark field is also important for the absolute diagnosis. Instead of moving actively like the saprophytic spirilla, the treponema sways one way and another, with also a rotary motion, never moving much from one place.

Poliomyelitis.—S. Flexner and P. A. Lewis publish their seventh note on experimental poliomyelitis in monkeys. Using a virus which by repeated cultures had obtained its maximum potency they have endeavored to produce active immunity in monkeys and in some cases have succeeded. They failed, however, to produce a neutralizing serum in the horse by repeated injections of the filtrate, but the blood serum of children who had recovered from poliomyelitis has at least delayed, if not altogether prevented the development of poliomyelitis in inoculated monkeys. The serum of recovered monkeys also neutralized the virus *in vitro*. The indications from their experiments are stated as follows: (1) If the quantity of virus injected into the brain eighteen to twenty-four hours before the serum treatment is begun is not in excess of a given dose, the action of the virus can be prevented; (2) the infection of meninges from the nasal mucosa can also be prevented by the serum injections; (3) normal monkey serum has no such effect; (4) the horse serum is entirely without preventive action and tends rather to hasten the onset of paralysis. In the case of the intranasal inoculations, the injections of serum were made immediately after infection and at three days' intervals for three injections. The control animal treated with horse serum succumbed, and the animal treated with immune serum survived. Experiments are in progress to determine whether the paralysis, after intracerebral inoculation, can be prevented by immune human serum and what the limits of the experimental disease by such sera are. In considering the significance of these results for human pathology, account should be taken of the fact that experimental poliomyelitis in monkeys is a far more severe and fatal disease than epidemic poliomyelitis in human beings. Since the virus of poliomyelitis can reach the nervous system through the abraded mucous membrane of the nose, the authors have tested the effects on the virus of hydrogen peroxid and some other disinfectants. The virus is quickly destroyed by a solution of perhydrol containing 1 per cent. of hydrogen peroxid. It should be stated, the authors say, that the immune serum, obtained from the monkeys that had recovered from the paralysis, had in every instance been subjected to reinforcement by subsequent inoculations, often of large doses of active virus. Whether any actual reinforcement was accomplished is still undecided, but from analogy it should have taken place. This point is under examination.

The Lancet, May 21, 1910.

Injections of Solutions of Radium.—L. Wickham and M. Degrais allude to a paper presented at the Lisbon Congress by several French authors, the conclusions of which are as follows: "When introduced into the animal body the emanation diffuses itself through the structures and may in this manner reach deep-seated parts. It has a predilection for the glands which form an internal secretion and especially for the suprarenal capsules. It is eliminated by the lungs and the skin, and to a small extent by the kidneys." The authors then pass on to relate their own experience with this mode of therapy. In a case of lupus vulgaris of the neck, a curative change was produced by injections of (1) water rendered radioactive in the proportion of one milligram of pure sulphate of radium per liter, or (2) water impregnated with radium in the proportion of one milligram of pure bromide of radium per liter. In this case 40 injections of each kind and of from 1 to 2 c.c. were given in the course of two months. They have also presented a case of lupus erythematosus treating for comparison, the lesions on the left side by the application of the radium apparatus and those on the right side by injections. On the left side there was a sharp reaction with destruction of the lupus and a subsequent process of repair. Later there seemed to be a strong cicatrix, but still later there was recurrence of the lesion at the margin of the tissues of repair. On the right side there was no visible inflammatory reaction, but there was first a diminution and then a disappearance of the erythema of the lupus, the part assuming a whitish cicatricial aspect. At the time the recurrence was found on the left side, the recovery on the right side was maintained and there has been no reappearance of lupus there since that time. In these two cases the doses of radium were extremely small, but they contained the emanation, an element which is not present in the rays emitted by the radium apparatus. The injection of certain insoluble salts of radium suspended in an emulsion, into structures of small absorbent power prolongs the contact of the salt with the diseased tissues and intensifies the action of the radiations and of the emanation. This plan was followed in treating a large cancerous nodule of the breast, an emulsion of radium being made in a mixture of paraffin and vaseline. The object was to inject this preparation beneath the nodule, so as to prepare a stratum underlying the whole of the diseased part. Thus the nodule was exposed to a cross fire, as it were, diminished in size and rapidly disappeared. There was no ulceration and there has been no recurrence. Injections of gray oil with mercury and a radium salt have been made in syphilitics, and in three or four days the urine was radioactive, after which time it gradually decreased in this respect. It must be understood that soluble radium when injected is in a free state in the animal body and carries with it gaseous emanations which give rise to the phenomenon of radioactivity. The salt in a radium apparatus does not supply emanation for therapeutic purposes, for this gas does not pass through any solid body, being in this respect unlike the extremely penetrating radium rays. When, after some days the mercury begins to show itself in the urine, the latter no longer shows radioactivity. The authors believe that these experiments offer much hope for the future.

Treatment of Spasmodic Asthma by Hypodermic Injection of Adrenalin.—Three cases are given by B. Melland. He says that when we reflect it is easy to see why the blood vessels and circular fibers of the bronchial tubes and intestines should be supplied by opposing nerves. Take the gut for instance, when full of food and active in peristalsis. The motor nerve for this peristalsis is the vagus, which works reflexly. When digestion is taking place it will be an advantage to have all the blood vessels relaxed to promote local blood supply. Therefore, while the vagus is stimulated the vasomotor sympathetic is inhibited and thus the small vessels dilate. If an irritant gas accumulates in the bronchial tubes or some irritant substance, the irritation of the vagus sensory fibers causes the motor reflex spasm of the circular bronchiole muscles tending to keep out further irritants. This vigorous action of the vagus inhibits the sympathetic vosaconstrictor nerves and the bronchial mucosa becomes congested through dilatation of its blood vessels. This free blood supply will both help the production of mucus by the mucous glands and assist the closing of the smaller bronchi and thus protect the alveoli from entrance of the irritant. The effect of violent emotion in removing an attack of asthma is well known, and the author has no doubt it is due simply to sudden violent stimulation of the sympathetic overcoming the vagus. If one suddenly meets a lion in the path the heart gives a bound and is immediately vastly accelerated: the skin blanches, a cold sweat breaks out, and "each individual hair stands on end"; the pupils dilate, eyes widen and stand out, and the blood pressure rises rapidly, as a good high blood pressure is useful to the organs of locomotion in these circumstances. All these signs, which are historical as those of fear, are exactly the same as those produced by stimulation of the sympathetic or injection of adrenalin. As we know also, in extreme fear the vagus and sciatic outflow are inhibited, peristalsis ceases, and the anal and vesical sphincters relax, as well as the cardiac sphincter of the stomach. Undoubtedly the whole vagus outflow is inhibited, including the bronchial muscles. The nervous system is far too busy to pay any motor attention to the efferent gut system when the efferent skin system and voluntary muscles and heart require so much more attention if life is to be saved from the lion. He has thought sometimes that a bad paroxysm of asthma might tend to cure itself by the downward pressure of the diaphragm actually pressing mechanically on the adrenal gland and stimulating it to get rid of adrenalin through the adrenal vein into the general blood stream.

British Medical Journal, May 21, 1910.

High Tension and Cavitation.—S. Tidey says that the idea that arthritic diathesis is antagonistic to the incidence of tuberculosis is more or less present in the minds of the profession. The term arthritic diathesis includes both gout, a disease of high tension and rheumatism, a disease of low tension. As opposing the theory mentioned he relates a case of high tension and pulmonary cavitation. His patient is a man of 53 years, with considerable cavities at both apices and with hemorrhages occurring very frequently. He has a somewhat high tension and the author presumes that the hemorrhages result from aneurysmal dilatation of arterioles in the walls of an old tuberculous cavity. Strapping of the chest has not helped, the nervous system has been kept quiet, the tension diminished with calomel and the coagulability of the blood increased with calcium chloride, yet the hemorrhages continue. The general condition has kept up surprisingly well. What, asks the author, is the rational treatment? Is it to plug the cavity with some non-irritant coagulable injection or to compress it by means of an artificially induced pneumothorax?

Achondroplasia.—O. Eichholz has recently seen seven cases of this rare disease. The diagnosis is easy in typical cases and most authors lay stress on the pug nose, but in three cases which the author has studied, this peculiarity was not present nor was there anything in the appearance of the head or face to suggest any abnormality. Nevertheless the great disproportion between the length of the four limbs as compared with the body (which was certainly small, as would be expected from imperfect ossification of the ribs and pelvic bones) the small stature, the characteristic appearance of the hands described as *main-en-trident,* the absence of rachitic changes, such as contracted chest, bow legs, curved spine, deformed ribs, etc., leave (the author thinks) no doubt of the nature of the disease in his cases. Dentition did not appear to have been delayed. This absence of depression at the root of the nose has been observed by other authorities. The skin is described as smooth and pliable, although it may be redundant over the extremities. In the author's cases the skin of the trunk and head was normal, but over the limbs it was unusually soft and doughy to the touch. The pelvis of one of the women patients was contracted, the conjugate diameter at the brim being (external) 6.5 cm., and there was a sharp angle between the lumbar and sacral vertebræ, giving the impression of a spondylolisthetic pelvis, though the author does not think this was the case. Lordosis is described as one of the characteristics of achondroplasia, but he says this is only apparent, the acetabula being displaced backward from shortening of the ileopectineal lines so that the femora are attached in a plane posterior to that of the normal individual.

Cultural Characteristics of the Microbacillus of Acne.—E. H. Molesworth reviews the literature published along this line, and then passes on to describe his own work on the subject, a series of primary cultures from over 30 cases. The materials used for inoculation were generally comedones, sometimes seborrheic filaments and pus. He believes that the organisms heretofore described by Fleming and Sabouraud are not identical. The author discredits Fleming's findings, as his organism does not reproduce the comedones. This and not suppuration is the essential lesion of acne vulgaris. Treatment with vaccines of Fleming's organism apparently caused increase of the amount of pustulation, but no mention is made by Fleming of the disappearance of comedones. As to the cause of the pustulation, Molesworth says that in only one instance did he fail to find staphylococci in culture from pus, although Sabouraud occasionally found them absent. Macrobacilli can be easily cultivated from pus, but there is always a great amount of comedone debris in this material. The secret of success in cultivating the macrobacillus is in the use of anaerobic methods. He is inclined to give this microorganism credit for being the real cause of the disease. Many interesting details of his experiments cannot be related here.

Does Gastrostaxis Exist as an Independent Disease?—C. Bolton does not believe that the affirmative answer to this question has as yet been indisputably proven. In this malady there is said to be an oozing of the blood in the mucous membrane of the stomach, not only in the absence of any ulceration of that organ, but also in the absence of any other disease in which bleeding is likely to occur. The evidence that it exists is threefold: first, that at certain post-mortem examinations of patients who have died of hematemesis no lesion has been found in the stomach wall to account for the bleeding; second, that at certain operations performed upon such patients no ulcer has been found; and, third, that gastrostaxis possesses a definite clinical history. Hemorrhage from the gastric mucosa is due to one of two conditions. First, if it is profuse enough to kill the patient it is quite common to find at the autopsy multiple erosions of the mucosa. Second, if it be not profuse enough to cause death, at post-mortem following the death from the primary disease, the condition is one of multiple small or large interstitial hemorrhages into the mucosa, with perhaps a little coffee-ground fluid in the cavity of the organ. These bleedings during life cause no symptoms. In both forms there is a constant lesion in the walls of the vessels. In a second group of cases the hemorrhage is a secondary event from ulceration, opening up a large blood vessel. The terms "ulcer" and "erosion" express quantitative and not qualitative differences. The author says that he thinks it will be granted that serious hemorrhage will not occur from an erosion, so that if a patient dies from gastric hemorrhage any lesions which may be subsequently found in the mucosa and which are microscopically proved to be erosions, must be a result of the hemorrhage, which is therefore the primary condition. The author reports a number of illustrative cases.

Berliner klinische Wochenschrift, May 9, 1910.

Large Nongranular Mononuclear Cells in Myelogenous Leukemia.—N. v. Jagic and P. Neukirch report the finding in a case of chronic myelogenous leukemia which had received *x*-ray treatment, besides the typical inveloblasts of large nongranular mononuclear leucocytes which do not correspond to myeloblasts. In these cases there occurred in the blood after increased radiation, increased numbers not only of nongranulated cells, but a great number of cells which, by the triacid and Romanowsky stains, showed distinct granules, and still showed a negative or very weak oxydase reaction. They consider the loss of the oxydase reaction to be a functional injury to the granular cells. As the injury increases a complete loss of granules occurs. The observation of their cases makes it appear that there is a definite relationship between *x*-ray treatment and the granulation. A control of the blood picture and oxydase reaction is to be recommended during the course of the *x*-ray treatment in order to prevent over treatment.

The Destruction of Tubercle Bacilli in a Flowing Stream.—F. Jessen and Lydia Rabinowitsch have analyzed the water from the stream flowing through Davos as to the presence of tubercle bacilli. The main sewer of the city contains the excreta from many thousands of cases of tuberculosis, these, except among the few in the sanatoria being as a rule not disinfected. Water taken at the mouth of the sewer showed acid-fast bacilli, as did that taken 100 yards below. Water, on the other hand, from Frauenkirch, about two miles down stream, showed no organisms. Inoculation of guinea-pigs with the centrifugated sediment from water from the mouth of the sewer produced tuberculosis in the animals. Inoculation with the sediment from water at Frauenkirch and towns lower down did not affect the animals. The authors conclude that two miles of a flowing stream is sufficient to kill the tubercle bacillus.

Deutsche medizinische Wochenschrift, May 5, 1910.

The Polymorphism of Visceral Syphilis.—J. Kretschmer reports a number of cases of syphilitic lesions of the abdominal viscera showing widely different symptoms. He says that in indefinite and atypical diseases of the abdominal organs, especially when there are signs of involvement of several organs at one time, one should always consider syphilis as a possible etiological factor. The diagnosis of visceral lues is, however, to be made when not only the history of the case and the Wassermann reaction point toward this condition, but also when the clinical symptoms on careful and painstaking study can be explained on no other theory.

A Case of Traumatic Insufficiency of the Kidneys.—Wilhelm Beuster reports a case of a man, aged thirty, who was injured in a collision. That night he was restless and groaned in his sleep, but the next day seemed well and returned to work. Two days later he developed convulsions. On the fifth day he was unconscious and had chronic convulsions. There was suppression of urine with granular and hyaline casts in the little obtained. The patient died in uremia seven days after the accident. The history gave no clue to any previous nephritis or to an acute infection, and the author thinks it probable therefore that the acute nephritis was due to a subcutaneous injury to the kidneys.

Book Reviews.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles by Leading Members of the Medical Profession Throughout the World. Edited by Henry L. Cattell, A. M., M. D., Philadelphia, U. S. A. Vol. I., Twentieth Series, 1910. Philadelphia and London: J. B. Lippincott Company, 1910.

The latest volume of this well-known quarterly contains three special articles on the serum diagnosis of syphilis by Homer F. Swift, Hideyo Noguchi, and B. Sachs, the latter dealing with the parasyphilitic affections of the nervous system. Two articles on pellagra by Drs. Watson and King follow. Dr. Gideon Wells contributes a most instructive review of our knowledge of purin metabolism and its relation to gout. Emil Beck writes on the use of bismuth paste in chronic suppuration. Halstead reports a case of tuberculosis of the thyroid gland. Numerous other articles with a review of the progress of medicine in the year 1909 enhance the value of this volume.

Lehrbuch der spezifischen Diagnostik und Therapie der Tuberkulose. Für Aerzte und Studierende. Von Dr. Bandelier, Oberarzt der Weicker'schen Lungenheilanstalten in Gorbersdorf, und Dr. Roepke, Dirigierendem Arzte der Eisenbahnheilstätte in Melsungen. 4. Erweiterte und verbesserte Auflage. Mit einem Vorwort von Wirkl, Geh. Rat Prof. Dr. R. Koch, Exzellenz. Mit 19 Temperaturkurven auf 5 Lithographischen Tafeln, 1 farb. lith. Tafel und 4 Textabbildungen. Würzburg: Curt Kabitsch, 1910.

Little need be said in praise of a book which has gone through four editions within two years, though its subject matter is of a very special nature. This is what has happened to the treatise of Bandelier and Roepke; in addition it has been translated into seven foreign languages. The book contains all that can now be said in regard to the diagnostic and therapeutic use of tuberculin. Every preparation of this nature from old tuberculin of Koch to the latest serum is fully described. Full details of treatment with many illustrative charts are given. A sober judgment of the value of the cutaneous and conjunctival tests for tuberculosis is pronounced by the authors. The book is the most complete in its field, and the new edition is recommended to all interested in the subject.

A Quiz Book of Nursing. For Teachers and Students. By Amy Elizabeth Pope, Superintendent Insular School of Nursing, San Juan, Porto Rico, Joint-Author of "Practical Nursing" and "Essentials of Dietetics" and Thirza A. Pope, Supervisor of Visiting Nurses of the New York A. I. C. P. Together with Chapters on Visiting Nursing by Margaret A. Bewley, R. N., Instructor in Visiting and District Nursing in the Presbyterian Hospital, New York City. Hospital Planning, Construction, and Equipment. By Bertrand E. Taylor, A. A. I. A., and Hospital Book-keeping and Statistics. By Frederic B. Morlok, Chief Clerk in the Presbyterian Hospital, New York City. With Diagrams. New York and London: G. P. Putnam's Sons, 1909.

This book is arranged in the form of a catechism, consisting of short questions each of which is followed by an answer which is supposed to be satisfactory. There are said to be some thousand questions on nursing in general, including the ward, general care of the patients, symptoms, temperature, pulse and respiration, treatments, medicines, surgical nursing, emergencies, obstetrics, care of children, diseases, and special senior quizzes. About fifty questions are given to hygiene, and the same number to bacteriology; three hundred and fifty to anatomy and physiology; two hundred and fifty to dietetics; and one hundred and fifty to materia medica. There are also special chapters on visiting nursing, hospital planning, construction, and equipment, and hospital book-keeping and statistics. It is difficult to see what purpose these last two chapters are intended to serve. Certainly no one would want to add these subjects to the nurses' curriculum, which already contains a fair share of non-essentials. The answers are, as a whole, satisfactory, the best being those on nursing in general. Some of the answers to the anatomy questions are inadequate: In answer to the question, "Name the muscles of the tongue," two only are given; on the same page, to "State the origin and insertion of the pectoral muscles," the answer is "They have their origin in the sternum and are inserted in the humerus." Both of these questions might be omitted. On page 242 it is inferred that the brachial artery is the continuation of the subclavian; the kidneys are said to be located between the first and fifth lumbar vertebræ. "Entroclysis" occurs four times; amyl "nitrate," four or five times. The book is intended for nurses who teach and those who are studying under them; judiciously used, it should be of service to some members of these two classes.

Outlines of Bacteriology. (Technical and Agricultural.) By David Ellis, Ph.D. (Marburg), D.Sc. (London), F.R.S.E., Lecturer in Bacteriology and Botany to the Glasgow and West of Scotland Technical College, Glasgow. London, New York, Bombay and Calcutta: Longmans, Green & Co., 1909.

This work will serve very well as an introduction to bacteriology in general. It differs in several respects from the majority of books on the subject. First, it is quite elementary; next, it omits almost all technical details; its reference to pathogenic bacteria is of the very briefest; and it contains much matter which the ordinary works on bacteriology either omit, or treat in a perfunctory way. Thus, there are valuable chapters on: bacteria and the preservation of food-products; The nitrogen bacteria; nitrification and dentrification; fermentation; industrial applications of fermentative processes; and sewage and sewage disposal. As a first book, or as a companion to any text-book this volume will serve a useful purpose; and there are few physicians who will not enjoy reading the volume. There is a very well arranged table of contents which makes reference easy and satisfactory.

Clinical Obstetrics. By Robert Jardine, M. D., Edin., M.R.C.S. Eng., F.F.P. & S. Glas., F.R.S. Edin., Professor of Midwifery in St. Mungo's College; Physician to the Glasgow Maternity and Women's Hospital; Examiner in Midwifery to the Scotch Conjoint Board; Examiner in Midwifery to Victoria University, Manchester; Chairman of the Central Division of the Glasgow and West of Scotland Branch of the British Medical Association; Formerly Examiner in Midwifery to the University of Glasgow; Late President of the Glasgow Obstetrical and Gynecological Society, etc. With 108 Illustrations and four colored plates. Third Edition. New York: William Wood and Company, 1910.

As the title implies, this is a book on clinical obstetrics, and is somewhat of a departure from the ordinary text-book in that there is cited a very large number of interesting histories of cases, all of which are of great interest and teach something. The author reports a case of neuritis complicating pregnancy, the only one he has ever seen. What he states about pyelitis, acute yellow atrophy of the liver, eclampsia, epilepsy, status epilepticus, pubiotomy, etc., is all very interesting, instructive, and well worth reading. The fact that this book has reached its third edition shows its popularity. There are few books of this kind published, and it is a pleasure to be able to recommend this to the general practitioner, since it is so full of good points and very interesting case histories.

Examination of the Urine. A Manual for Students and Practitioners. By G. A. De Santas Saxe, M.D., Instructor in Genitourinary Surgery, New York Postgraduate Medical School and Hospital; Assistant Genitourinary Surgeon Bellevue Hospital, Out-patient Department; formerly Assistant Pathologist to the Columbus Hospital; Member of the American Urological Association; Fellow of the New York Academy of Medicine., etc. Second Edition, Revised. Philadelphia and London: W. B. Saunders Company, 1909.

The second edition of the book has been required by the advance in the science of urinary diagnosis during the past five years, and to meet this requirement, many chapters have been entirely rewritten. The book as it stands today is a full and concise exposition of uranalysis in its relationship to clinical medicine. Part I. includes the general consideration of the urine in health, selection of specimens, etc. Parts II. and III. cover the chemical and microscopical examination of the urine, including the various tests, and especially emphasized, the clinical significance. Part IV. takes up urinary diagnosis. Here the classification is by disease, and the abnormal findings of each are discussed. Part V. under the heading of functional renal diagnosis describes the estimation of the freezing point, electrical conductivity and the methylene blue, indigo carmine, phloridzin tests, and the toxicity of the urine. The book is well illustrated and well printed.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-first Annual Meeting, Held in St. Louis, Mo., June 6, 7, 8, 9 and 10, 1910.

(Special Report by Telegraph to the Medical Record.)

House of Delegates.

Monday, June 6—First Day.

Col. William C. Gorgas, President, in the Chair.

President's Address.—Col Wm C. Gorgas, U. S. A., after calling the meeting to order, delivered a brief address, in which he said that the work of the Association had gone on so well during the year, and so much more had been accomplished than was expected that there was little he could say. There was a question regarding the authority of the president to fill vacancies in the standing committees which the House of Delegates should settle. Everyone was greatly impressed with the executive side of the work of the American Medical Association, but there was danger of diffusing efforts too much, and they should consider the matter most carefully before taking up any new subjects. Most members were more interested in the scientific side of the work and this should be forced as much as possible. Antagonism aroused by the action of officials of the Association should not discourage them. The Association had great power in legislative committees and there was no more compact organization in the United States than the American Medical Association, and for that very reason they should be cautious and confine themselves to the advocacy of measures useful to the people and to the profession.

Report of the General Secretary.—Dr. George H. Simmons reported that the membership in the Association was 33,935, on May 1, 1909, on May 1, 1910, it was 34,176, an increase of 241. Membership in the State Societies was 70,146. Less than half of those entitled to membership in the Association, therefore, availed themselves of the privilege. The Medical Association of the Isthmian Canal Zone had applied to the American Medical Association for recognition and affiliation and the secretary recommended that it be recognized as one of the constituent societies of the Association. He also recommended uniform regulation of details regarding individual membership. Dr. Simmons asked that at the present meeting of the Association he be relieved of responsibilities of the office of General Secretary. This report was referred to the committee for action.

Report of the Board of Trustees.—Dr. M. L. Harris of Chicago reviewed various lines of work of the Association calling special attention to that of the Council on Pharmacy and Chemistry, which reported directly to the trustees and not to the entire House of Delegates, the amount of work done greatly exceeded that of any other year. The speaker outlined the work done in examination of meat extracts which had shown that they were practically devoid nutritive value. They had obtained reliable information in regard to various serums and vaccines. This work was receiving just recognition beyond the confines of this country, a number of European firms having taken active measures to have their products listed by the Council. They had examined practically all non-official articles on the market and those unlisted were deemed unworthy of consideration by profession. This work should have been done by Federal, State and Municipal authorities. The amount of work done in the chemical laboratory had increased so that it was impossible even to mention the products and compounds investigated. There had been appointed a multiplicity of committees whose duties overlapped, with consequent duplication of work and expense. Committees with similar duties should be centralized in a single bureau with a paid secretary. The new building authorized at the last meeting was under process of construction and would have been completed by October 1, had not certain complications prevented its completion. The medical profession was becoming more firmly united in a universal desire for the dissemination of a knowledge of scientific medicine, but in their endeavors they should guard most carefully against a tendency to dip into politics and pollute the honorable traditions of the profession. The weekly issue of the *Journal of the American Medical Association* averaged 55,361, an increase of 1,382 copies over that of 1908. Examination of the finances of the Association had been conducted along the lines of previous audits by chartered accountants who stated that the work of the office was conducted in an intelligent and accurate manner. There was an increase of surplus assets for the year of $41,867.

Report of Judicial Council.—Dr. C. E. Camtrell of Texas said this committee met, but had no report to make, as after a thorough study and discussion of the subject they had decided that ethical matters were more satisfactorily settled by the State and County societies.

Report of the Committee on Medical Legislation.—Dr. Charles A. L. Reed of Cincinnati said the energies of this committee had been devoted to national legislation. A bill for establishing a department of public health and for other purposes had been presented to the Senate by Robert L. Owens of Oklahoma. This bill was so in consonance with the traditional attitude of the Association that the committee had recommended no alternative measure. Since that time another bill had been introduced, differing from the Owen bill in that it did not provide for a representation in Cabinet, but placed the proposed department in charge of a commissioner of public health. Another bill had been brought forward which provided for dropping the words "and marine-hospital service" from "the public health and marine-hospital service", but without otherwise modifying the bureau under that name. Advanced legislation along public health lines had been urged by President Taft, and the people were aroused to the importance of the subject. The character of the opposition to the bill had impressed the public with the conviction that they must support the movement for their own protection against the rapacity of ignorant venal interests. He called attention to the principal laws that had been enacted in the Legislatures of the different States. The work of the Bureau of Medical Legislation had been continued and increased use was being made of the bureau by State Boards of Health, medical examining boards, officers of State societies, and the profession in general. The committee had secured copies of the health laws of various States which were collected with a view to publication in a special handbook. The classification of the Supreme Court decisions regarding medical practice acts had been practically completed, and the committee had now on hand about two hundred Supreme Court decisions classified and indexed, as well as references to various court reports. This would soon be issued in book form. The same work was going on regarding decisions of the Supreme Court interpreting public health laws. He presented a report of the Conference which the Committee on Medical Legislation had held with the Council on Medical Education in Chicago on March 2, 1910. The proceedings showed that they had by no means secured unanimity among their members as to fundamental principles underlying the regulation of the practice of medicine, and much study and careful discussion would be necessary before uniformity could be secured even on essential points. A committee had been appointed to draw up a bill to protect the public health and regulate the practice of medicine, and this was submitted to the House of Delegates for consideration and criticism. The committee had rep-

resented the American Medical Association in a conference on uniform State laws called by the National Civic Federation. The Civic Federation had undertaken to establish branches in each of the States as State Councils on uniformity in laws, and it was hoped that the efficiency of the work of this State commission on uniform laws would be increased. It was expected that cooperation of the Civic Federation and its branches would help in securing the passage of uniform laws on vital statistics, pure food and drugs, medical practice, and various other subjects in which the medical profession was interested. The committee had learned from experience that in National and State Legislative campaigns any effort to secure the adoption of desirable laws for protecting the public health must be preceded by a sampaign of publicity, of public education both of the people and of their representatives in the legislative assemblies. The committee urged that it be authorized to establish a press bureau for the education of public opinion on health topics and as a precedent measure for any legislative campaign. The time had passed when any fears that such a course would be regarded as undignified and unprofessional should deter. If the public was not enlightened by the medical profession it would be biased by quacks, and the manufacturers of adulterated food and drugs. Dr. Reed recommended that the bureau of legislation at Chicago be strengthened and its scope widened. The bureau ought to be in position to furnish State legislative committees with literature for information and guidance. The National Organization should not take any hand in the promotion of defeat of proposed legislation in any State, even if the State committees requested such cooperation. Uniformity in State legislation had been urged with respect to reciprocity in State licensure. Most States extended reciprocity only in the case of those who had obtained license by examination and declined to extend the same privilege in the case of those who had secured a license by registration at time the examination law went into effect. This was an injustice and an insult to reputable physicians. He objected to many of the State laws that excluded medical teachers from membership in State examining boards. Existing State medical laws were responsible for the propagation of sectarianism in medicine in that they failed to protect people against dangerous cults. Sects were recognized by separate boards or by mixed boards, thus recognizing various systems or methods of cure. If one sect was recognized why not another. The most that the law could do was to establish a common safe rational foundation for all persons or plans of cure. This foundation must consist in human anatomy, physiology, bacteriology, pathology, diagnosis, hygiene, sanitation, obstetrics, surgery, and such allied branches as might be essential to the comprehension of these subjects. Questions of remedies and cure might be left to the intelligence of one thus otherwise equipped. All cults standing on such a foundation might be considered safe. To defer the adoption of this rational basis was to defeat the object in view and to multiply cults and isms. A model practice act should take this into consideration. They must not only attain legislative victory but must guard it against reprisals.

Report of the Council on Medical Education.—Dr. Arthur Dean Bevan of Chicago reported that a second tour of inspection of medical colleges of the United States and Canada had been made during the year and additional data collected. After a careful study of this information and other data regarding the needs of medical education the committee had prepared an outline of "essentials of an acceptable medical college", which they presented. The data in regard to each college were grouped under ten headings and ratings were made according to Civil Service methods. They divided colleges into three classes: those which were acceptable, those which with certain definite improvements could be made acceptable, and those which were not acceptable. About one-half the medical schools were teaching medicine in an acceptable way. It was important that each State should have but one licensing board and that there should be but one portal of entry to the practice of medicine. The council believed that the coming American standard would be a four-year high school education, a year or two in a university laboratory of chemistry, physics, and biology, four years in a medical school, and a clinical year as interne in a hospital. The American standard would soon compare favorably with that of any country in the world. The total number of medical colleges in all other countries was 172, while in this country there were 138, of which 68 were acceptable, 37 needing certain improvements, and 33 not acceptable. As standards of colleges were raised those of State boards also improved. The standards in Illinois, Missouri, Tennessee, and Maryland were still far too low.

Report of Post-Graduate Work.—Dr. John H. Blackburn of Kentucky said that some of the societies had given up the post-graduate course of lectures because of the difficulty of getting regular attendance, but many others had taken up the course. In many societies they reported much larger attendance, due to interest in post-graduate work. One of the topics for discussion was "Pharmacology and Therapeutics." One society planned a meeting with the Pharmaceutical Society for discussion of the U. S. Pharmacopeian. A large number of letters received from secretaries of societies which had been following the coarse bore witness to the interest and enthusiasm of members in the course and its practical application to the needs of a large number of societies. In addition to the knowledge gained they were of service in bringing doctors together and in helping adjust small personal differences.

Committee on Ophthalmia Neonatorum.—Dr. F. Park Lewis of New York presented a digest of all legislation on this subject enacted in the various States. They had found that to succeed it was necessary to have the support of the public. They had secured the cooperation of the New York Association for the Blind, and the financial support of the Russell Sage Foundation. Most efficient agencies for promulgation of this propaganda had been the Federation of Women's Clubs, and the public health education committee. The National educational association would soon take up the work. The committee recommended that the work be continued and the scope widened to comprehend in the largest sense the prevention of blindness.

Committee on Davis Memorial.—Dr. Henry O. Marcy of Massachusetts stated that he had been unable to arouse interest in this deserving work of commemorating the services that Dr. Davis had rendered the profession and the people. The committee had as yet received only $2,771, although at the last meeting of the Association it had been voted to furnish $5,000 of a total of $25,000,

Council on Defense of Medical Research.—Dr. Walter B. Cannon of Massachusetts reported that during the year they had carried out the program suggested by their work of the first year, which consisted in furthering the adoption of rules in medical laboratories, the publication of papers, and the distribution of information regarding the work of the Council of data collected by it. Regulations concerning the care of animals in laboratories had been adopted by fifty-two schools, including all large institutions. They would probably soon be adopted in laboratories wherever animal experimentation was carried on. The collection of papers showing the relation between animal experimentation and practical medicine and surgery would form a unique collection of data never so thoroughly gathered together before. These papers were of permanent value. Much of the work of this council had

been given to the daily press for the education of the people.

Committee on Uniform Regulation of Membership.—Dr. Thomas McDavitt of Minnesota presented recommendations for amendments to the constitution and by-laws, among them one that provided that a proposed amendment be not acted upon until the annual session next following that at which the amendment was introduced, and providing three-fourths of the members of the house favored such amendment. Recommendations for uniform regulation of membership were offered, and it was suggested that the employment of paid county secretaries would result in better business methods and in a financial saving in the long run. The payment of secretaries would, of course, be optional with the individual societies.

Report of Committee on Anesthesia.—Dr. James G. Mumford of Massachusetts said they had investigated along four lines as to which anesthetic to use. G. W. Crile had studied nitrous oxide combined and not combined with morphine and found less nausea when it was not preceded by morphine. They had found that ethyl compounds were associated with a high death rate and that they were not serviceable for prolonged anesthesia. The results attained by experiments with nitrous oxide were essentially those set forth by Dr. Crile. As to the best anesthetic to use in military surgery and other extensive operations they could not report for at least two years. A definite distinction should be made between two classes of anesthetists. Ether by the drop method was best for general practitioner. The use of chloroform should be discouraged, and that of nitrous oxide should be confided only to experts.

Reports of the Committees on Nomenclature and Classification of Disease, Patents and Trademarks, Elaboration of Principles of Ethics, Revision of the Pharmacopeia, Selection of Insignia for the American Medical Association, and the Establishment of a Physicians' Sanatorium were also presented.

All reports were referred to special committees before acceptance.

Tuesday, June 7—Second Day.

Dr. Welch, President-elect, in the chair.

Report of Committee on Scientific Exhibits.—Dr. Frank B. Wynn of Indiana stated that the range of instructive exhibits had been widened beyond the museum type. It gave emphasis and illumination to following subjects: Clinical application of research work; practical value of thorough scientific work whether in laboratory or hospital; methods of newer medical teaching, progress of clinical work in hospitals and dispensaries; newer methods of dealing with tuberculosis and other hygienic and sanitary problems; the role of parks and playgrounds in conserving health; advantages of competent food and dairy inspection; desirability of local medical societies giving more attention to medical history. Twenty-five institutons were represented in the exhibit. It was recommended that $500 be appropriated for expenses and $300 for medals. These exhibits had proved their usefulness as an educational influence. They stimulated the growth of museums in colleges and hospitals and advanced standards in teaching. It was practical for the Association to inaugurate an educational force throughout country which would prepare this soil for public health work. The Association might undertake a standardization of public health methods. As to the best method to pursue, should the Association undertake a publicity campaign, public lectures accompanied by stereopticon views seemed to be most popular at present. Forensic presentations were open to the objection that they might not be judiciously conducted and might be sporadic; also many looked upon them as a scheme for the advertisement and personal advancement of certain physicians and this aroused jealousy. The utility of public health exhibits as a means of instructing the people had been demonstrated; they approved this plan, but the study of such exhibits showed that they were apt to be heterogeneous and wanting in systematic arrangement. Often data were unwarrantably sensational, terrifying, or misleading. They were cumbersome, the initial cost was great and the cost of maintenance was too heavy. They were practicable only for State health boards and for large cities. If the exhibits were of the traveling kind, their influence was only temporary; hygiene and sanitary reform should be religion of daily life. The Association should develop cheap, compact, yet complete exhibits relating to all problems of public health and comfort. They could thus standardize methods throughout the country. They could guard against erraticism and could seek to cooperate with existing forces working for public health. This committee was impressed with the feasibility of such a publicity campaign and asked for the appointment of a representative special committee to meet with this committee for a detailed consideration of such plan.

Report of Committee on Organization of Council on Public Health, Publicity, and Legislation.—This committee recommended the organization of such a council and asked that a committee be appointed to arrange for such council and to formulate rules of government.

Report of Committee on Sections and Section Work.—The committee approved the establishment of section on Genitourinary and Venereal diseases. The officers appointed for this section were: *President,* W. T. Belfield, Chicago; *Vice-President,* James Pedersen, New York; *Secretary,* Hugh H. Young, Baltimore.

Report of Reference Committee on Medical Education.—This committee congratulated the Council on Education on their work, but thought its ratings of colleges had been very lenient and that schools rated as first class should not be satisfied with their standard or think themselves perfect. They agreed with the council that these ratings should be made public and were willing to assume the responsibility of such action. They would continue to cooperate with other bodies interested in education but would insist upon the right of American Medical Association to establish its own standard in accordance with existing conditions in various localities.

Report of Reference Committee on Reports of Officers.—Dr. George W. Guthrie of Pennsylvania said that this committee approved the reports, and it offered an amendment to the by-laws giving the president authority to make appointments to vacancies that occurred in committees during the year. They concurred in opinion that the Medical Association of Isthmian Canal Zone be recognized as a constituent association. They expressed regret that general secretary wished to be relieved of his duties but thought that his request should be granted.

Report of Committee on Organization.—Dr. J. N. McCormack of Kentucky said that in his campaign he had been greately aided by the American Health League, especially by Mr. Irving Fischer, whose unselfish labors had been so effective. He referred to the Owen bill and said that few measures were so ably supported as this had been. It should be made plain to the public that this bill was for prevention and not for cure, and that it did not menace personal freedom. He recommended that the president appoint seven members as a committee to frame a bill for the next congress and that this committee invite the cooperation of other organizations having the same end in view.

GENERAL SESSIONS.

Tuesday, June 7—First Day.

The opening meeting was called to order by the president, Col. William C. Gorgas, U. S. A. The Rev. Charles S. Mills of St. Louis made the opening prayer.

Addresses of Welcome.—Dr. Henry Schwartz, president of the St. Louis Medical Society, after extending greetings, said that the physicians of St. Louis appreciated the help and encouragement that this meeting would give to the profession of the city and of the State of Missouri. They would derive great benefit from learning that they were an integral part of the American Medical Association, and that this organization was a mighty factor in enlightening the public, encouraging the pursuit of scientific medicine, and promoting legislative reform. They would be aroused to assume their share of work and to live up to that part of the constitution which gave as one of the objects of the Association "promotion of friendly intercourse among American physicians."

Dr. Herman E. Pearse of Kansas City, President of the Missouri State Medical Society, said he welcomed the American Medical Association for what it could do. It had promoted pure food laws, driven out quacks, abortionists, drug adulterators, and others who preyed on the misfortunes of humanity, and he welcomed them to a five days' fight in St. Louis and assured them that they would find elegant fighting all along the line.

Dr. W. G. Moore of St. Louis said the Association had in its outgoing and incoming presidents two of the greatest men in America and that the organization, judged by the standards of philanthropy and of the greatest good to the greatest number, was the greatest organization in the country. Somebody had said that the medical profession was a trust and had asked, "Do you want government by medical politicians?" The speaker answered, "We do by all means," and to the question, "Do you want health and hygiene under a medical bureau?" he had answered, "This is a consummation devoutly to be wished." If it was a trust it furnished proof that there was such a thing as a good trust. It was a trust 30 or 40 per cent. of whose earned increment went to charity. The results of its scientific work went to prince and pauper alike. It limited its own income constantly by diminishing ills to which flesh was heir. If it was a sin to belong to such a trust he gloried in the company of such sinners. They might differ on all other political questions but on questions of public health they should array themselves on side of righteousness and well doing. If in future political positions were held by medical men, the government should require that they were thoroughly qualified for the performance of their duties, but it should never make them pawns of political expediency. To remove them from office for political reasons would be unjust and unfair and the speaker gave warning that the American Medical Association would make a firm stand against such methods.

Hon. Herbert S. Hadley, Governor of Missouri, said that no other body of men could excite as great human interest as this. The usefulness of physicians was not limited to weakness and sickness but to existence itself. They had increased longevity as well as health and the enjoyment of life. If the practice of medicine was sometimes regarded by the laity as after all only a system of empiricism, then this was a most hopeful indication of progress. It showed that they were ever searching for something better. No one could ever witness the marvelous results of antitoxin in diphtheria without taking off his hat to the profession. A strange thing it was that great truths were, when understood, found to be so simple, and the only wonder was no one had known them sooner. He referred to work in preventive medicine as having raised the science of medicine in public esteem. He hoped government would soon awake to the error of spending millions on cattle and hogs and nothing on women and children. They had recently done much to raise the status of the Health Department in Missouri and now they had a bureau of vital statistics in operation. The State Board of Health should be more interested in raising the standard of medical education in the State. He had the privilege of making medical appointments and had made none without the recommendation of the State Board of Health. He had never received from any body such sane and practical help as he had from State Board of Health; this was especially true in the work of reforming prisons. The legal profession would do well to follow the example of the medical profession in ridding their ranks of unworthy men. The militant spirit shown in disposing of charlatans was most commendable.

Hon. Frederic H. Kreismann, Mayor of St. Louis, also welcomed the association.

Col. Gorgas then introduced the president-elect, Dr. Wm. H. Welch of Baltimore, who, he said, was already well known, known throughout Europe as well as this country for his scientific attainments, and known by profession for his sound advice on lines pertaining to their welfare as well as for attainments.

Address of President.—Dr. William H. Welch thanked the Association for the honor conferred upon him, an honor to which no one could be indifferent, and he assured his hearers that he held the office as both a privilege and an opportunity. In the recent death of Koch, humanity had sustained the loss of one of the greatest benefactors of the race, one who shared with Pasteur the honor of establishing the science of bacteriology. The world owed to him, not only the methods of investigation, but a most fruitful exploration of fields whose gates had been unlocked. He paid a tribute to the memory of the late president, Dr. Herbert Leslie Burrell of Boston and of Dr. W. B. Atkinson, who had been secretary of the American Medical Association for many years, and he lamented the loss of Dr. Howard T. Ricketts, who had won a place in the front rank of pathologists. In his death science had suffered a great loss. Dr. Welch welcomed the action of Senator Owen in presenting a bill for the establishment of a National Department of Health, and also the action of Congress in appropriating $50,000 with which to honor the men who had overcome yellow fever. A commission had been appointed to select a suitable location for the erection of this memorial and he hoped the effort would receive the grateful acknowledgement and endorsement of the Association. The move toward the erection of a monument in memory of the medical officers on both sides during the civil war should appeal to the profession throughout the country. He said his purpose was to outline the work of the Association in recent years.

Dr. Welch thought the earlier workers had been wise in selecting a representative form of government for the Association; it was well suited to the needs of the organization at the time of its adoption. The Association had grown and accomplished so much in recent years that they were in danger of forgetting what had been done before that time. The Association had been the great unifying force in this country, and had had the loyalty and services of the leaders of the profession. The fact that it had not accomplished more in earlier years was largely due to defect in the machinery of government. The improvement in government did not mark a break, but only an evolution toward better things. The plan adopted in 1901 had been proposed in 1887, but owing to defects in the system they had never been able to effect the changes. Dr. Davis, for whose memorial they were trying to raise $5,000, had originated the plan. They had been fortunate in securing the best men in the profession and allied fields for the working out of these plans. The Council of Chemistry and Pharmacy, supported by the Association, had done good work, and legitimate pharmacists appreciated its benefits. The work of the Council on Medical Education should be commended. Their conferences had been attended by leading educators of the country. The

object of their work was constructive, not critical. The results were of enormous consequence to the profession and to the community, for they were alike dependent upon the quality of the training in medical schools. They had secured a reduction in the number of unacceptable medical schools, an elevation of standard in others, better laboratories, and had impressed all with necessity of having hospitals under the control of the schools. There were four or five times as many physicians in proportion to the population as were necessary, and influences now tended to lessen the number somewhat. The speaker congratulated the city of St. Louis on the reorganization of Washington University.

The speaker said that the defense of medical research was a duty, not only to present, but to following generations. There was little hope of progress in scientific medicine without animal experimentation, it was the lever of advancement. Animal experimentation differed from other laboratory work and should never be undertaken without a serious purpose and a sense of responsibility. Antivivisectionists had an utterly hopeless undertaking in trying to convince the public that experimentation was valueless. Agitation should be welcomed as giving an opportunity for presenting conclusive evidence of its value to the public. The charges of wanton cruelty showed recklessness of statement and disregard of truth, and of the interests of science and humanity. He was convinced that animal experimentation, as practised, needed no legislative restrictions, and all that had been proposed subjected the experimenter to intolerable restrictions and annoyance. Such restriction had been detrimental in England, and they should exercise all vigilance in preventing it here. The question as to how far the American Medical Association should interest itself in legislation was one of considerable difficulty and was not yet solved. They should keep clear of politics in the ordinary conception of that term, and should undertake nothing except for the public welfare. As a rule, the Association should not interfere with State legislation. All legislation that it had thus far supported seemed right. He referred with approbation of the labors of Col. Gorgas, who had, with the help of the Army, achieved the greatest sanitary triumph of the age.

The bill of vital statistics had improved conditions in the registration area, and this work should move on as rapidly as possible. There was a most gratifying public sentiment in favor of a National Department of Health. Arguments in its favor were better than those which had been advanced for the establishment of a Department of Agriculture. The attack on the bill and on the Association was the work of patent medicine manufacturers, and was of such preposterous nature that there was no reason for taking concern about it. There should be no such thing as sectarianism in medicine. All good work was based on scientific knowledge and experience, and these should be required of those who wished to practise a knowledge of the human body and its diseases without which it would be unsafe and unfair to the public to permit men to practise. There was nothing in the principles of the Association to interfere with any method of healing, so long as the interests of the public health were not interfered with. A National Department of Health would have nothing to do with medical-practice acts; its purposes would be preventive, not curative. Thus far cults had concerned themselves only with curative functions, never with prevention. Dr. Welch emphasized the importance of keeping the scientific and educational functions of the Association always in the foreground. Thus it would be a force for advancing the well-being, happiness, and progress of the country, and would contribute a beneficent share to the working out of our national destiny.

SECTION IN MEDICINE.

Tuesday, June 7—First Day.

DR. GEORGE BLUMER OF NEW HAVEN, CONN., CHAIRMAN.

Experiences with the Duodenal Contents in Man.—Dr. MAX EINHORN of New York reported the results of some investigations which he had made by means of the duodenal pump. Among seven cases of achylia gastrica trypsin were absent twice, whereas steapsin and amylopsin were present. The disturbance of the pancreatic function in this affection explained why they frequently found intestinal troubles associated with it. Admixture of mucus to duodental contents occurred in two ways. It might be evenly and intimately mixed with the contents or it might appear at intervals in relatively clear contents of the duodenum. The latter pointed to the origin of the mucus from the duodenum, whereas its intimate mixture would point to an origin in either the pancreas or the bile passages. Occasionally one obtained on aspiration of the duodenal contents at first a clear or slightly amber-colored fluid, of alkaline reaction, and containing the pancreatic ferments. Usually after waiting a short time and after repeated aspirations a golden-yellow fluid appeared. This had no diagnostic significance. If, after waiting and repeated aspirating, only pancreatic juice, with no trace of bile, appeared, this might be of importance, particularly in cases of chronic jaundice. If bile was present in the duodenal contents a complete closure of the common bile duct could be excluded. If bile was entirely missing and pancreatic juice was present it pointed to a seat of obstruction above the common duct. Further work in this field would be productive of results of great value, not only for diagnosis, but for therapy.

Case of Diffuse Purulent Ventricle. Septal Myocarditis with Adams-Stokes Syndrome.—Drs. HARVEY G. BECK and WM. ROYAL STOKES of Baltimore said that purulent myocarditis had been described by various writers, but the medical literature contained few, if any, cases of this condition associated with the Adams-Stokes syndrome. Heart block occurring in infectious diseases had recently been described. After reviewing the pathology of purulent myocarditis, the clinical history of a case showing syncopal attacks with heart block was given. At autopsy the heart was enlarged and the coronary arteries showed extreme endarteritis, with thrombosis of the right coronary artery. Microscopical sections revealed diffuse purulent myocarditis practically limited to the interventricular septum. Serial sections of the bundle of His showed hemorrhages in the main bundle in the auriculoventricular groove, and branches in the right and left ventricles showed a fragmentation of the nuclei of muscle fibers and diffuse purulent infiltration.

Case of Heart Block with Alternation of Systolic and Diastolic Jugular Waves.—Dr. ISAAC IVAN LEMANN of New Orleans said that just as in ventricular weakness there was often an alternating arterial pulse, so in auricular weakness there might be alternation of strong and weak contractions. The case presented showed alteration of the *a*-wave in the jugular tracing. The influence of the auricular weakness was shown by an alternation of the systolic wave, due probably to alternation of tonicity of the auricular wall.

The Radical Cure of Malaria; Its Importance, and How It Is Attained.—Dr. SEARLE HARRIS of Mobile, Ala., said that malaria, though decreasing in severity and frequency, continued as one of the most prevalent diseases in many localities of the United States; in some places its mortality rate amounted to 25 per cent. of the total number of deaths. In this country in 1900 the number of deaths from malaria was 14,909. It should be remembered that malaria, as a complication of pregnancy and a number of diseases, and as a cause of arteriosclero-

sis and nephritis, was responsible for many deaths which were ascribed to other causes. It seemed, therefore, that these statistics did not overestimate the number of lives sacrificd to this easily preventable and curable disease. It had been estimated that malaria cost the nation from $80,000,000 to $100,000,000 annually. The unnecessary burden of malaria could be relieved simply by radically curing those suffering from the disease. Malaria could be entirely eradicated in one year in any community, without regard to the number of anophelines present, if every person having the disease would take quinine long enough to be completely cured. It was the man and not the mosquito that carried malaria through the winter, thus perpetuating the disease. The average physician did not regard malaria as a serious disease. He relieved the acute symptoms in a few days, and when the patient died of malaria he felt that the patient had neglected himself. It was in the most malarial regions that the disease was most lightly regarded. The seriousness of the disease and the importance of radical cure should be more emphasized. The complications which resulted from failure to cure were responsible for more deaths than the acute and pernicious forms. The most marked effect of malaria was seen upon the renal organs and vascular structures; consequently, in malarial regions the death rate was high, and the mortality from nephritis and various forms of paralysis was inordinately increased. There would be little chronic malaria if acute cases were cured, but there were to-dav probably two or three million persons in the United States who were harboring malarial parasites. All authorities agreed that quinine was almost a specific when treatment was begun early and continued long enough to eradicate the parasite from the system. The microscope was not always a criterion as to chronic malaria; undoubtedly the disease did exist without the presence of the parasites in the peripheral circulation. A campaign should be instituted at once against malaria. There should be a campaign of education begun with the medical profession, because physicians as a class did not appreciate the seriousness of malaria, or the ease with which it could be eliminated. The public should be educated by means of popular addresses, and literature on the subject should be placed in the hands of all living in malarial districts. Being infectious and contagious, this disease should be classed among the reportable diseases, and State and county boards of health should lead in the fight. Money spent in eradicating malaria would yield greater returns than that expended in any other form of philanthropy.

A Possible Differential Sign Between Cardiac Dilatation and Pericarditis with Effusion.—Dr. W. J. Calvert of Dallas, Texas, said that extreme dilatation of heart was often difficult or impossible to differentiate from large pericardial effusions. He described a possible differential sign. In large hearts the sternum was depressed, the entire liver was depressed, the right lobe of the liver was relatively elevated, the right lung was elevated and pushed outward and backward, thus giving a high position of the liver with a narrow band of lung-liver relative dullness. In pericarditis with effusion the liver was depressed, the right lung was pushed outward and backward more than upward, thus giving a low position of liver with a narrow band of lung-liver relative dullness. The size of the liver was of no material importance.

Wednesday, June 8—Second Day.

The morning session was devoted to a symposium on circulatory disorders in acute infections.

Oration in Medicine.—Dr. Richard C. Cabot of Boston delivered this address, which was entitled "A Study of Mistaken Diagnoses Based upon the Analysis of 1,000 Autopsies and a Comparison with the Clinical Findings." The speaker presented the following statistics:

Cardiovoscular System.—Mitral Stenosis: Total, 71 cases; correct diagnosis in 49 cases, or 69 per cent.; error of omission in 16 cases, or 22 per cent.; error of commission in 9 cases, or 9 per cent.

Aortic Stenosis.—Total, 31 cases; correct diagnosis in 19 cases, or 61 per cent.; error of omission in 11 cases, or 36 per cent.; error of commission in 1 case, or 3 per cent.

Aortic Regurgitation.—Total, 68 cases; correct diagnosis in 57 cases, or 84 per cent.; error of omission in 5 cases, or 7 per cent.; error of commission in 6 cases, or 9 per cent.

Chronic Myocarditis.—Total, 59 cases; correct diagnosis in 13 cases, or 22 per cent.; error of omission in 15 cases, or 26 per cent.; error of commission in 31 cases, or 52 per cent.

Arteriosclerosis.—Total, 220 cases; correct diagnosis in 131 cases, or 60 per cent.; error of omission in 77 cases, or 35 per cent.; error of commission in 12 cases, or 5 per cent.

Aneurysm.—Total, 23 cases; correct diagnosis in 12 cases, or 52 per cent.; error of omission in 10 cases, or 43 per cent.; error of commission in 1 case, or 5 per cent.

Cardiac Hypertrophy and Dilatation.—Total, 339 cases; correct diagnosis in 223 cases, or 66 per cent.; error of omission in 113 cases, or 33 per cent; error of commission in 3 cases, or 1 per cent.

Acute Endocarditis and Ulcerative Endocarditis.—Total, 59 cases; correct diagnosis in 23 cases, or 39 per cent.; error of omission in 32 cases, or 54 per cent.; error of commission in 4 cases, or 7 per cent.

Acute Pericarditis.—Total, 54 cases; correct diagnosis in 11 cases, or 20 per cent.; error of omission in 38 cases, or 70 per cent.; error of commission in 5 cases, or 10 per cent.

II. *Respiratory System.*—Lobar Pneumonia: Total, 157 cases; correct diagnosis in 116 cases, or 74 per cent.; error of omission in 23 cases, or 15 per cent.; error of commission in 18 cases, or 11 per cent.

Bronchopneumonia.—Total, 94 cases; correct diagnosis in 31 cases, or 33 per cent.; error of omission in 60 cases, or 64 per cent.; error of commission in 3 cases, or 3 per cent.

Phthisis (Active).—Total, 54 cases; correct diagnosis in 32 cases, or 59 per cent.; error of omission in 16 cases, or 30 per cent.; error of commission in 6 cases, or 11 per cent.

Miliary Tuberculosis.—Total, 54 cases; correct diagnosis in 28 cases, or 52 per cent.; error of omission in 20 cases, or 37 per cent.; error of commission in 6 cases, or 11 per cent.

III. *Urinary System.*—Acute Nephritis: total, 32 cases; correct diagnosis in 50 cases, or 16 per cent.; error of omission in 200 cases, or 62 per cent.; error of commission in 7 cases, or 22 per cent.

Chronic Glomerulonephritis.—Total, 72 cases; correct diagnosis in 53 cases, or 74 per cent.; error of omission in 9 cases, or 12 per cent.; error of commission in 10 cases, or 14 per cent.

Chronic Interstitial Nephritis.—Total, 50 cases; correct diagnosis in 25 cases or 50 per cent.; error of omission in 19 cases, or 38 per cent.; error of commission in 6 cases, or 12 per cent.

Amyloid Nephritis.—Total, 4 cases; correct diagnosis in 0 cases, or 0 per cent.; error of omission in 4 cases, or 100 per cent.; error of commission in 0 cases, or 0 per cent.

Renal Tuberculosis.—Total, 3 cases; correct diagnosis in 1 case; error of omission in 2 cases; error of commission in 0 cases.

Renal Neoplasm.—Total, 6 cases; correct diagnosis in 1 case; error of omission in 5 cases; error of commission in 0 cases.

IV. *Nervous System.*—Cerebral Hemorrhage: total, 51 cases; correct diagnosis in 34 cases, or 67 per cent.; error

of omission in 4 cases, or 7 per cent.; error of commission in 13 cases, or 26 per cent.

Cerebral Tumor.—Total 11 cases; correct diagnosis in 8 cases; error of omission in 2 cases; error of commission in 1 case.

Septic Meningitis.—Total 36 cases; correct diagnosis in 23 cases or 64 per cent.; error of omission in 8 cases, or 22 per cent.; error of commission in 5 cases, or 14 per cent.

Tuberculous Meningitis.—Total, 36 cases; correct diagnosis in 26 cases or 72 per cent.; error of omission in 5 cases, or 14 per cent.; error of commission in 5 cases, or 14 per cent.

V. *Digestive System.*—Gastric Cancer: total, 42 cases; correct diagnosis in 30 cases, or 72 per cent.; error of omission in 7 cases, or 17 per cent.; error of commission in 5 cases, or 11 per cent.

Peptic Ulcer (Gastric or Duodenal).—Total, 26 cases; correct diagnosis in 9 cases, or 35 per cent.; error of omission in 14 cases, or 54 per cent; error of commission in 3 cases, of 11 per cent.

Hepatic Cirrhosis.—Total, 31 cases; correct diagnosis in 19 cases, or 61 per cent.; error of omission in 9 cases, or 30 per cent.; error of commission in 3 cases, or 9 per cent.

VI. *Miscellaneous.*—Typhoid Fever: total, 60 cases; correct diagnosis in 53 cases, or 90 per cent.; error of omission in 2 cases, or 2 per cent.; error of commission in 5 cases, or 8 per cent.

Diabetes Mellitus.—Total, 20 cases; correct diagnosis in 18 cases, or 90 per cent.; error of omission in 0 cases, or 0 per cent.; error of commission in 2 cases, or 10 per cent.

General Septicemia.—Total, 157 cases; correct diagnosis in 20 cases, or 12 per cent.; error of omission in 134 cases, or 85 per cent.; error of commission in 3 cases, or 3 per cent.

The following were the speaker's summary and conclusions, based upon this extensive and painstaking investigation: (1) Never make a diagnosis of uremia in patient seen for the first time in acute illness characterized by coma or convulsions. Such diagnosis rarely turn out right. (2) Never make a diagnosis of ptomaine poisoning without definite chemical evidence; general peritonitis or tabetic crises is usually the correct diagnosis in such cases. (3) Make no diagnosis of hysteria, neurasthenia, or psychoneurosis in a patient whose symptoms began after the forty-fifth year; the correct diagnosis in such a case is likely to be arteriosclerosis, hyperthyroidism, dementia paralytica, or pernicious anemia. (4) Diagnoses of tertian malaria in patients whose symptoms have resisted quinine more than three days are almost invariably wrong. (5) Bronchial asthma beginning after the age of forty is usually spelled heart or kidney disease. (6) Epilepsy beginning after the age of forty is usually spelled dementia paralytica or cerebral arteriosclerosis. (7) Typical migraine is often a symptom of unrecognized brain tumor of chronic nephritis. (8) Most cases of bronchitis are tuberculosis, bronchopneumonia, or multiple bronchiectatic cavities. (9) Aside from the immediate results of acute infections, such as scarlet fever, diphtheria, tonsilitis, and pneumonia; acute nephritis usually turns out to be chronic. (10) Acute gastritis and gastralgia usually mean appendicitis, gallstones, or peptic ulcer. (11) Pus in or near the liver is often mistaken for a serous or purulent pleurisy, for it produces identical signs in the chest posteriorly. (12) An *x*-ray picture of the shin-bones may give the first hint of an active syphilitic process in the joints or internal viscera. (13) Systolic or presystolic murmurs heard best at the apex of a markedly enlarged heart rarely mean valve lesions. (14) Diastolic murmurs at the base of the heart afford very uncertain evidence of aortic disease unless there are characteristic jerkings in the peripheral arteries. (15) Myocarditis is a diagnosis which can never be made with any certainty. (16) Besides the direct evidence afforded by the history and physical and chemical examination, diagnosis profits much by taking account of certain familiar pathological chains or groups of items; given one or two members of a group it is often wise to act as if the others were present, provided, of course, that direct evidence in no way contradicts this assumption. (17) Cerebral localization applied to tumors, hemorrhages, and the like is still in its infancy. (18) The clinical diagnosis of so-called diseases of the blood is still the easiest and surest in medicine.

Magnesium Poisoning.—Dr. William F. Boos of Boston read a paper with this title, based upon a study of ten cases. He said that magnesium poisoning was probably more frequent than was generally supposed, the true cause of a given toxic condition remaining unknown in most cases. Two of his three personal cases were brought to notice merely through the discovery of a very high specific gravity of the urine (1070 and 1080 respectively). These two cases ended with recovery, the third with death. The speaker then discussed the seven cases found in the literature. In his three cases intoxication was undoubtedly caused by absorption of considerable quantities of magnesium sulphate from the gastrointestinal tract. He outlined his experimental work on the conditions governing absorption of Epsom salts from solution.

Certain Popular but Erroneous Notions Concerning Angina Pectoris.—Dr. James B. Herrick of Chicago said that several rather prevalent notions concerning true cardiovascular angina pectoris were erroneous. Among these were: that peripheral arteriosclerosis, cardiac hypertrophy and high blood pressure were always to be made out; that the symptom-complex in one who had an aneurysm or an aortic valvular lesion was not to be classed as a true angina; that the attacks were always few, brief, and occurred only after exertion; that death soon after the first attack was inevitable; that the disease was practically unknown in women; that pain radiating to the neck or arms was always present; that the patient during an attack was never unconscious; that he was always immobile and erect, sitting or standing; that eructations or vomiting during an attack argued conclusively against its cardiovascular origin; that nitrites were seldom if ever of benefit in relieving symptoms, or per contra that a case in which nitrites gave no relief was not true angina.

Orthodiagraphy.—Drs. Thomas A. Claytor and Walter H. Merrill of Washington gave a lantern slide demonstration of a series of diagrams of the heart and aorta, with explanatory remarks.

The Diagnostic Value of Orthodiagrams.—Dr. James G. Van Zwaluwenburg of Ann Arbor read this paper. It was discussed by Dr. Sidney Lange of Cincinnati.

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

Tuesday, June 7—First Day.

Dr. John G. Clark of Philadelphia, Chairman.

Infectious Endometrium.—Dr. William S. Gardner of Baltimore described the changes of the endometrium following infection in a series of cases studied pathologically. These showed definite cell changes, gland changes, and changes in structure of the blood-vessels. In the late stages, while the epithelium might be normal, there was frequent fibrosis in the stroma, and the glands were dilated, but a differentiation could not be made between a primary fibrosis and secondary effect of infection. In very late cases the glands were frequently largely destroyed.

Dr. Novak of Baltimore called attention to the similarity between acute infections of the endometrium and those of other tissues.

The Plastic Surgery of the Pelvic Structures.—Dr.

Henry O. Marcy of Boston was disappointed with the result of plastic surgery of many other men, but he would criticise the methods rather than the operators. He described a method of perineorrhaphy, which he used, giving a complete restoration of the anatomical relations after skillful dissection on a rather extensive scale, the use of buried absorbable sutures, and aseptic healing under iodoform-collodion dressing. He reported less than two per cent. of failures in 15 years.

Dr. Gilliam of Columbus did not get as good results from absorbable suture as from nonabsorbable.

Dr. Gilbert of Ohio spoke well of the after-treatment described in the paper, but he saw no need of post-operative douches.

Dr. Hall of Kansas City used a paste made from subiodide of bismuth with water in place of iodoform-collodion as an after-dressing.

Dr. Shoemaker of Philadelphia called attention to the value of an apron of mucosa to cover the deep tissues and prevent infection

Arteriosclerosis of the Uterine Vessels.—Dr. S. H. Chalfont of Pittsburg called attention to cases of bleeding, all of which were formerly called endometritis, that are now considered to be due to metritis. He said it had been shown that in the uterus after pregnancy a new set of arteries with three new coats was developed inside of the old vessels. The old vessels normally were reabsorbed, but in many cases the muscular coat of the old vessels remained and was replaced by elastic tissue, or in less favorable cases by fibrous tissue. He showed pictures from twelve cases of bleeding in which hysterectomy had been done, showing many large vessels, all with an increase of connective tissue, but not in proportion to the amount of the bleeding. It was impossible, therefore, to associate accurately the pathology with the history. He excluded the cases of endometritis and varicose veins of the uterine wall. In a certain number of the cases muscular relaxation of the vessel walls, which were normally always contracted, must account for the bleeding. Four factors which seemed to account for these hemorrhages were increased size and thickness of the blood-vessels, general arteriosclerosis, local acute congestion, and local loss of tone in the blood-vessels. For the treatment of this condition, the speaker suggested hystereceomy.

Dr. Novak of Baltimore said that uterine bleeding was present in a certain number of cases in the absence of any pathological lesion. Here the physiological cause seemed probable, and a hormone secreted by the ovary was, without doubt, the factor that was at fault.

Dr. Foulkrod of Philadelphia considered either that the muscles of the blood-vessels were too weak to control sclerotic vessels or that an endometritis was present in practically every case.

Ideal Operation for the Cure of Total Prolapse of Uterus.—Dr. S. W. Bandler of New York described this operation. He made a thorough and complete separation of the bladder from the vagina through a longitudinal incision from the cervix almost to the urethra. Sutures were then placed in the anterior wall of the uterus, but instead of being passed immediately through the anterior vaginal wall, they were left unfastened temporarily. Then a very high amputation of the cervix was done, sewing the mucosa to the uterine canal, beginning posteriorly and using up all the surplus mucosa until the anterior median line was reached. Then the excess of mucosa was trimmed off, and fixation sutures of the uterus were passed through flaps and tied. Then posterior colporrhaphy was done through a transverse and median T-incision, pulling the levator ani muscle together up to within one-half inch of the amputated cervix. By combining a special high perineorrhaphy, the operation occupied about an hour and a half. The after-treatment included immediate dilatation of the splincter ani, which prevented all interference with the sutures when the bowels moved. The patient was catheterized for two days, and sterile boric-acid solution was poured over the wound from four to six times a day.

Dr. Carstens of Detroit said Bandler in this operation tried to save a useless uterus. Personally he preferred hysterectomy, which could be done in fifteen minutes.

Dr. Goffe of New York said that Bandler cut the cardinal ligaments of support of the uterus, which were essential, and so spoiled his operation. Personally the speaker did a hysterectomy, suturing the broad ligaments together and uniting them to the round ligaments and the anterior vaginal wall. Then did a rectocele operation, plicating the rectum with from one to three lines of buried sutures and then united the levator ani muscles.

Dr. Lawrence of Columbus called attention to a cause of prolapse in the lack of support through the broad ligaments which resulted from this operation. Moreover, a large amount of scarred tissue was produced.

Dr. Baldy of Philadelphia criticized the operation as not removing the cause of the prolapse, which lay in the laxity of the upper end of the vagina.

Dr. Bandler, in closing, responded to the adverse criticism, calling attention to the type of operation as simply modified from the established operations now in use throughout Europe. The operations described by his critics were inadequate in that they were followed by recurrences. Hysterectomy was merely doing something as an excuse, while his operation was backed up by the results in seventy cases in which there had been no recurrence.

Papillary Cystadenoma of Kidney with Myoma Uteri and Spinal Caries.—Dr. Shoemaker of Philadelphia described a case in which he had done hysterectomy for a bleeding fibroid and then found a previously unnoted hematuria which showed its origin to be the left kidney. After washing out the bladder through a vaginal incision to avoid any later possible infection (it was filled with blood clots), indigo carmine solution was injected in the buttocks and the right kidney was proven sound. Nephrectomy was then done, and the kidney was shown to be a large solid tumor made up of minute papillary ademomatous cysts without definite signs of malignancy. Eighteen days later the vesicovaginal fistula was closed under cocaine. Before the patient left the hospital symptoms of pressure on the spinal cord from a previous spinal caries appeared, but for those the patient refused treatment.

Uselessness of Local Treatment in Puerperal Sepsis.—Dr. J. H. Carstens of Detroit read this paper. He said that he did not believe in douches, irrigations, or iodoform suppositories, but in asepsis. As a preventive measure he gave quinine and opium and flushed out the system with water. He encouraged the formation of antibodies in the system, and used antitoxins after determining which germs were the cause of the trouble.

Dr. Zinke of Cincinnati considered local treatment of great value in cases of sapremia. He cleaned out the uterus once with about twenty quarts of sterile solution, and then left the patient alone. In septic cases there was usually early profound systemic infection. In these he cleaned out the uterus and then gave about twenty c.c. antistreptococcus serum; no more local treatment.

Dr. Wetherill of Denver advocated drainage and irrigation continuously through a double-tube irrigator, preferably with 30 per cent. alcohol.

Dr. Boldt of New York said that bacteriemia could not be treated locally, and that the main objection to local treatment was that the traumatism hereby caused opened up channels for infection.

Dr. Glasgow of St. Louis thought that local treatment could remove the deeper germs in the deeper layers. To do this he gave injections with pure glycerin, producing a profuse exosmosis.

Dr. Schwartz of St. Louis said that in the cases in which streptococci were found in the blood it was too late to use an antitoxin.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held May 5, 1910.

The President, Dr. John A. Wyeth, in the Chair.

This meeting was held under the auspices of the Section on Public Health.

The Prevention of Alcoholism.—Dr. Frederick Peterson in considering this phase of the subject referred to the change that had taken place in recent years in the attitude of the medical profession toward the problem of alcoholism. Thirty years ago physicians were rather promoters of the use of alcohol both as a stimulant and as a remedial agent. No master mind in the whole profession had raised his voice against alcohol. Now, everywhere on both sides of the Atlantic medical men were foremost opposers of the use of spirituous liquors as a beverage or even as an agent in the treatment of disease. They had been living rather securely in the tradition that alcohol had always been with them and that most peoples who had reached the crest of development had been free users of wines and beers and that if alcohol carried with it any peril to the race, mankind would have degenerated long ago. Close historical study showed that drinking was not so widespread in ancient days as now. The liquors contained less alcohol and having no ice-machines they could not brew beers all the year around. The strong drinks, whiskeys, brandies, cocktails, bitters, and absinthe had not been invented. Without railroads and without bottles there was less distribution. With the wider diffusion of the idea that alcohol was a food, drinking became more general and alcoholism more noticeable. With the tremendous awakening of science in the latter part of the nineteenth century, and with the extraordinary progress of the science of medicine it was natural that alcohol should have its share of investigation. The facts which had been borne in upon medical men by such studies were overwhelming, and physicians were just beginning to understand how much responsibility rested upon them for the abatement of this evil. All physicians were familiar with a large catalogue of physical disorders directly due to alcohol, such as cirrhosis of the liver, dropsy, multiple neuritis, heart disease, Bright's disease, inflammation of the stomach, arteriosclerosis, delerium tremens, wet brain, and the like. The number of these cases was constantly increasing. Between 20 and 25 per cent. of all the insane owed their insanity to alcohol. Of the 4,000,000 paupers in the United States, 2,000,000 owed their dependence to alcohol. It was estimated that 25 per cent. of all crime committed was due to intemperance, and that there were 365,000 arrests for drunkeness annually in the United States. Physicians were somewhat divided as to the effect of alcoholism, an acquired characteristic, upon the offspring, but the evidence of experiments of Hodge on animals and the comparative study of Demme of the children of ten temperate and ten intemperate families led to the conclusion that parents thus poisoned affected their descendants disastrously. Alcohol was often the direct cause of epilepsy in a drinker, while between 20 and 40 per cent. of all epileptics had alcoholic parents. From the monetary standpoint it had been figured that the loss to society induced by the ravages of alcohol in the United States alone represented an economic waste of not far from a billion dollars per year. Alcohol was now regarded by most physicians as a drug whose action was to depress the heart, pervert the digestion, decrease muscular capacity, diminish intellectual function and when regularly used to bring about slow, far-reaching anatomical changes throughout the system. It had been said that the most alcohol had been consumed by the leading nations of the world, as if civilization and intemperance were necessary partners. In Japan they had a country which ranked well as a center of culture and efficiency where neither alcohol nor narcotic had been required. In answer to the question as to what was best to be done for the prevention of alcoholism he thought that a campaign of education such as was being carried on in the fight against tuberculosis was the only efficient method of warding off the evils of drink. Prohibition was helpful in so far as it educated the public. It did not, however, seem to be deterrent to the degree hoped for, since in prohibition States all sorts of evasions were practised. Substitutes in the way of medicines, bitters, and cordials containing alcohol were used. In one prohibition State an enormous appetite for aromatic spirit of ammonia had developed. The doses taken were often far in excess of what a physician would dare to prescribe. Aromatic spirit of ammonia contained 70 per cent. alcohol. Education would help these people where prohibition laws had been ineffectual. He advised having printed in brief form all the facts bearing on this question which the medical profession now had at hand. In Paris they had statements regarding the dangers of drinking to excess, printed on posters and put up in every ward and waiting room of every public hospital and printed on every prescription blank of the Paris hospitals and dispensaries. Dr. Peterson asked why our public spirited citizens should not join in such a crusade. Children should be taught these facts in the schools. Every hospital and dispensary in our country should begin a similar method of disseminating them. Our asylums for the insane and institutions for epileptics ought to print the statistics of alcohol as a cause of insanity and epilepsy on every letter sent out. There were doubtless many shop-keepers, owners of department stores, druggists, and so on, that would be willing to have such instructions printed on their wrapping-paper. Indeed such facts should be kept as a standing advertisement in many of our newspapers with large circulation. He had himself tried the experiment of printing them in briefer form on his own prescription blanks and wished that the 132,000 other physicians in the United States might be induced to aid the movement to this extent, for they know better than anyone else the fearful ravages of alcohol. Several of our States, notably Massachusetts, Iowa, and Minnesota, had established institutions for the treatment of public intoxication and inebriety, and there was now before the Legislature a bill prepared by the State Charities Aid Association to organize an efficient method in New York City for combating this growing evil. It had been sought to embody in this scheme all the best features of experiments in this line conducted in America and England. There was to be a Board of Inebriety consisting of five members appointed by the Mayor, field officers to act as investigators and probation officers, and an industrial and agricultural colony with a hospital within easy access of the city. It was planned to release all first offenders, to abolish the short sentence and fine, to place second offenders on probation for an indeterminate period, and to commit more frequent offenders to the Colony for from one to three years. The futile workhouse method would be displaced. Alcoholic repeaters who burdened the police courts and public hospitals would be eliminated. Medical care and treatment would be the main features of the new system in contrast to the present purely legal and penal methods. This emphasis of the medical side of the subject should bring to the support of the measure the endorsement of every physician in the city, and if the experiment succeeded

here, the New York City plan should be copied all over the country.

Alcohol in Its Economic Aspects.—Dr. Irving Fisher of Yale University spoke on this phase of the question. He said that Dr. Peterson's paper was the basis for his remarks. The present temperance movement had a sound physiological basis and that Dr. Peterson had shown. The question no longer was whether a small amount of alcohol was harmful or not, it was not a question of dose. The fact was that as alcohol actually was used it was doing a vast amount of harm. One observer had made an investigation of one thousand families who used alcohol and of the same number who did not and the results demonstrated beyond a peradventure that those families that abstained from the use of alcoholic drinks were better off in every respect. Some English statistics on the comparative death rate of abstainers and non-abstainers among the insured showed that between the ages of 30 and 40 the mortality among the abstainers was 56½ per cent. of that among the non-abstainers. Between the ages of 40 and 44, 57 per cent.; 50 and 54, 62 per cent.; 60 and 64, 78½ per cent.; 70 and 74, 86½ per cent.; 80 and 84, 94 per cent. Of course, statistics as to the injurious effect of alcohol might be somewhat vitiated by the well known element of selection. Professor Farnam of Yale, writing a report for the Committee of Fifty, concluded that among the cases of poverty investigated by charity organizations societies, 25 per cent. were due to alcohol and among the cases of poverty in almshouses 37 per cent. were so due; 31 per cent. of the crime was due to alcohol as a first cause and 50 per cent. to alcohol as a partial cause. The Bureau of Labor for Massachusetts in 1895 reported that alcohol was the cause of 84 per cent. of the crime and 48 per cent. of the pauperism and 35 per cent. of the insanity. Carroll D. Wright, who was at the time of his death America's leading statistician, stated that he had looked into the homes of a thousand families in England and many thousands in the United States and in almost every case misery was due, not to industrial conditions, but to alcohol.

The Use of Alcohol in Its Moral Aspects.—Dr. George H. Avery said that he had been asked to speak because he was engaged with the drunkard face to face; he was a witness, as it were. The New York Christian Home had been founded in 1876 for the purpose of caring for inebriates, not only those from New York City but from all parts of the country. A building had been erected at the corner of Eighty-sixth Street and Madison Avenue at a cost of $100,000. In 1886 it was decided to move this home into the country and twelve acres of land and buildings were purchased at Mount Vernon and he had been manager of this farm for twelve years. The drinking man was in great need; he needed medical attention and rest, but above all he neded a friend. It had been their object to be simply human and to help the drunkard as a friend would do. The victim of drink was not treated as a criminal but as an unfortunate; he was in an atmosphere of sympathy and courtesy. He was not talked to on the subject of religion as men of all different faiths and of no faith were alike welcome. The drinking man was treated as a man, talked to in regard to his business and his future and given work to occupy his time. After being with them for a few days the men usually braced up, ate well, and began to build up rapidly. They had chapel every night. In dealing with moral questions they had no hesitation in showing the men that they had lost standing physically and had also lost their moral standing in the community. It was very difficult to show these men that they were moral bankrupts. During the time he had been in charge of the home he had seen inmates who were from the best families and best colleges in the country; there had been bankers, lawyers, mechanics, druggists, and even clergymen. Many New York philanthropists had been interested in this institution. From a physical, mental, and religious standpoint it was as unconventional and happy as any community could be, not withstanding the fact that all had been drunkards. The physicians had been their best friends, but he could not say the same of the clergy. They did not seem to have much patience with the drunkard; they regarded him as foolish and bothersome.

Dr. John A. Wyeth announced that a committee of fifty members had been appointed with Dr. Ditman as chairman who would take certain steps to initiate the educational movement so well emphasized by Dr. Peterson and Dr. Fisher.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held April 25, 1910.

The President, Dr. John E. Weeks, in the Chair.

Report of the Public Health Education Committee.—Dr. Rosalie S. Morton, chairman of this committee, reported that a series of lectures had been given by fifty-two physicians. There had been from 360 to 550 people at each meeting, and this educational movement had reached to at least 5,000 people. The attitude of the public toward this movement was greatly appreciated; a great public interest had been awakened because of these lectures. The course of lectures for next winter was outlined.

The Owen Bill, Establishing a Department of Public Health, was endorsed by the society and it was resolved that the congressmen and senators from New York State be notified of such action.

Metrorrhagia and Uterine Fibrosis.—Dr. Arnold Sturmdorf read this paper. He said that the complacency of the physician might be seriously disturbed by an infrequent type of metrorrhagia, occurring about the preclimateric period, almost exanguinating in severity, for which no palpable routine cause was in evidence and nothing in their therapeutic equipment proved effective short of hysterectomy. The gross appearance of such an extirpated uterus revealed pale tissue of slightly augmented bulk and consistency. Microscopically, the small subendometrial vessels would be found increased in number and deformed in outline by a deposition of concentric fibrous layers, with well staining nuclei. Similar vascular changes existed in the myometrium, the muscular elements of which were encroached upon and replaced by fibrous bundles and round cell infiltration. Clinically, the uterus was converted into a rigid, engorged organ incapable of contraction, owing to a degeneration of its muscular and elastic elements, which were largely replaced by fibrous tissue traversed by stiff tortuous vessels, which were deformed and dilated. The question as to the relative significance and natural sequence of these vascular and myometrical degenerations in the causation of the uncontrollable bleeding was at present a theme of interesting debate. Dr. Sturmdorf outlined the present status of this controversy, but left the decision to academic discussion, and gave his attention to the clinical elements of the condition which was recognized under the various terms "uterine fibrosis," "uterine apoplexy," "senile hemorrhagic endometritis," "essential metrorrhagia," "metrorrhagia myopathica," etc. Reinecke and Martin reported thirteen cases in which hysterectomy was performed, the extirpated uterus in every case revealing sclerosis of vessels and musculature, but these authors failed to exclude the possibility of obstruction to the return circulation from thrombosis, cardiac, pulmonic, and hepatic disease, such as were found at autopsy in each of the eight cases reported by Von Kahlden. Popoff reported a case where kidney and heart

lesions were present with pleural effusion; Herxheimer reported one where cardiac and renal lesions were present with aortic atheroma. Palmer Findlay reports a case in which the immediate cause of uterine hemorrhage proved to be an embolus of the uterine artery, engrafted upon a generally disturbed circulation. These facts prompted him to the conclusion that sclerosis of the uterine vessels alone, and without coexisting general circulatory disturbance was insufficient to cause uterine hemorrhage. This, however, did not go far enough, for it ought to be added that the various hematogenic, toxemic, and metabolic disorders, as well as perverted ovarian functions, all and any of which, singly or combined, recognizedly exercised an etiological influence in the production of metrorrhagia. The terms usually applied to this condition were clinically misleading, as they tended to circumscribe the diagnostic horizon and limit therapeutic aim by focusing the attention on local manifestations, to the exclusion of general underlying factors. In the present state of their knowledge the diagnosis of uterine fibrosis could be established only upon the microscopic evidence of its existence in the extirpated uterus and upon their ability to exclude every other possible cause for—and their inability to control—the existing hemorrhage. They met many persistent, profuse, and apparently uncontrollable metrorrhagias, but they found an extremely small number that would not ultimately reveal causes other than uterine fibrosis to account for the bleeding, and it was essential to realize that they were treating not merely a bleeding uterus, but a bleeding woman. Uterine contraction alone would not control bleeding. Normal coagulation was an essential concomitant to such control, and this demanded normal blood, under normal pressure. Their operative records in a long series of metrorrhagic conditions revealed a significant group of cases in which gross abnormalities within the uterus by their nature and location completely eluded tactile recognition prior to surgical intervention. Among these unrecognized local causes were: first, fundal polypi; second, submucous or short pediculate myomata springing from the cornual area of the uterine cavity, and, last, maglignant disease. In all of these cases the unrecognized factor was located in and limited to the upper lateral angles of the uterine cavity. Pernicious anemia had proven to be the primary etiological factor in two cases. Jaundice, scorbutus, and other toxemias would recall conditions capable of inducing various degrees of hemorrhagic tendency. Functional disorders of the thyroid might influence menstruation and the development of metrorrhagia in exophthalmic goiter. A retinal hemorrhage was frequently the initial symptom, pointing to renal or vardiac disease, yet these conditions were rarely sought in explanation of uterine hemorrhage. The veins of the uterus, like those of the intestinal tract, might be varicosed by cirrhotic processes in the liver and other portal obstructions. They recognized this varicosity as productive of hemorrhages from mouth or anus, but failed to connect the same cause and effect in metrorrhagia. The recognition of any of the systematic conditions outlined as the cause of the metrorrhagia excluded uterine fibrosis and established imperative therapeutic indications. The control of local hemorrhage demanded prompt consideration. It could not be sufficiently emphasized that failure of ergot, the tampon, and the curette to control such hemorrhage did not demonstrate its uncontrollability, nor establish the diagnosis of uterine fibrosis. To check bleeding they must induce coagulation; to induce coagulation the blood current must be retarded and reduced. In these metrorrhagias the same tendency to incoagulability seemed to exist as in the normal menstrual fluid. The effort must, therefore, be to endeavor to induce coagulation before the blood was extravated into the uterine cavity. Such a result might be accomplished by a combination of medicinal and mechanical means. The so-called vasodilators, especially atropine and nitroglycerin, which retarded the general blood current by lowering vascular tension, should be pushed to their full physiological limit or point of toleration. The local uterine circulation could be reduced by snug, full, intrauterine packing, so applied as to substitute mechanical compression for the normal contractions of the vascular area. This packing should be applied under anesthesia if possible, through a cervical speculum after thorough dilatation, and should fill every portion of the uterine cavity. This packing should be supported by a comfortable vaginal tampon of cotton wool, and should not be removed without special indication for at least four days. During this period postural adjuvants were of great utility. In very urgent cases impeding the venous reflux from the extremities by intermittent annular constriction, as suggested by Dawbarn some years ago for inaccessible hemorrhages in other parts, had yielded the happiest results. This was no place for the curette; it should never be used without an obvious indication. The author very emphatically condemned the use of ergot in these cases. His objections to ergot also applied to cotton-root bark and hydrastis, while all the later synthetic oxytocics were quite inert. If the treatment outlined showed a tendency to control the bleeding, the packing should be removed every four days and renewed. If, on the other hand, no such tendency was manifested, their next step was digital exploration of the uterine cavity. To do this thoroughly the cervix should be exposed and drawn to the vaginal outlet through a transverse incision about 2½ cm. above the external os; it was freed from the bladder by blunt dissection as far as the peritoneal reflection. A median longitudinal section of the exposed anterior uterine wall would now permit of the introduction of the rubber covered exploring finger into the uterine cavity.

Dr. J. Riddle Goffe said that the best treatment in these cases was to pack the uterus with gauze. While it was necessary to investigate the uterus with the curette, one did not find it necessary to scrape away the mucous membrane. It was wise, however, to explore the endometrium and find out if there were any degenerated mucous membrane, polypi, or other pathological condition requiring attention present. In case of intractible hemorrhage, it should be controlled by dilating the cervix and then firmly packing the uterus with gauze. The outcome in these conditions, however, was hysterectomy. Adenocarcinoma occasionally found at the fundus uteri and associated with intractible hemorrhage was an important condition, had points of much interest, and Dr. Goffe recited a typical case that came under his observation years ago. She had nearly reached the menopause and suffered from severe hemorrhages. She had her uterus packed once or twice, and had been advised to be curetted. This was done, and the pathological report of the scrapings showed that there was a chronic inflammation present. The hemorrhage was controlled for two or three months, but it then returned with great severity. It was believed that she would bleed to death. Finally hysterectomy was performed and the pathologist reported an adenocarcinoma at the fundus uteri. Dr. Goffe believed that there were many such cases.

Dr. Herman J. Boldt agreed that the condition under discussion was one which could not be diagnosed clinically; it was only under the microscope that a positive diagnosis could be made. The uterus would be found to be enlarged, and in most instances there were evidences of hemorrhage, but this was not always the case. They must look for some pathological element that caused the hemorrhage further than simply an increase in the connective tissue. There seemed to be some change in the

blood-vessels which accounted for the bleeding. Finley was correct when he maintained that there was an arteriosclerosis present. In a number of instances, moreover, there was no increase in the size of the uterus. With regard to the use of the curette for making a diagnosis when in doubt, he believed in it; the curette would do no harm. If one failed to learn the cause of the bleeding by the use of this instrument, there would probably be no thickening of the endometrium, but in all probabilities there would be little endometrium present at all. He believed the uterus should be split open and its interior explored by the finger. Were these cases amenable to other forms of treatment than hysterectomy? He believed they were, and the form of medication depended largely upon the physician and his experience with certain agents. Personally, Dr. Boldt thought carbolic acid was of value; also chloride of zinc as used in the treatment of inoperable carcinoma. He believed this problem would be solved in the laboratory.

Dr. Samuel W. Bandler said he had had abundant opportunity to examine these cases under the microscope, and arteriosclerosis was a condition rarely found to be sufficiently marked to explain the large number of cases encountered. What might be found was: (1) a diminished number of muscle fibers; (2) muscle fibers of diminished contractile power; and (3) substitution of muscle fibers by fibrous tissue. The structure of the uterus in uterine fibrosis resembled the structure of fibrous tumors more than anything else; therefore, this term had been applied to this condition. Dr. Bandler said he was struck by another factor: the frequency with which he met with this condition in women who were broad-chested, broad shouldered, strong, vigorous women; women who could stand hemorrhages fairly well. In operating upon these cases, the ovaries would be found to be large, and under the microscope they would appear to have the ability to secrete. In women thirty-nine, forty or forty-seven years of age, when the ovaries were supposed to secrete less and when the uterus was supposed to undergo atrophy, the ovaries would be producing as if the woman was twenty-five or thirty years old. No response was found in the use of large doses of ergot or allied agents in the treatment of these cases. There seemed to be a hypoplasia, and not a hyperplasia of the mucous membrane. The curette made the diagnosis; its use was also important in therapy. He believed in performing hysterectomy in these cases, especially by the vaginal route, leaving behind the ovaries to prevent the early occurrence of the menopause.

Operations for the Correction of Deformities Following Pott's Fracture.—Dr. W. O. Plimpton read this paper. He first discussed the fracture, with its varying degrees of injury and dislocation, the complications and the length of time elapsing after the fracture occurred and the various operations to be done when each particular case had been summed up. No particular operation applied to all cases, but a general plan of procedure was to be pursued. The principle to be followed was to reduce the parts to the condition in which they were at the time of the fracture, then reduce the dislocation, and put up the leg and foot as in a recent injury. In doing this no one operation could apply to all cases. The object to be obtained was to bring the astragalus squarely under the perpendicular axis of the tibia, so that all the bones might be in their normal positions. To retain them there, wire sutures might be used if needed. Plaster-of-Paris was suitable as an outer dressing. Dr. Plimpton included in his paper the report of twelve cases, eight belonging to other surgeons and four of his own, with the description of the operation performed in each case. Good results, with useful limbs and excellent motion, resulted in all instances.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of June 11, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	552	165
Diptheria	411	40
Measles	1,218	21
Scarlet Fever	397	21
Smallpox	—	2
Varicella	174	—
Typhoid Fever	42	7
Whooping Cough	34	6
Cerebrospinal Meningitis	3	8
Malarial Fever	—	—
Totals	2,831	270

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 10, 1910.

			CASES	DEATHS
CHOLERA				
India, Bombay	Apr.	20–26	..	1
Calcutta	Apr.	3–16	..	141
Negapatam	Mar.	26–Apr. 1	..	3
Java, Batavia	Apr.	10–16	1	1
Samarang	Apr.	10–16	40	30
Soerabaya	Apr.	10–16	25	15
Russia, Ekaterinislav, government—				
Bachmut, district	May	2–12	15	3
Ekaterinislav	May	2–12	2	1
YELLOW FEVER				
Brazil, Manaos	Apr.	24–30	.	2
Para	May	1–7	7	5
Ecuador, Guayaquil	Apr.	16–30	13	4
PLAGUE				
Arabia, Lohcja	May	17–23		Present
Brazil, Rio de Janeiro	Apr.	8–24	1	1
Chile, Iquique	Apr.	10–23	19	5
Santiago	Apr.	4	*1	..
Ecuador, Guayaquil	Apr.	16–30	9	4
Egypt, Alexandria	Apr.	23–29	1	1
Provinces—				
Assiout	Apr.	23–29	22	20
Assouan	Apr.	23–29	1	1
Beni Souef	Apr.	23–29	4	1
Garbieh	Apr.	23–29	2	2
Fayoum	Apr.	23–29	4	5
Kena	Apr.	23–29	23	26
Minieh	Apr.	23–29	5	..
India, Bombay	Apr.	23–26		203
Calcutta	Apr.	3–16	.	134
Kurrachee	Apr.	17–23	68	64
Rangoon	Apr.	10–16		39
Japan, Kobe	Apr.	1–30	1	.
Osaka	Apr.	6–15	2	2
Peru, Arequipa, department	Feb.	1–28	7	3
Cajamarca, department	Feb.	1–28	4	1
Callao, department	Jan.	1 Feb. 28	4	2
Lambayeque, department	Jan.	1–Feb. 28	129	18
Libertad, department	Jan.	1 Feb. 28	66	25
Lima	Jan.	1–Feb. 28	17	6
Piura	Jan.	1–Feb. 28	9	8
Turkey, Jiddah	Apr.	4–17	23	22
SMALLPOX				
Abyssinia, Adis Ababa	Apr.	17–23		Present
Algeria, Bona	Apr.	1–30	4	2
Arabia, Mascat	Apr.	17–23	1	..
Argentina, Buenos Aires	Feb.	1–28	70	3
Rosario	Mar.	1–31	..	1
Brazil, Pernambuco	Mar.	16–31		62
Rio de Janeiro	Apr.	8–24	1	.
Canada, Campbelltown	May	10–16	.	1
Victoria	May	7–14	1	
China, Hongkong	Apr.	3–9	3	2
Egypt, Cairo	Apr.	30–May 6	4	3
France, Paris	Apr.	24–May 7	11	.
Germany, general	May	1–7	1	..
Konigsberg	Apr.	17–23	1	.
India, Bombay	Apr.	20–26		48
Calcutta	Apr.	3–16		10
Madras	Apr.	16–22	..	3
Rangoon	Apr.	10–16	..	26
Italy, general	May	2–8	4	.
Genoa	Apr.	16–30	3	..
Naples	May	2–8	8	
Turin	Apr.	22–28	2	1
Japan, Kobe	Apr.	21 27, 1 case on s. s. Mongolia, between Kobe and Yokohama.		
Nagasaki	Apr.	21	1 On s. s. Mongolia from Hongkong.	
Malta	Apr.	24–30	.	1
Mexico, Aguascalientes	May	7–14	..	8
Mexico	Apr	10–16	..	1
Salina Cruz	May	10–16	1	..
Portugal, Lisbon	May	1–7	46	..
Russia, Riga	May	1–7	5	..
St. Petersburg	Apr.	17–23	37	6

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Original Articles.

PLACENTA PRÆVIA.*

BY EDWARD P. DAVIS, M.D.,

PHILADELPHIA.

PLACENTA PRÆVIA may be defined as such an attachment of the placenta that the placenta must inevitably be separated during dilatation of the uterus in spontaneous labor.

It may broadly be divided into two classes: Central placenta prævia, where the placenta is over the internal os and covers the internal os, and marginal, lateral and partial, where the placenta covers a portion of the internal os, or extends to the margin of the internal os, or is attached to the wall of the lower uterine segment.

The causes of this abnormality are a relaxed condition of the uterine muscle, often seen in ill-developed, badly nourished primiparæ. Multiple pregnancy also predisposes to placenta prævia, especially if the uterus be distended by multiple pregnancy, and if in addition, polyhydramnios be present.

Placenta prævia may develop early in pregnancy so soon as the placenta forms. Its dangers in early pregnancy are indicated by a reported case in which a primipara while intoxicated bled to death from central placenta prævia. The case was investigated by the coroner of the city in which it occurred, and at autopsy central placenta prævia at ten weeks gestation, was found.

The diagnosis of placenta prævia may be made by auscultation in many cases. In others vaginal examination enables the physician to touch the placenta and to recognize its presence directly. In many cases vaginal examination is negative and only an hyperemic condition of the cervix and surrounding tissues can be felt. Where the abdominal walls are thin the placental bruit may be detected at the pelvic brim, and a low attachment of the placenta may be diagnosticated.

The condition may also be diagnosticated by hemorrhage without pain. The hemorrhage is bright, occurring at irregular intervals, sometimes following exertion or violence, and often persisting when the patient resumes the recumbent position. It frequently occurs during micturition or defecation.

The hemorrhage of placenta prævia is to be distinguished from the bleeding from fibroid tumor, bruised varicose veins in the vagina, menstruation persisting during pregnancy, and oozing from a degenerated and hypertrophied cervix. Ruptured tubal gestation is often accompanied by slight vaginal hemorrhage which might be mistaken for placenta prævia.

Placenta prævia can be distinguished from accidental separation in a normally implanted placenta by the external discharge of blood, the fact that in placenta prævia the uterus does not become hard and painful, and the history of accidental separation which often points to straining or external violence as the cause of the accident.

The treatment of partial, marginal, and lateral placenta prævia is comparatively simple. The effort of the practitioner should be to evacuate as much as possible of the amniotic liquid, bringing the presenting part to the pelvic brim, and stimulating the uterus to force it into the pelvic cavity. The placenta will thus be compressed between the presenting part and the wall of the pelvis, and hemorrhage will be checked or greatly lessened. In some cases the introduction of an elastic bag and its distention with sterile fluid, will make efficient pressure, stimulate dilatation, and check bleeding. The life of the fetus may often be preserved in these cases if the cervix dilates with sufficient rapidity to permit the birth of the child within a reasonable time.

The maternal mortality and morbidity of partial, marginal and lateral placenta prævia are not excessive, and the condition is one which can usually be dealt with successfully in private houses. Central placenta prævia has long been recognized as one of the most serious complications of pregnancy. Hemorrhage cannot be controlled until the womb is empty, and efficient pressure is made upon the enlarged sinuses of the lower uterine segment and the hypertrophied vessels of the cervix. If the case be treated by the vagina the uterus cannot be emptied until the cervix is dilated, and such dilatation is inevitably accompanied by hemorrhage; and the condition is quite as serious as ruptured tubal pregnancy, and must be dealt with with equal care. Too much importance cannot be laid upon the fact that so soon as a diagnosis of central placenta prævia can be made the attending physician assumes great responsibility. He can no more delay safely in his treatment of the case than he could if a diagnosis of ruptured tubal gestation had been made.

In the presence of this complication, the treatment must be largely influenced by the resources of the practitioner, and the circumstances of the case. It is of primary importance to ascertain and recognize clearly the condition of mother and child. If there has been but one considerable hemorrhage, and the mother is in good condition, and the child viable and vigorous, the question must be raised as to whether or not an effort shall be made to save the lives of both mother and child. If the mother is exhausted by bleeding, and the child dead or dying, obviously only the interests of the mother must be considered.

With mother and child in good condition, if the patient is to receive treatment which does not require the major operation, the following method

*Read before the Atlantic County Medical Society, April 8, 1910.

has proved of value: In many cases of central placenta prævia the cervix is partly dilated or dilatable if the child has reached viability when the practitioner sees the case.

The plan of treatment consists in piercing the placenta, evacuating as much of the amniotic liquid as possible, and introducing through the placenta and within the fetal envelop an elastic bag. This bag is distended with sterile salt solution, and moderate traction made upon the bag through its tube. The urinary bladder is frequently emptied by catheter, and if the uterus is relaxed a tonic dose of strychnia may be given hypodermatically. The pressure of the bag against the placenta controls or lessens hemorrhage and excites dilatation. If the bag has been but partly distended, additional fluid may be introduced by a piston syringe until the bag is completely distended. So long as hemorrhage is controlled, the practitioner should wait for thorough dilatation before removing the bag. Should the bag be spontaneously expelled, so long as dilatation is secured no harm has been done.

So soon as dilatation has been accomplished the practitioner must proceed to empty the uterus. In exceptional cases spontaneous labor develops and strong uterine contractions expel the child. Usually the bag must be removed, dilating the vagina during its removal, and the child extracted as promptly as possible by the use of forceps. This will require anesthesia, preferably by ether, given by a competent person. Care must be taken in these forceps deliveries that the head is not drawn quickly through the cervix, as serious lacerations of the cervix may result. Soon as the child is delivered the placenta must be removed, the uterus thoroughly irrigated with hot salt solution and thoroughly packed with 10 per cent. iodoform gauze. If cervical lacerations sufficiently deep to cause bleeding have occurred, they must immediately be closed by catgut sutures. If the patient's condition permits, lacerations in the anterior and posterior segments of the pelvic floor and perineum should also be closed. The vagina should be firmly packed with bichloride gauze, and a firm pad placed over the vulva with a tight binder upon the abdomen. Such stimulation as the patient needs, including, if necessary, intravenous transfusion with salt solution, should then be given.

In central placenta prævia, if the life of the child is not to be considered, and the major operation cannot be undertaken, the child's body should be used as a tampon or plug to control bleeding and accomplish dilatation. Under anesthesia the cervix must be dilated sufficiently to permit the introduction of several fingers, the placenta perforated, version performed, and one or both legs of the child brought down, and by traction upon them, the breech pulled down upon the pelvic floor, thus exerting firm pressure against the placenta. The extraction of the child should not be done, and this point is one of great importance.

Experience shows that the rapid extraction of the child after version in central placenta prævia produces such lacerations of the cervix as to cause fresh hemorrhage from torn vessels, and adds greatly to the mother's danger. Nothing more should be done than to perform version. Hemorrhage will cease or become very slight, and no effort should be made to remove the child. The mother should then be given tonic doses of strychnine, and if the hemorrhage has been severe, saline solution should be introduced into a vein, into the bowel, or into the connective tissue. Practitioners should wait for spontaneous expulsion of the fetus, taking the opportunity to stimulate the mother during this time. When the child has been expelled the placenta must be removed, and the case treated as has already been described in the preceding paragraph.

The classic treatment of central placenta prævia has long consisted of the use of the tampon by iodoform gauze to secure dilatation, to permit manual dilatation, version, and extraction. The dangers of this procedure are, infection following repeated tamponing, and serious lacerations of the cervix and surrounding tissues caused by the extraction of the child through a partly dilated cervix. This method of treatment will sometimes result in the birth of a living child, but frequently the child's life is lost, and the mother's as well.

Ruptured tubal gestation is considered a condition calling for surgical treatment. On equal grounds central placenta prævia merits the same consideration. Two methods of delivery by operation have been tried in the treatment of this condition.

The first consists in rapid dilatation, or section of the cervix and lower uterine segment, followed by the immediate delivery of the fetus. When Bossi's dilator was introduced and extensively used in eclampsia it was further applied to the treatment of central placenta prævia. The results were disastrous. The powerful blades of the instrument tore the cervix extensively, sometimes rupturing the urethra and causing lacerations which extended into the peritoneal tissues. Its use in central placenta prævia is so dangerous that it has practically been abandoned.

Vaginal cesarean section by Dühressen's method has also been applied to the treatment of placenta prævia. In this condition the tissues are so vascular that the field of operation is obscured by blood, and hemorrhage is so severe that the operation has not been successful for this condition. The extraction of the fetus sometimes produced severe lacerations which increased the hemorrhage.

Abdominal cesarean section has been applied to the treatment of central placenta prævia with a considerable degree of success. As in other cases, much depends upon the condition of the patient at the time of operation. Experience has shown that the removal of a central placenta prævia from above, after the uterus has been opened, is the most efficient, safe, and speedy method of controlling hemorrhage. Furthermore, if the opened uterus be tamponed with iodoform gauze, the end of which is carried into the vagina, the secondary hemorrhage which follows vaginal delivery in central placenta prævia is avoided. The child is subjected to no injurious pressure, the operation is quickly done, and with a minimum of injury to the mother.

Abdominal section for central placenta prævia is best performed in well appointed hospitals. In clean dwellings, where the obstetrician can transport the essential apparatus for asepsis, and with competent assistants, the operation may be successfully undertaken.

It is the consensus of opinion at present that cases of central placenta prævia rarely come to the notice of the obstetrician in a condition suitable for section. They do not report to the attending physician before several hemorrhages have weakened mother and child. If the general practitioner

undertakes to treat the case by the tampon the patient is often infected before the obstetrician sees her.

In the discussion upon this subject before the American Gynecological Society in its meeting at New York, May, 1909, it was thought that about 5 per cent. of cases of central placenta prævia would be found in a suitable condition for section.

The Results of Various Methods of Treatment in Central Placenta Prævia.—In estimating the results of various methods of treatment in central placenta prævia, one must remember that marked advances have been made in obstetric surgery during the last five years. The use of the elastic bag introduced through the placenta is comparatively modern, and a clear understanding of the indications for abdominal section in placenta prævia has but recently been obtained.

In the discussion before the American Gynecological Society in May last, to which allusion has been made, Jewett had collected 2,010 cases of placenta prævia, with the birth of 2,020 children, treated by vaginal delivery by the use of the gauze tampon, forceps, manual dilatation, version, and extraction. In some of these the elastic bag had been employed. In most of them other methods were used. The maternal mortality of this series was 10.9 per cent.; the fetal mortality 57.3 per cent.

In various hospitals better results were sometimes obtained than this. Novak (*Monatsschrift f. Geburtshülfe und Gynäkologie,* Band 30, Heft 4, 1909) reports 237 cases of placenta prævia treated by vaginal delivery, with a maternal mortality of 5.9 per cent., and a fetal mortality of 79 per cent.

Krönig (*Zentralblatt f. Gynäkologie,* No. 34, 1909) reports 6,569 cases of placenta prævia treated by vaginal delivery, with a maternal mortality of 9.3 per cent., and a fetal mortality of 58.7 per cent. Among these 1,602 cases were treated by version with a maternal mortality of 6.26 per cent., and a fetal mortality of 58.9 per cent.

Schauta (*Monatsschrift f. Geburtshülfe und Gynäkologie,* Band 30, Heft 3, 1909) in 18 years' experience in 54,000 cases of labor had seen 438 cases of placenta prævia treated by vaginal delivery, with a maternal mortality of 7 per cent., and a fetal mortality of 57 per cent.

Under the most favorable circumstances in private houses, Thies (*Monatsschrift f. Geburtshülfe und Gynäkologie,* Band 29, Heft 3, 1909) collected 179 cases, with a maternal mortality as low as 3 per cent., and a fetal mortality of 60 per cent.

In a small series of cases the maternal mortality in placenta prævia may be low, provided the cases are treated in a well equipped hospital. Thus, Richter (*Zentralblatt f. Gynäkologie,* No. 22, 1909) in 4,624 labors collected 83 cases of placenta previa of all varieties, with one maternal death; 12 per cent. of these mothers had post-partum hemorrhage. The fetal mortality was 53 per cent.

If we turn now to cases of central placenta prævia treated by the introduction of an elastic bag through the placenta, we find that Hannes (*Zentralblatt f. Gynäkologie,* No. 3, 1909) reports 246 cases of placenta prævia, of which 143 were treated by the elastic bag. The maternal mortality was 5.5 per cent.; the fetal mortality 30 per cent.

Krönig (*Zentralblatt f. Gynäkologie,* No. 34, 1909) in 380 cases of placenta prævia treated by the elastic bag had a maternal mortality of 6 per cent., and a fetal mortality of 33 per cent.

A short series of favorable cases treated by the elastic bag is reported by Zimmerman (*Zentralblatt f. Gynäkologie,* No. 10, 1909) who had 28 cases so treated, with no mortality. Krönig also in 19 cases treated by the use of bags had 21 per cent. maternal mortality, thus showing that even in a short series of cases the mortality may vary enormously, probably depending upon the condition of the patient at the time of admission to hospital.

Turning now to delivery by abdominal section in placenta prævia, Jewett collected 95 cases of section with the birth of 97 children, and with a maternal mortality of 11.5 per cent., and a fetal mortality of 34 per cent.

Pankow (*Zeitschrift f. Geburtshülfe und Gynäkologie,* Band 64, Heft 2, 1909) in 8 consecutive cases of placenta prævia performed extraperitoneal section under lumbar anesthesia, with a record of no mortality.

Summary.—One may summarize our present knowledge as regards the treatment of central placenta prævia as follows: Under the use of the gauze tampon and version, or version and extraction, the average result, under favorable conditions, gives a maternal mortality of 11 per cent., and a fetal mortality of 57 per cent.

If the practitioner performs version, and is careful not to proceed to extraction, but to wait for uterine action and spontaneous delivery, the fetal mortality becomes 100 per cent., although the maternal mortality may be reduced to between 6 and 7 per cent.

If central placenta prævia be treated by the introduction of the elastic bag, the maternal mortality in favorable cases may be reduced to 5.5 per cent., and the fetal mortality to 30 per cent. This is an evident gain for mother and child.

If a case of central placenta prævia be seen early, and hemorrhage has been slight, and the mother and child are in good condition, and the child well developed, aseptic delivery by abdominal section will give a maternal mortality not exceeding 5 per cent., and a fetal mortality of nil. This favorable result may be obtained when cases are brought under competent treatment at the earliest possible moment before infection and hemorrhage have developed. These statements may be illustrated by a case occurring in the practice of a general surgeon—a friend of the writer.

He was summoned to go ten miles to a healthy young primipara, under the care of a general practitioner. The attending physician had correctly diagnosticated central placenta prævia and had instituted no treatment. There had been one considerable hemorrhage, but as the mother was robust, she and the child were in good condition. The cervix was but little obliterated and not dilated. There were no active labor pains. Taking with him the necessary appliances and assistants, the surgeon went immediately to the case, and operated in a clean dwelling. Mother and child recovered without complications. As the cervix was somewhat softened by the presence of the placenta, it was easily dilated from above sufficiently to secure drainage for the lochia.

In 71 cases of delivery by abdominal section for various conditions, the writer has twice performed abdominal section for central placenta prævia. The first case was that of a primipara, who was seen in her dwelling by one of the staff of the Jefferson Maternity. The patient was in fairly good condition, having suffered considerable hemorrhage from central placenta prævia. The child's heart sounds

were good. The patient was immediately transferred to the hospital and was delivered by abdominal section.

The second case was that of a multipara who lost her first child from inanition shortly after its birth. She was seen by the out-patient staff at her home, and was suffering considerable hemorrhage. The vagina was carefully tamponed with gauze in the hope of checking the bleeding, and the patient immediately transferred to hospital and delivered by section.

At both these operations it was interesting to note that hemorrhage ceased so soon as the uterus was opened and the child extracted. The placenta could readily be studied, being exactly transverse and entirely covering the os. The abnormal situation of the placenta could be plainly demonstrated to the attending class. In one case the placenta was of abnormal size, not only covering the os, but occupying one side of the lower uterine segment. The plan of operation consisted in incising the abdomen, removing the uterus from the abdominal cavity, and placing a large soft pad, wrung out of hot sterile salt solution, over the intestines. The uterus was then opened longitudinally through the upper expulsive segment, the child removed, and the cord immediately clamped and severed. The situation of the placenta was then demonstrated to those witnessing the operation, and the placenta was loosened from its attachment and removed with the membranes. The fingers were then passed from above through the cervix to be sure that sufficient dilatation was present to permit drainage. The uterus was then packed with 10 per cent. iodoform gauze and the end carried through the cervix into the vagina. Especial care was taken to tampon the lower uterine segment firmly. Strychnine and ergot were given by hypodermatic injection as soon as the child was removed. The uterus was then closed in the usual manner.

During the operation the patient received intravenous saline transfusion. At the conclusion of the operation the vagina was thoroughly sponged out with cotton dipped in bichloride solution and tamponed with bichloride gauze.

In both of these cases the recoveries of mother and child were uneventful. Lactation was established with very slight delay.

In concluding, we may remark that three points have been brought out by our study of placenta prævia during the last few years:

1. Central placenta prævia, like ruptured tubal gestation, should, if possible, be transferred to hospital and treated by abdominal section. If this is impracticable, and aseptic technique can be carried out in the patient's dwelling, operation should there be done.

2. Where an effort is to be made to save the life of the child in the patient's dwelling, and abdominal section cannot be performed, the introduction of an elastic bag through the placenta, under aseptic technique, may be attempted. This should be followed by vaginal delivery, if possible, by forceps, and in many cases by version.

3. If the life of the child is not to be regarded the cervix should be sufficiently dilated to permit version and the bringing down of one or both thighs and the breech. Complete dilatation and uterine contractions should be waited for before delivery is undertaken. If possible, the spontaneous expulsion of the fetus should be secured.

250 South Twenty-first Street.

DEEP PERINEURAL INJECTIONS FOR THE RELIEF OF TRIFACIAL NEURALGIA (SIXTY CASES) AND SCIATICA (THIRTY-THREE CASES).

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The experiences herein set forth are personal and relate to the treatment of some forms of neuralgia by deep intraneural or perineural injections after methods already referred to and advocated in earlier papers.*

As concerns their employment in trifacial neuralgia, Schlosser, in 1903, was the first to conceive the idea of the deep alcohol injections for this distressing condition. I have, however, not availed myself of his method, preferring that of Levy and Baudoin, which contemplates the injection by an extrabuccal route of the three large divisions of the fifth nerve at their foraminal exits from the skull. The observance of particular landmarks and the use of an especially designed needle are essentials to the success of these injections.

General anesthesia is neither necessary nor desirable, although two patients insisted upon its administration. The formulas with the alcohol in ascending strength of 70, 80, and 90 per cent. remain unchanged, but a slightly sharper cutting-edge needle is used. Analgesia in the area supplied by the branch injected is the best criterion of having successfully reached the nerve. In two instances, however, analgesia was prompt and marked and yet the paroxysms of pain continued unabated. Why this should be I am unable to say. In one patient, with hemophiliac tendencies, a hematoma of the size of a small apple formed in the cheek. Facial edema is often marked, but should not give rise to anxiety, since its subsidence may be slow. No ocular palsies resulted in my cases, although a few instances are reported in the series of other writers.

My first patient was injected November 20, 1906, and my last to date April 8, 1910. During this interval I have injected in all sixty cases of what I regard as genuine tic douloureux. Eight cases besides this number I have construed as atypical or impure forms of the disease, and as such unsuited for this treatment. In all the cases the chief diagnostic criterion was the existence of short, sharp paroxysms of intense pain, without referable cause, and characteristically refractory to treatment. To reduce error, due regard was shown for dental abnormalities and diseases of the jaws, mouth, nares, accessory nasal sinuses, any of which sources are frequently responsible for pains which may quite closely simulate those of the disease. It should be added that tumors involving the fifth nerve as well as syphilis and migraine can and do give rise to pains that may readily deceive as trifacial neuralgia. Hysterical pains, either primarily or secondarily superimposed upon those of tic douloureux, need not give rise to confusion, although they must be given due consideration in advising the treatment and thereupon basing the prognosis.

*(*a*) "The Methods and Technic of the Deep Alcohol Injections in the Treatment of Trifacial Neuralgia," *Jour. Am. Med. Assoc.*, November 9, 1907. (*b*) "The Treatment of Sciatica by Deep Perineal Infiltrating Injections of Salt Solution," *Jour. Am. Med. Assoc.*, February 6, 1909.

In most of the cases external skiagraphs were taken and where these were felt to be unsatisfactory or unreliable, *intrabuccal* films were supplemented for the purpose of eliciting better detail, thereby affording a still more accurate means of properly localizing foci of irritation.

To be more specific, I submit that: (*a*) In point of age the incidence in my cases conforms to that noted by others and bears out the contention held for so long that trifacial neuralgia is essentially a degenerative type of disorder, tending to increase in severity and frequency with advancing age.

Number of Cases	Age
1	20–30
2	30–40
8	40–50
14	50–60
24	60–70
9	70–80
2	80–90

(*b*) In point of duration:

Number of Cases	Duration
2 had existed	6 to 12 weeks
5 " "	4 " 12 months
18 " "	1 " 3 years
16 " "	3 " 5 "
7 " "	5 " 10 "
6 " "	10 " 15 "
4 " "	15 " 20 "
1 " "	26 years
1 " "	32 "

(*c*) In point of involvement:

Branch 1	4 cases
" 2	16 "
" 3	12 "
Branches 1 and 2	7 "
" 2 " 3	17 "
" 1, 2 and 3	4 "

(*d*) In point of clinical type:

Typical	41 cases
Atypical	19 "
Rejected and not included in the series	8 "

(*e*) In point of number of injections requisite to the initial control of pain:

Number of Cases	Injections Received
6	1
9	2
17	3
10	4
8	5
5	6
3	7
2	8

Total: 180 injections; an average of 3¾ injections to subdue the original pain.

(*f*) In point of theapeutic results: 37 cases were distinctly benefited (complete abeyance of pain for a longer or shorter period); 11 were improved (great reduction of pain); 8 were unimproved (pain uninfluenced); 4 were aggravated (pain increased, if anything).

Of the thirty-seven benefited, one patient was entirely free from pain for one year and eight months. The shortest free interval has been two weeks. Among the successful cases recurrences have been recorded; many, however, went without recurrences for about one year. A given number returned for reinjection upon the first reappearance of pain, some in four months, others in six, and others again in ten months. This variability in results does not admit of satisfactory explanation, but may in large part be due to the accuracy with which the alcohol was deposited in, at, or near the nerve.

As concerns the solution available for the injection treatment of *sciatica*, it should at the outset be emphatically stated that *alcohol is strictly contraindicated in this affection*, on the ground of its being harmful and even disastrous when injected into a mixed (sensorimotor) nerve.

The landmarks, as given in my previous paper, I have continued to use, because they are the most accurate and effective in reaching the sciatic nerve. My first series of cases injected numbered sixteen; my present series since then numbers thirty-three cases, and this number represents only about one-third of the total number of cases I have seen and rejected. Here, as in trifacial disease, the treatment is limited to those cases in which the diagnosis of sciatica is made only after a rigid exclusion of all those conditions which through some underlying pathology may give rise to sciatic pain as a symptom. Prolific sources of diagnostic error are the cases of arthritis of the rheumatoid or deformans variety, tuberculous spondylitis, tabes, spinal syphilis, diabetes, inflammatory pelvic exudates, intermittent claudication, and advanced generalized arteriosclerosis. All these have I seen mistaken for nonsymptomatic sciatica. In nearly all this method of treatment was contraindicated, and, therefore, denied. One condition, however, is deserving of mention, for its close resemblance to sciatica and the fact that it lends itself well to this treatment. I refer to myalgia. Exact information concerning this affection has been volunteered by several writers of late, among them Peritz.

Myalgias are characterized by areas of pain coextensive with muscles and have not the linear distribution of nerve pains. The muscles are hypersensitive to pinprick, and cause a hypersensitive burning response to faradism. The muscle masses feel sore in a patchy outline in contradistinction to the distribution of nerve pain taking the direction of the nerve trunk. Occurring so frequently in the buttocks, these myalgias are far too often construed as sciaticas. The pain is in the glutei and along the iliac crests. In a receding myalgia the thinnest part of the muscle yields the last remnant of pain. The condition may last for years. When myalgia is present and the muscle mass is injected, the needle gives rise to more intense pain in its passage through the muscle masses than is the case when the trouble is one of nerve origin. This I have noted in several instances, and it has served as a differential point in the diagnosis.

There is little or no advantage in detailing case reports: suffice it to say that the following conclusions may be drawn from my series:

By reducing diagnostic error to a minimum, the deep intraneural injections of salt solution stand approved in the acute, subacute, and early mildly chronic nonsymptomatic cases of sciatica, and also in the group that may be classed from the site and distribution of the pain as myalgias.

In most instances the relief after treatment was almost immediate and complete. Only in a few patients were more than three injections at intervals of forty-eight hours apart indicated. There were neither unpleasant effects nor untoward complications.

103 State Street.

The spontaneous nystagmus of infective labyrinthitis passes through three stages: (1) A short and transitory stage of irritation, with nystagmus to the affected side. (2) The stage of destruction with nystagmus to the sound side. (3) The stage of disappearance of spontaneous nystagmus.—Royce, in *The Canadian Practitioner and Review.*

IMMUNITY IN TUBERCULOSIS CONSIDERED FROM BOTH THE EXPERIMENTAL AND CLINICAL STANDPOINT.*

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Immunity as we understand it to-day has a different significance from what it had a few years ago. Where it formerly was considered to be a more or less absolute resistance to some infection, we now understand it to mean any degree of specific resistance that may be developed against any foreign substance, whether it be a germ or its toxin or any ordinary substance which is foreign to the animal economy.

By gradually accustoming an organism to a foreign substance, even although it be highly toxic, a specific protection against that substance is formed. Following the inoculation of people or animals with germs as occurs in our ordinary infectious diseases, if a cure results, an immunity is present the completeness of which varies with the disease and the individual. This protection or immunity has long been recognized as a factor in certain diseases, such as smallpox and measles, but has not been recognized in connection with others in which it is also present, but not to so high a degree. With our present knowledge, recovery presupposes the presence of immunity.

Cure in all infections consists in the production of a specific immunity against the causative germ, its toxins or both, and this is the aim of therapy. In the therapy of tuberculosis we are just now beginning to realize that the establishment of immunity to the tubercle bacilli and their toxins is the thing for which we are striving. The main issue has been befogged by so many and such varied therapeutic suggestions that we have failed to grasp the true purport of our endeavors. Open air, hygienic living, rest, exercise, diet, various mechanical devices and tonic measures have been put forth as cures, and, while we must assign to them their due part in the cure of tuberculosis, yet we must not allow them to detract from the one necessity to cure—the establishment of immunity to the bacillus and its toxins.

In our discussions of bacterial immunity we must not forget that different individuals react differently to the same stimulus. The question of disposition and predisposition must not be so entirely ignored as it has been in the past. Inherited qualities, mental attitude and physical condition are important factors in determining the manner in which the individual is going to react in the presence of a given toxin. While I shall not refer to this point again, I desire to have it understood as recognized throughout the discussion.

The production of immunity in tuberculosis is surrounded by many difficulties, in fact, it may be doubted whether such a thing as an absolute immunity is attainable; nevertheless, careful clinical observation and animal experimentation reveal the fact that we have a much higher degree of immunity in this disease than is apparent at first thought.

A certain degree of immunity to tuberculosis is probably inherited by the child of civilized races where the disease is prevalent; but, no sooner is it born than the conflict between it and the bacilli begins. The acquiring of immunity to tuberculosis probably goes on very rapidly during the first few years of life, as is evidenced by the gradual decrease in the number of acute cases of tuberculosis as the child increases in age.

Careful students of the question are now coming to the conclusion that tuberculosis is a disease which lasts over a period of years, during much of which time it produces no well recognized symptoms. It is now quite generally believed that childhood is the time when most infection occurs. In a careful study of this subject made by the author several years ago[1,2] attention was called to the fact that the habits of the child in living so much of the time on the floor where bacilli are most apt to be found, its liability of being fondled by everyone on account of its helplessness, its unhealthy condition due to living in bad surroundings, errors in diet and consequent catarrhal conditions of the digestive tract, all point to this as a time favorable for infection to occur. To this must also be added the multitudinous opportunities for the contamination of the child's food. Recent studies of Hamburger,[3,4] von Behring,[5] von Pirquet[6] and others show us that a very large proportion of children (in Vienna a majority) are infected with tuberculosis during the first four or five years of their lives. The cutaneous and conjunctival tuberculin tests have added much to our knowledge of the time when tuberculous infection takes place. The proper conception of the conflict which takes place between the human organism and the tubercle bacillus requires a most careful inquiry into the conditions which surround the early months of life. Almost from the time the child is born, and in tuberculous families from the first few hours after birth, the child is placed in contact with the bacilli of tuberculosis. If the bacilli are taken into the body in small numbers the defensive forces of the infant's body are probably brought into action and the invaders repulsed. Resulting from this destruction of bacilli, toxins are set free which further stimulate the machinery of immunization and a certain degree of immunity is produced. From this the child is better able to cope with further inoculations of bacilli which take place. Doubtless in this manner many inoculations of tubercle bacilli are overcome during the early months of life. But the exposure of the child to tubercle bacilli in civilized life is more or less constant. Soon it is inoculated with more bacilli than it can destroy, its defensive forces are overcome and an infection results. In some cases, especially during the early months of life, this leads to immediate active clinical tuberculosis; but the great majority of children, especially those infected in the late years of childhood, attain a certain degree of immunity, recovering temporarily, at least, from their infection, the disease becoming quiescent for a longer or shorter time and producing no marked symptoms. In some instances the disease seems to interfere with the growth and development of the child, but in the great majority its presence is not suspected.

For some time it has appeared to me that patients suffering from tuberculosis must develop a certain degree of immunity to the bacilli producing their own infection at least; otherwise, they would have no chance for life against the countless myriads of bacilli which are thrown out into their air passages and which are swallowed by them daily during the period of a long illness. But in spite of this opportunity for inoculation, which is present even for

*Read before the Medical Association of the Greater City of New York, March 21, 1910.

years in many instances, patients recover. If the number of bacilli which are found more or less constantly in the air passages of patients with open tuberculosis of a moderately advanced degree were placed in the air passages of healthy individuals, or, if the number swallowed by such patients were injected into the alimentary canals of healthy individuals we certainly would expect infection to result.

Recent experiments of Calmette,[7] Hamburger,[8] Römer[9] and others show that through the first infection an immunity is developed, which affords protection against further infection from both the bacilli within the body and from those coming from outside sources. Guinea pigs, rabbits, sheep and cattle which have been once infected with tuberculosis show a resistance to a second infection that can only be accounted for by the presence of a considerable degree of immunity.

It is a self-evident fact that the greater the degree of immunity present the more chronic the disease. This is noted in the manner in which tuberculosis destroys people who have not been previously inoculated with the disease, such as the Africans and people of the Faroe Islands, as compared with the way it affects the inhabitants of Europe and America. It is also noted in children in the early months of life when compared with children in later years. During the first year of life tuberculosis is nearly always acute, assuming the form of meningeal or acute miliary. Hamburger[3] gives the following interesting statistics of tuberculosis in childhood as presented by postmortem evidence at the St. Ann Kinderspital, Vienna, from 1903 to 1906 inclusive:

TABLE I—MORTALITY OF TUBERCULOSIS BY AGE PERIOD

	I One Year			II	III	IV	V	VI
	From Birth to 3 Mos.	4–6 Mos.	7–12 Mos.	2 Years	3–4 Years	5–6 Years	7–10 Years	11–14 Years
Number of cases		49		74	102	38	41	31
	4	13	32					
Fatal cases		44		51	69	23	28	16
	4	13	27					
Per cent. of fatality		90%		70	67	60	68	50
	100	100	80					

TABLE II—FREQUENCY OF HEALED TUBERCULOSIS BY AGE PERIODS

	1 Year	2 Years	3–4 Years	5–6 Years	7–10 Years	11–14 Years
Total number of cases	49	74	102	38	41	31
Number with signs of healing	0	0	7	4	7	10
Per cent. of healed tuberculosis	0	0	7	10	17	33

and also cites the following table from Hamburger and Sluka[10]:

TABLE III—RELATIVE FREQUENCY OF ACUTE AND CHRONIC TUBERCULOSIS BY AGE PERIOD

Cause of Death	I	II	III	IV	V	VI
	1 Year	2 Years	3–4 Years	5–6 Years	7–10 Years	11–14 Years
Miliary or meningeal tuberculosis	13	19	28	10	8	2
Chronic general or pulmonary tuberculosis	7	6	6	1	4	6
Total fatal cases	20	25	34	11	12	8

These statistics show that tuberculosis is nearly always fatal in the first years of life; in 90 per cent. the first year, 70 per cent. the second, with a gradual decrease, so that by the time puberty is reached the mortality has fallen to 50 per cent. Another interesting fact is found in Table II. No tendency to healing was manifested during the first and second years and only in 7 per cent. in the third year. By the time puberty is reached signs of healing appears in 33 per cent. Table III shows that of 20 cases in the first year of life 13 were cases of acute miliary or meningeal tuberculosis; of 25 cases in the second year 19 were acute miliary or meningeal tuberculosis, and of 34 in the third year 28 were of this form, while between the eleventh and fourteenth years of 8 cases only 2 were of these acute forms.

If we undertake to explain why tuberculosis is so much more fatal, and why it takes the rapid form with little attempt at healing in these early years, we are led into a very interesting field of speculation; yet, one on which clinical observation and animal experimentation shed much light.

We can safely say that children have a certain inherited immunity to tuberculosis, the degree being variable, but, probably, in no case absolute. It is probably sufficient in most cases to ward off inoculation of small numbers of bacilli, but not sufficient to protect against large numbers of a virulent strain. We might assume, however, that it is sufficient to stimulate the machinery of immunization, and that by a repeated number of small inoculations the child develops a considerable degree of immunity. Unless the child associates intimately with tuberculous people or is brought intimately in contact with bacillus-bearing materials such as contaminated food, bedding, clothing or table utensils used by tuberculous patients in such a manner as to expose it to great numbers of bacilli, the time of infection is postponed until the child develops sufficient immunity to prevent the disease from assuming the rapid form; but, where the association is more intimate and the child is inoculated with greater numbers of bacilli or with bacilli which are more virulent, the rapid form is the rule. The younger the child under all circumstances the more apt is the disease to be acute, because there has not been the opportunity for developing an immunity. It is a common thing for children who associate with careless consumptives, especially those in the first years of life, to die of miliary and meningeal tuberculosis.

Acute miliary and meningeal tuberculosis are rarely, if ever, found in adults except as a result of a rapid dissemination of bacilli from some previous focus. It is probable that a degree of immunity far greater than we have believed protects patients suffering from tuberculous infection from an extension of their disease, and that the extensions which do occur are the result of those bacilli remaining after the defensive forces of the body had spent themselves in endeavoring to overcome enormous quantities of bacilli which had broken into the blood stream.

Regardless of the immunity which children develop, sooner or later they nearly all become infected with tuberculosis. This early infection, however, is not an altogether unmixed evil, for if it heals, as will be seen from animal experimentation, it leaves behind a considerable degree of immunity; and, even if it does not heal entirely, it still seems to protect the patient against further infection.

The degree of immunity developed in the experimental animals depends upon the numbers and

virulence of the bacilli with which they are primarily inoculated. We must assume that there is a dividing line somewhere, in virulence and numbers of bacilli for each animal, on one side of which there is the production of immunity without infection, or with a slight infection which results in healing, and on the other side an infection which does not heal but which nevertheless is accompanied by a degree of immunity.

The experiments of Trudeau,[11] von Behring,[12] Pearson and Gilliland,[13] Neufeld,[14] Römer,[9] and others show definitely that previous inoculation with bacilli of different strain or weakened virulence produces an immunity against a second inoculation with virulent cultures, which is able to lengthen the life of the animal far beyond that of the controls and also cause the disease to assume a chronic course.

No less significant is the experiment of Vallee,[15] who reports the case of a cow which reacted to tuberculin but later lost the power of reaction owing to a spontaneous healing. Vallee inoculated this animal, together with controls, with a large dose of virulent tubercle bacilli. While the controls developed virulent tuberculosis this animal remained well and when killed showed only calcified mesentery glands which Vallee considered as resulting from the primary disease. The spontaneous healing he interpreted as being the cause of the immunity.

These experimental facts when interpreted in accordance with clinical observations help us to understand tuberculosis better.

Until recent years, no one thought of mentioning immunity in connection with tuberculosis. Clinical diagnosis of tuberculosis was in such a demoralized state that eminent clinicians doubted that patients suffering from it ever got well. A feeling of hopelessness was attached to every phase of the subject. As we learn more of the disease, however, we are forced to conclude that it is a disease that has a tendency to self cure and that while nearly all people are infected some time during their lives only a comparatively small number die of the disease; that while the disease is active and even destroying the patient, there is a degree of immunity present which still protects him to a certain extent. Although the tendency to heal seems greatest in lesions which are not very extensive, yet any one who has closely observed advanced cases of tuberculosis has at times been astonished to see a very extensive lesion heal. In fact, we must look upon both cavity formation and fibrosis as being expressions of chronicity and results of the successful action of the protective forces of the body. They are proofs of the presence of a degree of immunity.

In experimental animals there is a wide difference between the primary and secondary inoculations with tubercle bacilli. A guinea pig, which is already infected with tuberculosis, shows upon reinoculation with moderate doses of bacilli a slight reddening at the point of inoculation on the following day. After a few days this disappears and the regional lymph glands do not show pathological swelling. In many cases no further symptoms result, the pig regaining full health. A pig, the subject of a primary inoculation, on the other hand, shows no reaction at the point of injection on the day following, but about ten days later an infiltration appears at the site of the inoculation and the regional lymph glands are swollen. If the dose of bacilli is very large the reinoculated pig may die within a few hours as a result of hypersensitiveness, while the control receiving the primary inoculation lives several weeks, to die of tuberculosis. If the dose of bacilli used in reinoculation be too large to be successfully thrown off by the reinoculated animal, yet not large enough to kill the pig by a hypersensitive reaction, it may produce an infection, but the influence of the previous inoculation will be in evidence in causing the infection to assume the type of chronic tuberculosis. While pigs inoculated with non-virulent cultures are rendered immune to bacilli from without, the bacilli within their own bodies may continue spreading the disease, because large quantities of bacilli are every now and then being thrown out into the tissues from the original focus, some of which the protective forces of the animal are not able to destroy.

It seems that we are justified in assuming that the primary infection in tuberculosis is a very important one from the standpoint of the future resistance of the patient to tuberculosis.

If this infection is produced by very virulent bacilli or great numbers of bacilli, the patient will likely succumb to acute tuberculosis. If it is produced by few bacilli or bacilli of low virulence, no infection may occur at all or one which may later result in healing, leaving the individual with a certain amount of immunity. If an infection results but is again prevented from spreading, although not healing, it may yet be able to modify future reinfections and, reasoning from animal experiment, prevent them from occurring. It seems probable that reinoculation from without with ordinary doses of bacilli in an individual who is already infected, or in one who has a healed lesion, could do no more than produce a chronic type of tuberculosis. Of course it remains to be determined how long this immunity will last.

The question which interests us as clinicians is how to utilize these facts for the benefit of mankind, how to make this immunity, the presence of which is demonstrated by both animal experiment and clinical observation, of greatest value to those who are afflicted with tuberculosis.

The following principles seem to have especial clinical significance:

1. A primary tuberculous infection affords immunity against reinoculation.
2. A healed lesion affords immunity against reinoculation.
3. A primary infection may afford protection against reinoculation from without and yet the animal die of reinoculation from the focus within its own body.

From this it can be seen that the patient who is cured of tuberculosis has an immunity against reinfection. When we speak of cure in tuberculosis, I realize that we are speaking of an uncertainty. It is a very difficult thing, except by control tuberculin tests, which are not resorted to as often as they should be, to tell when a patient who has had an infection is cured, in fact, it is probable that a very large proportion of patients who are treated for tuberculosis and in whom a satisfactory state of health has been attained are not cured. On the other hand, we have reason to believe that many are cured and spontaneous healing is common.

From the nature of the pathological picture in tuberculosis, it is evident that a cure is easiest of attainment when the lesion is small, because the cure comes about through the body fluids, which are shut off from the tubercule as it grows in size and undergoes degeneration.

Clinical results show that whereas about 75 per cent. of incipient cases are attaining an apparent cure as treated to-day only a very small percentage of far-advanced cases can obtain this result. The problem of curing or immunizing the patient, then, requires the employment of treatment while the involvement is still small, while the tissues are more easily penetrated by immunizing bodies and while the danger of the disease spreading is not so great.

Knowing that nearly all children are infected before the fourteenth year the question must be seriously considered whether it is not the duty of the medical profession to seek out by the tuberculin test those children who are infected and give them the benefit of treatment. It is probable that such a course would not be approved. It might be considered that patients are being treated, who, if left to themselves, would heal spontaneously. Such a course would, however, have the effect of letting the patient and the physician who makes the test know that the individual was infected and then place both on guard for the future. Then in case any suspicious signs presented themselves the patient could be treated at once.

Our method of treating tuberculosis, while effective, is far from satisfactory. The disease has a tendency to become quiescent, when the infection is small. But, unfortunately, it will often remain in this latent or quiescent state for a long time, producing no symptoms but yet not healing. Such lesions can sometimes be kept in ckeck for a long time by careful hygienic living, yet they are not entirely free from danger to the patient, and should be cured if possible.

During recent years the specific or immunizing treatment, as it is sometimes called, has been rapidly gaining friends, because it is well established that patients treated by the various tubercle bacillus vaccines come more nearly attaining a lasting cure than those treated without them, as is shown by the fact that they do not relapse so frequently. If patients, who have small lesions, corresponding to the incipient stage of clinical tuberculosis, are treated under the best hygienic conditions with close, intelligent medical supervision, and given the advantage of the intelligent employment of tuberculin, and treated not for a period of three months, but until the signs in the chest have disappeared, or until the best result attainable has been produced, I believe that we are justified in hoping that more than 80 per cent. can be permanently cured. It is unfortunate that the time required for treatment in this disease is so long, but we only defeat our purpose in shortening it. The average time for treating incipient cases of tuberculosis in my practice has been about five or six months, the result of treatment has been an apparent cure in 87 per cent. with a relapse of less than 10 per cent.

The way in which tuberculin acts is unknown, but that it has a specific effect in the production of immunity is accepted. Experiments on animals by Koch[16 17], C. Spengler[18], Calmette[7], Denys[19], and others show that tuberculin will protect animals sometimes wholly and sometimes partly from infection. It also produces the same hypersensibility to a reinfection that a primary inoculation of living bacilli does, as was shown by the experiment of Courmont[20], who treated a guinea pig with extracts of tubercle bacilli and produced such a hypersensibility that the animal died of the reaction following a dose of virulent bacilli. It may be stated as a general rule, however, that living bacilli produce the greatest immunity and that the more virulent the strain of the bacilli with which the animal is previously treated the greater the immunity. A substance like tuberculin, however, which will produce a specific hypersensibility on the part of an animal to living tubercle bacilli must be considered as an immunizing agent against the bacilli, for hypersensibility is intimately associated with immunity. To quote from Römer[21]: "I am now in the habit of looking upon this hypersensibility not only as an accompanying symptom of immunity, but to recognize in it the cause, or at least one of the causes, of artificial immunity." Wolff-Eisner[22 23] believes hypersensibility to tuberculin and to tubercle bacilli to be the same.

Animal experimentation shows:

1. That animals previously treated with tuberculin develop a certain degree of resistance to infection with virulent bacilli, and that even where infection is not prevented the course of the disease is somewhat retarded.

2. That animals treated with tuberculin develop hypersensibility to living bacilli, which indicates that it has the power of producing immunity against them.

During the past fifteen years I have employed tuberculin therapeutically and have used it cautiously, yet with more boldness than most clinicians. I have employed it in all stages and on patients showing all types and all complications of the disease. My experience leads me to conclude:

1. That a sufficiently long treatment with tuberculin (five or six months on the average) will immunize or cure a very large percentage of incipient cases of tuberculosis, nearly all prior to the open stage.

2. That when properly given in the more advanced cases tuberculin fortifies the patient by an increased immunity so that he is better able to prevent reinoculation from the bacilli which escape from the focus of his disease, as is proved by the fact that a larger percentage of patients so treated attain an apparent cure and by the further fact that they are not subject to so many or such severe tuberculous complications as are found when they are not so treated.

3. That tuberculin modifies the course of the disease by increasing the patient's immunity as is evidenced by the fact that the disease usually assumes a more chronic course during its administration, cases running a rapid course being often converted into the chronic type.

4. That further evidence of the specific immunizing action of tuberculin is shown in the fact that such complications as tuberculous laryngitis, genitourinary tuberculosis, fistula in ano, articular, osseous, and glandular lesions, in fact, tuberculous lesions of any kind, wherever found, may be healed by its employment.

5. That tuberculin establishes a degree of immunity much greater than that attained by ordinary hygienic measures as is further shown by the fact that patients so treated have less tendency to relapse than where it is not used.

While the intelligent use of tuberculin offers the patient suffering from tuberculosis the greatest opportunity for establishing immunity and improving or curing his infection, yet its proper administration is so difficult that comparatively few patients who are being treated with it are receiving the full advantage which can be gained from its use. My long experience teaches me that it is probably the

most difficult remedy that we have to employ. While many schema have been published showing the size and increase as well as intervals between doses, yet the proper administration knows no regular dose and no set interval. It cannot be given to the greatest advantage except by studying the capacity and reactive powers of each patient. In one patient it is possible to attain a dosage in one month that cannot be reached in another in two or three months. Tuberculin treatment is much more than the injection of tuberculin, the same as operations are much more than cutting through tissues. It implies most careful individualization and the application of all other rational measures which will fortify the patient and increase his power to produce specific immunizing bodies.

These statements are not made for the purpose of hindering the intelligent use of tuberculin, but, if possible, to use whatever influence I possess against the reckless, ignorant way in which it is often employed to-day. Believing as firmly in the power of tuberculin to produce a specific immunity in tuberculosis as the surgeon believes in the power of the knife to remedy operable conditions, I hope that the time will soon come when those suffering from tuberculosis may be given the benefit which its intelligent use offers, at a time when the lesion is still small and an apparent cure may safely be expected.

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UNUSUAL COMPLICATIONS OCCURRING IN THREE CASES OF RHIZOMELIC SPONDYLOSIS.

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The three cases of rhizomelic spondylosis herein reported, which were examined by me in Dr. Spiller's service at the University of Pennsylvania and the Philadelphia General Hospitals, present complicating conditions of considerable interest and importance, among which are great weakness of the muscles of both legs with permanent unilateral toe drop, sensory changes resembling those found in syringomyelia, and an unusual form of vertebral exostoses.

While stiffness and ankylosis of the spinal column have been described by some of the oldest writers, it was not until more recent years (1892-1893) that Von Bechterew first called attention to a particular and well-defined form of this disease. Von Bechterew's type is characterized by a predominance of nerve root symptoms with the absence of any joint involvement other than of the vertebral articulations and depending for its symptomatology upon a meningitis with involvement of the spinal roots and a deformity of the back secondary to paralyses of the muscles.

In a type of the disease later described more particularly by Marie and Strümpell, the so-called rhizomelic spondylosis, little, if any, involvement of the nerve roots occurs, or at least the symptoms of their involvement are not very pronounced in this form. The large or proximal joints are, however, involved in these cases together with the vertebral articulations, but the small or distal joints are not affected.

Neither of the above forms in typical cases is the same as arthritis deformans. In the latter affection there occur, not only deforming ankyloses of the vertebræ—the pathological change in the vertebræ in the other two forms consisting only of change in consistency of cartilages and flat overgrowth of bones of the vertebræ of a nondeforming character—but also typical joint changes elsewhere, particularly, of course, in the small joints, where the deformities of this disease are generally first found.

Besides the distinct types given above there are also gradations of the different forms, these being probably of more frequent occurrence than the classical cases.

Case I.—J. Y., a Russian laborer, age 30 years, was admitted to the University Hospital October 9, 1909. The patient came to the hospital complaining of pain and weakness in the legs and back. There is no history of tuberculosis or rheumatism in the family. The father died of cancer of the stomach and the mother of apoplexy. The patient always was well until the present illness, which began five years ago, as pain and weakness in back and in the legs, the patient being unable to lie down on account of the severity of the pains. The pain was particularly marked in the lumbar region and in the upper part and the back of the thighs. There were never any symptoms in the upper part of the body, the head, or the upper extremities.

The pain and weakness have increased to the extent that the patient is confined to his bed and can only move about with the greatest difficulty, and by aid of crutches. Paresthesias, tingling, and

burning sensations are present in the left leg below the knee, and sometimes in the right leg and the left thigh. Pain in the back and legs has become worse. There was never any disturbance of the bowels or the bladder.

The heart and lungs are normal. The head and the cranial nerves are normal. There is no ankylosis of the jaw, nor trophic disturbances of the upper part of the body, the head, or the extremities. There is no wasting or deformities. The upper extremities show no sensory or motor involvement, and no ankyloses. Active and passive movements are normal. The biceps tendon reflex is slightly increased on either side. The triceps jerk is about normal on both sides. There is considerable tenderness on pressure over the muscle bundles on either side of the spine, but this is particularly marked on the right side in an area extending from the tenth dorsal to the second lumbar vertebra, and for a few inches laterally along the last ribs. The spine is not completely fixed as there is some power of rotation with slight ability to flex and extend the spine, but these movements are only in the dorsal and cervical regions; any attempt to move the lower spinal vertebræ causes intense pain.

Sensory changes: The patient, while at first only complaining of paresthesias in the lower legs, now has these sensations in the thighs and a feeling of constriction around his waist. The nerve trunks in the calves of the legs and just above the knees on both sides are very tender upon pressure, a condition having appeared only in the last few days. Tactile sensation is not impaired in any part of the legs. Pain sensation by the pin point test is absent in an area over the anterior part of the right thigh, extending down to the knee. There is also a similar area in the left leg, extending from just above the knee to about three-fourths of the distance to the ankle and half way around the front of the leg. This area is continued still further to the ankle as an area of hypalgesia. Heat is not recognized as such (by test tube method) in an area on the right lower leg extending from just above the knee downwards over the lower leg, with the exception of a small area of retained sensation on the middle posterior part of the thigh (area about 3 inches by 2 inches). Changes in the left leg are about the same as the above except that here the area begins just below the level of the knee and there is no spot of normal perception posteriorly.

Cold is recognized as cold over all portions of the legs but in the areas mapped out above the quick responses are not elicited as in the other portions of the extremities. The muscles in both thighs are weak and movement is impaired, and in attempting to move his legs the patient complains of pain in the hip joints and back and in the muscles of the thighs. Movements in the hip joints are stiff and restricted and very painful. When first admitted movements were not so restricted and the impairment was due only to muscle spasm, but at present there appears to be a slight degree of ankylosis. Both lower legs are atrophied and cold and have a doughy appearance with glossy hairless skin. The feet are somewhat cyanosed and swollen, but do not pit on pressure. The power in the right lower leg muscles is diminished, especially in the extensor and peroneal groups and there is toe drop. This can, however, be overcome as patient has some slight remaining power in the extensors. The left lower leg shows great loss of power in the extensor and peroneal groups, and weakness in the flexors, and there is permanent toe drop. There is a very slight power of movement in the extensor brevis digitorum.

Electrical Examination: In the muscles of the right thigh and lower leg the response is slow but in normal series. Examination of left thigh and leg gives a reaction of degeneration (An Cl C> Ca Cl C) in the quadriceps group, hamstrings, and the anterior tibial and peroneal extensors of toes. The flexors of the toes and the muscles of the calf and the extensor brevis digitorum give normal but slow response.

Case II.—E. O., a teamster, age 33 years, was admitted to Philadelphia General Hospital Aug. 24, 1909, complaining of pains in the back and shoulders. There was nothing of importance in the family history. One year ago the patient had what probably was a chancroid, having had no secondary symptoms of any character, and no other venereal disease. At the age of eight he had pain in his knees, this, however, was not of acute rheumatic type, and as there are some of the other signs of rachitis present the pains in the knees were probably rachitic in origin.

The present illness began about four months ago (May) when the patient upon awakening had severe pains, sharp and stabbing in character, in the mid-dorsal region. This pain was not present when the patient lay quiet, but upon making any movement, such as turning or sitting up in bed, it became very severe, as it was also at times when the patient drew a deep breath. The pain always has the same sharp, stabbing character and extends along a line just to the left of the vertebræ, sometimes involving the neck and head. It does not radiate laterally or into the extremities. The patient has lost 17 pounds in four months.

Examination: The heart is normal. The lungs show consolidation of the right upper lobe. There are bony prominences at the left sternoclavicular articulation and at the costocartilaginous junctions probably rachitic in origin. The head and cranial nerves, with exception of disturbance in sensation, which will be mentioned later, are normal. There is no ankylosis of jaw.

The upper extremities: With the exception of impairment of motion in the left forearm, due to a previously fractured radius, the arms show no impairment or restriction of active or passive motion. Within the last month, however, the left shoulder joint has become to a certain degree ankylosed and interferes with the free movement of the arm. The reflexes are normal on the right, absent on the left for the above reasons.

Lower extremities: No impairment of active-passive movements is noted. The patellar tendon reflexes are somewhat exaggerated. The Achilles jerk is normal. There is no Babinski.

Sensation: Pin prick, over entire body, is only recognized as dull. Over an area including the face, anterior part of neck, and body down to the lower costal border, also both arms and shoulders with exception of the interscapular space and a small area on upper, outer, anterior, and posterior surface of the left upper arm. The patient recognizes cold as warm. On external upper surfaces of both thighs the patient distinguished cold and warm, but not so well as in the other normal areas. The palms of the hands are also normal. Cold is called warm in the right lower leg and this area extends up to about six inches above the knee, with a further extension upwards of a couple of

inches on the external (lateral) aspect of the thigh. The left lower leg has the same sensory changes but the area only extends above the knee in two narrow strips internally and externally situated, and extending to about four inches above the knee.

Vertebral column: There are stiffness and restricted movement of the vertebræ of the dorsal, the lumbar, and to a lesser degree of the cervical regions. Tenderness, upon pressure, is elicited in the muscles of the back to the left of the vertebræ and from the angle of the scapula to below the pelvic crests, and is most pronounced in the lumbar region.

Case III.—W. A., a painter, age 57 years, was admitted to Philadelphia Hospital Sept. 17, 1909. He complained of pain in the right shoulder and arm and limited motion and weakness of the right leg. The early medical and family histories contain nothing of clinical importance. He fell upon his back from a high ladder about a year ago and has had a stiff back ever since. He also fell from a trolley car in March, 1909, hurting the arm and shoulder and has at present a circumflex and musculospiral paralysis. About two months ago (July) the patient's right foot and ankle became swollen and painful and has remained so ever since. He cannot move the right leg and foot around in the bed. Two weeks ago he began to have dull pains in the hips, back, and back of the neck.

Examination: The heart and lungs are normal. The head and cranial nerves are normal. The left arm is normal in power and mobility, and the reflexes are normal. The right shows the characteristic changes of the peripheral palsies mentioned above. Upon electrical examination, besides reaction of degeneration in muscles supplied by musculospiral and circumflex nerves, there was diminished response to the faradic current in the infraspinatus and cervical part of the trapezius on the right side.

The left leg is normal. The right leg shows stiffness in the hip and knee joints with dull pain in the right hip and the bottom of the foot when patient tries to stand. Power is diminished though there are no paralyses of the muscles. The patellar tendon reflexes are exaggerated and crossed adductor contraction can be elicited. The Achilles jerk is also exaggerated, with at times a clonus. Flexion of the thigh and leg causes reflex rigidity and pain. The cremasteric, abdominal and plantar reflexes are normal.

Sensation: The temperature sense seems to be impaired except in the face and hands, as patient frequently mistakes hot for cold and *vice versa*. No tactile or pain disturbances occurs except in the right arm, where it is due to the peripheral palsy. The sternoclavicular joints are enlarged, as are also the costocartilaginous junctions of seventh and eighth ribs. The transverse processes of the cervical vertebræ, especially the sixth, are elongated and enlarged.

A few days after admission the patient developed a stiffness of the jaw, interfering with the movements in opening and shutting it. There is stiffness extending over the entire vertebral column and causing impairment of motion and stiffness in the patient's gait.

All three of these cases seem to conform to the type described by V. Bechterew, the root symptoms being the predominating and in the first case even causing a distinct muscular atrophy and double toe drop, this condition being permanent in the right leg. The possibility of palsies occurring in this condition has been mentioned by several writers, but I can find only one case in the literature, recorded by Heiligenthal,[1] in which reference was made to a peroneal palsy.

The trophic changes found in the lower extremities, in the first patient, brought to mind the possibility of the presence of a sclerodermal change; attention having been called to this possible complication or accompaniment of rheumatoid arthritis by Dercum,[2] the changes here present, however, though rather suggestive, were not sufficient to warrant such a diagnosis. That the above cases were not classical cases of the Von Bechterew's type can be seen when the involvement of the proximal joints is taken into consideration, such as was present in these cases and is characteristic of the Marie-Strümpell type. This brings up the question as to the probability of all forms, in time merging, more or less, into each other, and I do not believe a distinct type, as a rule, to exist throughout the entire course of the disease.

A fact of some importance, observed by Heiligenthal[1] and present in one of the above cases, is the intermittence or change in the condition of the ankylosed joints. This may go to such a degree that a joint apparently very stiff may later become practically free and then again become involved. This intermitting, if a patient were to be examined by different observers at different times, would no doubt lead to some confusion as to the type of the disease. Difficulty might occur in the differential diagnosis between this disease and syringomyelia, due to possibility of occurrence of dissociation of sensation together with spinal rigidity and kyphosis. This should, however, by careful study leady to no error in diagnosis as the signs, other than those mentioned, are in no ways similar.

The cervical exostoses in the third case, with the rheumatic diathesis and the rachitic enlargements, are interesting as having possibly some connection with a condition of body in which there is tendency toward this disease.

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ILEUS FOLLOWING LAPAROTOMY.

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During the past twelve months, six cases of obstruction of the bowels following operation have occurred in my practice, operative or consultant. It has seemed to me that the frequency and importance of this condition was not fully appreciated. I am also of the opinion that many cases of so-called peritonitis go to their death where one of the factors, perhaps the chief one, is obstruction.

Post-operative ileus may be divided into mechanical and nonmechanical. In the majority of cases, both factors are active. Obstruction of the bowels following laparotomy most frequently occurs in cases where there has been a localized or general peritonitis at the time of or following operation, and where drainage by some mechanical means has been employed. The mechanical form is frequently caused by the formation of adhesions between the adjacent coils of intestine; between a coil of intes-

1. Heiligenthal, H.: "Recognition of Spondylosis," etc., *Deutsch Zeitsch. für Nervenheilkunde*, 1900.

2. Dercum, F. X.: "Scleroderma and Chronic Rheumatoid Arthritis," *Journal of Nervous and Mental Diseases*, Vol. XXV, No. 10.

tine and the parietal peritoneum; between a coil of intestine and the gauze drainage, or by the formation of bands over or beneath which a coil may fall or pass and become constricted. The nonmechanical or dynamic form is usually due to infection which acts upon the neuromuscular intestinal mechanism and produces paralysis. In the bowel, ptomaines, toxines, and gases are formed as the result of fermentation, decomposition, and bacterial growth, and produce distention and often profound systemic intoxication. Following every laparotomy there is more or less of a dynamic intestinal paralysis. This may be due in part to the use of morphine just before operation, to the handling of the bowels, exposure to cold, and to the toxins and ptomaines which accumulate in the intestinal canal during this quiescent period. If infection is present at the time of or occurs following operation, it will be the chief factor in irritating the abdominal sympathetic and causing dynamic obstruction. In these cases, peristalsis may be held in abeyance or arrested as the result of irritation of Auerbach's or Meissner's system of nerves (Starling).

When obstruction occurs due to mechanical causes, peristalsis above the seat of obstruction is greatly increased. The peristaltic wave can often be seen as it starts near the stomach and travels downward to the seat of obstruction. It may be felt by placing the hand over the abdomen and the rush of gas and liquid through the bowel can be distinctly heard. These peristaltic waves, when coupled with obstruction are very painful. They frequently occur every few moments. Vomiting is frequent and large quantities of fluid are ejected from the stomach. With excessive pain, obstruction of the intestinal contents absorption of toxins and ptomaines, tympanitis, vomiting, and inability to take food, the patient becomes in a short time greatly exhausted and soon dies. In both forms, the bowels are constipated but not always obstructed in the sense that daily evacuations may not occur with aid.

While it would be ordinarily held that a diagnosis of obstruction is readily made, I am free to confess that I do not think it is always an easy matter to differentiate which is the prominent factor or what kind of obstruction one has to deal with, or whether peritonitis is active or not. It is seldom that one of these cases is wholly one of mechanical obstruction, because, as a rule, there is more or less of peritonitis with septic absorption and fever. This fever, pain, and abdominal distention following laparotomy, even if there be some increase of peristalsis, is very apt to fix the surgeon's attention and perhaps make him believe he is dealing with a case of peritonitis or septic poisoning, more than with a case of obstruction of the bowels, but the three conditions are often joined.

In cases of general peritonitis, there is little or almost no peristalsis, but pronounced fever, high pulse rate, excessive tenderness, and a boardlike hardness of the abdomen in a case of pure and simple obstruction from mechanical means these conditions would be absent.

The following are the histories of six cases:

Case I.—Male, age 44 years, suffered from appendicitis with abscess. Operation on third day at patient's home. Abdomen opened and appendiceal region packed off with gauze; abscess opened and drained. On the fifth day following operation, and before all of the gauze had been removed, the patient was taken with violent and painful peristalsis, which came on quite suddenly, with nausea, vomiting, and distention of the abdomen. The patient grew rapidly worse. Twenty-four hours after the inception of these symptoms, the gauze pack was removed, the area washed out with normal salt solution, a finger introduced into the wound without an anesthetic, and the surrounding adhesions broken up. Following this, a wick of gauze was introduced, for the purpose of drainage. The symptoms of obstruction were relieved at once and the patient made an uninterrupted recovery.

Case II.—Female, age 25 years, unmarried, was taken suddenly ill with pain in the right iliac region, nausea, and vomiting. Ten hours after onset, temperature was 102°, pulse 120, the abdomen was tense and very sensitive to pressure. Patient was taken to St. Joseph's Hospital and a gangrenous appendix removed, which was free of adhesions. There was a quantity of milky fluid in the abdomen, which showed a pneumococcic infection. Two tubes were carried down into Douglas' cul-de-sac, giving vent to a large quantity of milky fluid. Before the patient left the table and while the wound was being closed, two quarts of an acetozone solution 1 to 10,000 was run through the tubes. The temperature the following day was 99.4° and the pulse 110. All went well for four days, although the pulse remained about 110 and the temperature ranged between 99° and 100.4°. At this time, the patient's condition changed for the worse. She became very restless and the upper abdomen much distended. There was decided pain and uncontrollable vomiting, with an absence of peristalsis. After trying to overcome the condition by stomach lavage and colonic flushing with out success, the distention increasing and the patient growing rapidly worse, the tubes and two stitches were removed and the wound slightly enlarged. At once a large distended coil of intestine made its appearance. The finger introduced alongside of this detected a collapsed coil. These were brought into the wound and a lateral anastomosis done with silk. The paralysis, pain, vomiting, and distention readily subsided, and the patient made a slow but good recovery. In this connection, the following nonoperative case of dynamic obstruction may be of interest:

Mrs. W., aged 34 years, mother of five children, youngest six weeks old. Recovery from confinement, normal. Taken ill, April 10, 1909, with pain in the lower abdomen. Temperature 103°. Pain of a colicy nature came and went and was associated with marked peristalsis in the upper abdomen. Vomited occasionally. Uterus somewhat fixed and tender on pressure, pronounced leucorrhea. After three days, the fever disappeared, but the pain continued to recur at intervals requiring morphine. Slight movement of the bowels following purgatives and injections. Patient's condition after five days was such that she was taken to a hospital. I saw her on the sixth day, her face was pinched, pulse 130, rectal temperature 99, abdominal tympanitis. Some tenderness, no great amount of muscle tension. Patient had had fecal vomiting during the day and had explosive vomiting of about one and one-half quarts of very offensive material, while I sat at the bedside.

Diagnosis.—Obstruction of the bowels, cause unknown. The abdomen was opened in the medium line. Omentum spread over intestines and adherent, loops of small intestine distended very red and adhering by a fibroplastic exudate. Considerable bloody fluid in the abdomen. There were adhesions

near the gall-bladder and down in the pelvis. In pulling up the cecum, which was normal, the appendix was found covered with a plastic exudate and about three feet of the lower end of the small intestine collapsed. The small intestine above this was very red and very much distended. There were no adhesions which could account for the collapse of the intestine. The dilated portion of the small intestine was brought into the wound, fixed by a few catgut stitches and a drainage tube inserted. A second tube was placed in the pelvis. The patient reacted well from the operation and the obstruction was relieved, but she died ten days after from toxemia and general exhaustion. Several weeks following the operation it was learned that she had at the time an acute gonorrhea.

Case III.—Mrs. J., age 34 years, entered St. Joseph's Hospital some four hours following rupture of an etopic gestation. She had been pregnant three months. About 5½ hours after the rupture, the abdomen was opened and found filled with fluid, blood, and clots. There was a ruptured sac connecting with the right tube. The broad ligament was ligated and the sac removed. The clots were pretty well washed out, a tube placed in the pelvis, and a wick of gauze packed down to the former site of the ruptured tube. The patient was put to bed in a sitting posture and did well for three days. The bowels moved and during this time there was no special nausea or vomiting. On the fourth day, there were symptoms of obstruction, violent peristalsis with pain, marked distention and frequent vomiting. The patient was restless and anxious. The peristaltic waves were frequent and were associated with nausea and vomiting. The stomach was washed out and an attempt made to move the bowels with enemata, but this failed. On the sixth day, symptoms were more pronounced. The peristaltic waves could be seen to start from the epigastrium and pass down to the pelvic region. There was much distention. During the sixth day, the gauze was removed and the bowels acted slightly with enemata. Patient restless and haggard. The condition was explained to the patient and her husband, as being one of obstruction of the bowels, due to adhesions and that the obstruction could probably be relieved by a slight operation, but both patient and husband refused to have the wound opened. Patient died on the ninth day.

Case IV.—Male, age 20 years. Patient had had the usual symptoms of acute appendicitis with rupture. Temperature 101°, pulse 110. The abdomen was opened and a gangrenous appendix removed. The abdomen was filled with a milky fluid containing colon bacilli. Two tubes were carried down into Douglas' cul-de-sac and the abdomen washed out with an acetazone solution, 1 to 10,000. The patient was put to bed in a sitting posture and did well for the first week, at which time the discharge had practically ceased. The tubes had been shortened and were then removed, being replaced by a small wick of gauze. The bowels had acted regularly with some slight assistance. The fever had practically disappeared and the pulse was ranging about 80. At the end of the first week, there was abdominal disturbance, with increased peristalsis, difficulty in getting the bowels to move, a rise in temperature to 100°, and an increase of pulse rate to 104. On the ninth day there was nausea and vomiting, marked abdominal distention, absolute constipation, increased peristalsis, and an anxious careworn expression on the patient's face. The patient was now losing ground rapidly in consequence of the pain, autointoxication, inability to sleep or take nourishment, and it was apparent that something must be done to relieve the condition. The gauze was withdrawn, the fistulous tract carefully washed out, and the wound slightly enlarged. A finger was introduced into the wound and followed a dilated coil of intestine which extended down to the region of the cecum, where the obstruction seemed to be caused by kinking of the bowel from adhesions. These were broken up, releasing the coil and a gauze wick inserted. The symptoms of obstruction immediately disappeared and the patient made a good recovery.

Case V.—Woman, age 32 years, had been ill two days with appendicitis, when admitted to the hospital. Temperature 102,° pulse 120. There was a rather small abscess situated in the right iliac region which was drained through an incision about two and one-half inches long. The appendix was removed and a drainage tube and a wick of gauze inserted. After the operation, the patient's pulse and temperature dropped to about 100. The fourth day following operation, the patient was nauseated and vomited several times. The gauze was removed. There was some distention of the abdomen and the stomach was washed out and the patient fed per rectum. On the sixth and seventh days, peristalsis and vomiting were markedly increased. The pulse was 120 and the temperature 102°. The patient looked careworn and much distressed. The abdomen was very sensitive to pressure. The tube was removed following thorough irrigation and two stitches and the wound broken apart, when a very much distended coil of intestine came into view. This was well packed off with gauze and a purse string suture of catgut introduced. The intestine was then opened and a small drainage tube inserted. The drainage was pronounced and gave great relief. After five days, the tube came away, when the wound was packed with iodoform gauze. The drainage became gradually less and ceased on the eleventh day following the introduction of the tube. The patient made a good recovery.

Case VI.—Mrs. J. entered St. Joseph's Hospital, November 4, 1909. For several years she had suffered from retroversion, with pelvic distress and pain in the back. For two weks before she entered the hospital, she had been confined to her bed with severe pelvic pains and a temperature ranging about 100°. On entering the hospital her temperature ranged from 99° to 101° and pulse about 80. The pelvis was filled with an inflammatory mass. She was kept in bed two weeks longer, during which time several hot vaginal douches were given each day and the bowels kept open. The fever disappeared and much of the inflammatory mass. The patient was very uneasy and impatient with her confinement and anxious to get home, consequently operation was undertaken. A curettement was done and then the abdomen opened. The appendix was enlarged, inflamed, and its tip imbedded in a mass of adhesions which covered over the entrance to the pelvis. The appendix was removed. In breaking up the adhesions, a small abscess connected with the right ovary was opened. The right ovary and tube, the latter much enlarged, were removed. The left tube and ovary were also in a mass of adhesions and were liberated. The left tube was greatly enlarged and was removed, but the ovary left. The uterus was brought into position. Several coils of small intestine were matted together

and adherent in the pelvis to the adjacent structures, especially was this true of the lower portion of the ileum. These coils were liberated. There was considerable bleeding following the operation and three strips of iodoform gauze were carried down into the pelvis. There was profuse drainage from the gauze and the patient suffered from gas. On the second day following the operation, her temperature was 99.6°, while the pulse ranged from 100 to 118. On the third day, her bowels moved three times, the highest temperature was 99.5°, highest pulse reached 116. She vomited twice on the third day. On the fifth day, pulse was 116, temperature 99.8°. There was a good bowel movement as the result of the enema. The patient was now very restless and suffered a great deal from gas, while peristalsis in the small bowel was very marked. The onward rush of the bowel contents could be easily heard, occurring every few moments. On the sixth day the stomach was washed out. Bowels moved twice by enemata. Temperature 100.2° and pulse 120. On the seventh day, the patient rested fairly well, temperature 99.5° and pulse 108 to 116. Following an enema there was a good bowel movement with considerable gas. The stomach was washed out and the patient vomited once during the day. On the eighth day, the patient looked haggard, the face was pinched, and there was very marked and painful peristalsis with distention. The peristaltic waves started in the epigastric region and passed downwards toward the pelvis where they became arrested. There was no relief from gastric lavage or colonic flushings. The patient was now losing strength and hope. She presented the picture of despair, and was willing that anything should be done that would give her the slightest promise of relief. The gauze pack had been removed on the fourth day. The wound was thoroughly washed out, the tubes were removed, and the wound was broken open, after giving the patient a few whiffs of ether. At once a greatly distended coil of small intestine appeared in the wound. This was attached to the parietal peritoneum with a few sutures of catgut and the coil packed around with strips of gauze. A purse string of catgut was inserted into the intestine and the patient turned upon her side and the bowel opened. This must have been during one of the peristaltic waves, for a stream of fecal matter was projected with force from the bowel over the side of the table for at least three feet. A quart or more of liquid feces was thus discharged in a few moments. A small tube was placed in the opening and fastened by the purse string suture and two additional catgut sutures. The drainage tube was secured in the mouth of a large bottle; the amount drained during the next few days was very large. Excessive peristalsis, nausea, vomiting, and the inability to take food were at once relieved and the patient's feeling of despair was replaced by hope. The patient improved daily and on the fifth day the tube came away. The leakage from the bowel was very considerable and an effort made to control it with gauze packing was only partially successful. The patient's bowels moved every day with an enema. On the tenth day following operation the patient was given a slight amount of anesthetic, the bowel separated from the abdominal wall, and the wound in the bowel closed by a continuous row of catgut sutures for the mucosa and a row of interrupted sutures for the peritoneum and muscular layers. The intestine was dropped into the abdomen and a small wick of gauze inserted down to the suture line, and the remaining portion of the wound closed. There was no leak from the suture line and the wound healed practically by first intention. The patient made a complete recovery.

The following conclusions may be drawn:

1. Obstruction of the bowels is not infrequent in abdominal work.

2. When obstruction occurs, it usually follows either local or general peritonitis, in which drainage has been resorted to.

3. In the mechanical form, peristalsis is increased.

4. In the dynamic form, peristalsis may be increased if but a coil of intestine is inflamed, while if general peritonitis occurs, peristalsis will be arrested.

5. The obstruction may often be relieved by inserting the finger and breaking up the adjacent adhesions.

6. No matter what the cause, whether mechanical or dynamic, providing general peritonitis be not present, if the stasis of the intestinal contents be overcome, great relief and probably a cure will be affected.

7. The securing of a distended coil of intestine in the wound and establishing of drainage is probably the most rational procedure.

8. The mechanical and dynamic forms may be distinct and separate, but are often combined.

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THE MORE LIBERAL DIET IN ENTERIC FEVER.*

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In November, 1905, I read a short paper upon this subject, which later appeared in the Medical Record of March, 1906. In this contribution was embodied a report of twenty-six cases of typhoid fever successfully treated upon a diet about as advised by Dr. F. C. Shattuck. As the severity of enteric fever varies so greatly it seems but fair to make a further record of the results in cases similarly treated since. The more liberal diet in this disease is gaining supporters year by year, as is evidenced by papers which appear in medical literature from time to time. Of course, many sufferers from typhoid fever are sure to die no matter what form of treatment is followed, but, from personal observation I am fully convinced that under this method the patient is far more comfortable and contented, is no more subject to hemorrhage, perforation, or other complications, and recovers his former flesh and vigor far more rapidly than when kept upon a liquid diet. If this is the case, there seems absolutely no reason for retaining the older method of feeding.

It is my custom to be guided largely by the appetite of the patient; that is, not to give anything but liquids until there is a desire for food. My daily question put to the sick man is—Are you hungry? If the reply is "yes," a soft boiled egg is ordered; the next day, two eggs, and on the following day, soft toast is added; then rice which has been boiled for four hours, scraped meat, apple sauce or baked apple, custards, etc. I have not yet resorted to forced feeding as advocated by Coleman (*Journal of the American Medical Association*, October, 1909). This author's results were excel-

*Read before the Medical Society of the District of Columbia, November, 1909.

lent but his dietary is, I think, somewhat more expensive than the average hospital could afford. His effort was to give food producing from 3,000 to 4,000 calories per day or about as follows: 1½ quarts of milk, 1 to 2 pints of cream, ½ to 1⅔ pounds of milk sugar, and from 3 to 6 eggs, with the addition of small slices of stale bread or toast, with as much butter as the patient wished. On this diet his patients lost but little weight and some even gained during the disease period. I shall present no argument either for or against this method of feeding as I have had no personal experience with it.

History of Dietetics in Typhoid Fever.—The history of dietetics in fevers has been well presented by Dr. J. B. Nichols in his Fisk Fund Prize Dissertation of 1907. Briefly, it is as follows: Hippocrates fed his fever cases chiefly upon "ptisan," or barley decoction; he also allowed, under proper conditions, wine, hydromel (honey boiled in water), or oxymel (honey acidulated with vinegar or acetic acid), but did not favor the free use of plain unflavored water and especially stated that milk was a bad thing to give in fevers. From the time of Hippocrates to that of Sydenham in the Seventeenth Century, the antiphlogistic method of treating fevers prevailed. Reasoning from the basis that fevers were sthenic, it was deemed proper, apparently, to reduce the vitality of the patient as far as possible by bleeding, purgation, emesis, and starvation. The food was limited largely to gruels and acidulated waters and occasionally acid fruits.

In the Eighteenth Century and down to about 1815 the antiphlogistic treatment was greatly abated in vigor, as it had been recognized that all fevers were not sthenic, some being of the asthenic or opposite type. The food used was chiefly farinaceous, thin gruels, etc., milk, and even eggs were allowed by certain physicians. From 1815 to 1840, the antiphlogistic plan of treatment again became very prevalent.

Graves, whose influence was chiefly felt between 1835 and 1850, has the credit of having fed his fever cases. When, however, we hear that he recommended well-boiled gruel with sugar and lemon juice or panada of which a spoonful was given every third hour during the day time only, we are able to form some idea of what the starvation plan must have been in those days. He also gave animal broths in the middle and later stages of the disease.

Since the seventies of the past century milk has been almost the universal diet in fevers. So wedded has the profession become to this diet that it takes considerable courage to brave the unfavorable criticisms of our brothers and make use of a more liberal food supply. I have passed through this stage myself, but every now and again have the fact recalled to me by the men who have followed my clinical work as students, who, while they are themselves fully convinced of the advantages of more liberal feeding, are afraid to advise it in their own cases, because of the popular prejudice of the laity, fostered by the profession, against anything but an absolutely liquid diet.

Many physicians are unnecessarily alarmed by a rise of temperature which not very infrequently is recorded upon the chart very shortly after the first digression from an absolutely liquid diet. This elevation of fever in some instances may be a coincidence, in others it may be more, but it should not deter us from the more liberal feeding. It has been my experience frequently to find that an interne, who has not yet become accustomed to my methods, has countermanded my orders of the previous day for an increase of food, because there has been a slight exacerbation of fever which he has attributed to the effect of the egg or the soft toast. I at once renew the order and assure him that there is no cause for alarm, and that in due time the temperature will again reach its former level. It has seemed to me that those patients who are fed from the time that they are first willing to take soft food are far less likely to show any ill effects from feeding than are those who have been so long starved. The latter are so ravenous when food is as last allowed that they are likely to bolt it without proper mastication; and it also seems reasonable to believe that the digestive juices, having been so long comparatively idle, may have diminished in amount and potency.

The Amount of Food Required in Typhoid Fever.—Anyone who has watched a case of typhoid fever through its usual course of six weeks, and has seen a strong and robust man reduced to a living skeleton scarcely able to drag himself around for weeks after the temperature has become normal, will be willing to concede that there has not been sufficient food given anywhere nearly to maintain the equilibrium between intake and output. But the fact can easily be reduced to figures. Thus it appears, according to Voit, that the average man weighing from 150 to 160 pounds (70 to 75 kilos) doing a moderate amount of work, requires a total food value of 3,000 calories per day to maintain the body in a good physical condition. It has also been estimated that the body at rest requires 2,300 calories. Now, the man suffering from fever, because of the greater energy evolved by that fever, would certainly require a larger food value than the same man in health. It has been estimated that the ordinary typhoid fever patient requires a 25 per cent. increase to meet the febrile increase in heat production, or approximately 2,875 calories. If 180 c.c. (6 ounces) of milk, representing 122 calories, be given every two hours day and night, the total food value received is but 1,464 calories, or 1,411 calories less than is required. It is not customary to wake these patients through the night to feed them, so that few receive more than nine feedings or a food value of but 1,098 calories or 1,779 calories less than they require. Those who have tried to raise the value of the daily food supply for a case of typhoid fever to the theoretically required 2,875 calories will be willing to agree that it is not an easy matter, chiefly because, until convalescence actually sets in, the patients have no desire for so large an amount of food. It is possible, however, materially to increase the caloric value by a varied diet over the 1,098 calories represented by the amount of milk ordinarily given. But even though the actual food value be not greatly increased, the variation from liquid seems to have a most beneficial effect. Those who have to chew their food seem to be much more alive than those who are not obliged to perform this function.

The selection of a diet for typhoid fever patients should depend upon the following: 1. It should represent a food value sufficient to maintain the body equilibrium as nearly as possible under the circumstances. 2. It should be easily digested. 3. It should be innocuous. Neither by its coarseness, bulky residue, gas-producing or other proper-

ties, should it have a tendency to cause hemorrhage or perforation. 4. It should be palatable, because it has been shown that this factor has an important bearing upon a food's digestibility.

As a practical illustration of a varied diet during the active course of the disease, I quote from the chart of one of my patients in the Garfield Hospital: F. F., a white boy, 16 years old, whose occupation had been that of a messenger. He was not large for his age, weighing probably in health not more than 112 pounds. He was admitted on the fifth day of the disease; his temperature reached normal on the thirty-ninth day, and he left the hqspital on the fifty-eighth, weighing 106 pounds, strong and well. His diet on the twenty-second day of disease, on which the temperature reached 104.4° F., was as follows:

	Amount	Caloric Value
Milk	38 oz.	782.8
Toast	2.13 oz.	266.56
Rice	6 oz.	192.6
Eggs	4 oz.	216.9
Butter	1 oz.	227.8
Sugar	3 drs.	47.4
White of egg (albumen water)		16.1
Total		1,750.16

It may be seen thet the caloric value is not very high, but the food was varied and all that the appetite demanded and was sufficient to maintain the patient in good physical condition. (It is easy to raise the caloric value of such a diet by increasing such elements as sugar and butter.)

In order to draw conclusions from a large number of cases as to the relative advantage of the liquid or liberal diet, Kinnicutt (Trans. Ass. Amer. Phys. 1906) has collected the following statistics: Those for the liberal diet are taken from the Massachusetts General Hospital, the Presbyterian Hospital of New York, the Monsall Fever Hospital, and the Kief Military Hospital, 733 cases in all. Those for the fluid diet were from the Johns Hopkins, the Presbyterian Hospital of New York, the Massachusetts General Hospital, the New York Hospital, and the Presbyterian Hospital of Chicago, 4,654 cases in all. While the 733 cases were the basis for computation for the percentage of perforation and hemorrhage, only 315 were available for the estimation of relapses, and 633 for mortality. The full number of 4,654 were available for all percentages under the fluid diet.

	Hemorrhage	Per Cent.	Perforation	Per Cent.	Relapse (315 Cases)	Per Cent.	Mortality (633 Cases)	Per Cent.
Liberal Diet; 733 cases	35	4.37	10	1.36	48	15.2	60	9.47
Fluid Diet; 4654 cases.	411	8.83	111	2.38	507	10.89	491	10.55

From this table, it may be seen that the relapse column is the only one showing any advantage in favor of the liquid diet, while the hemorrhage, perforation, and death rate are all less among the liberally fed.

I wish here to call your attention to the tabulated record of 44 cases of typhoid fever treated by me in the Garfield Hospital since my last report, published in 1906. The first table contains the 38 cases which recovered, the second, the 6 which died.

My cases treated at the George Washington Hospital and my private cases treated outside of any institution, I have not tabulated as yet, but I might say that I have been very fortunate with those which I was able to put upon a liberal diet.

TABLE NO. I—THOSE ON A LIBERAL DIET

Case No.	Day of Disease on Admission	Day of Disease Temperature Normal	Day of Disease Out of Bed	Total Hospital Days	Relapse	Hemorrhage	Highest Temperature	Complications	Result
1	7	28	49	50	No.	No.	102.6	No.	R
2	9	30	39	32	No.	No.	102.8	No.	R
3	9	49	58	51	Yes.	No.	103.4	No.	R
4	5	14	34	46	No.	No.	105.4	Phleb	R
5	9	24	32	47	Yes.	No.	104	Delit	R
6	8	25	39	53	Yes	No.	105.4	No.	R
7	4	23	40	47	No.	No.	104	No.	R
8	2	22	33	27	No.	No.	104.2	No.	R
9	35	35	37	29	No.	Yes.	102.6	Hem	R
10	5	49	60	64	Yes.	No.	103.2	No.	R
11	5	10	25	25	No.	No.	102.4	No.	R
12	5	20	30	28	No.	No.	102.8	Delir	R
13	1	42	54	64	Yes.	No.	104	No.	R
14	7	17	26	30	No.	No.	104.6	No.	R
15	7	20	29	27	No.	No.	104	No.	R
16	5	31	43	50	Yes	No.	103.6	No.	R
17	1	33	48	60	No.	No.	103	No.	R
18	6	54	70	83	Yes	No.	105.8	Delir	R
19	9	30	44	61	No.	No.	104.4	No.	R
20	3	33	46	57	No.	No.	103.4	No.	R
21	4	21	37	36	No.	No.	103	No.	R
22	8	30	39	36	No.	No.	104.6	Delir	R
23	3	37	40	45	No.	No.	103.8	No.	R
24	1	12	22	23	No.	No.	103.8	No.	R
25	3	31	42	77	No.	No.	105	Abscess.	R
26	2	37	42	85	Yes	No.	103.4	Plan	R
27	3	38	54	56	Yes	No.	104	Delir	R
28	7	15	40	43	No.	No.	102.2	Delir	R
29	4	26	36	39	No.	No.	103.8	No.	R
30	2	13	25	42	No.	No.	104	No.	R
31	10	24	33	34	No.	No.	103.6	No.	R
32	5	15	24	34	No.	No.	103.2	No.	R
33	14	22	25	24	No.	No.	101.6	No.	R
34	5	21	34	33	No.	No.	104	No.	R
35	3	66	72	73	No.	No.	104.6	Otitis	R
36	3	24	38	43	No.	No.	101.8	No.	R
37	5	22	35	40	No.	No.	102.6	No.	R
38	6	19	33	36	No.	No.	101.8	No.	R

TABLE NO. II—THOSE ON LIQUIDS ONLY

Case No.	Day of Disease on Admission	Total Hospital Days	Hemorrhage	Highest Temperature	Complications	Result
39	14	5	Yes	107	Perf.	D
40	7	10	Yes	105.4	Perf.	D
41	8	8	No.	106	Perf.	D
42		9	Yes	106.4	Hem	D
43	1	7	Yes	104.8	Hem.	D
44		5	Yes	104	Hem.	D

(I wish to thank Dr. Stewart, interne at Garfield Hospital, for his aid in the preparation of the tables here given.)

Among the 38 cases who recovered the shortest duration of fever was 10 days, the longest 66 days—average 28 days. There were nine relapses, rather a high percentage, but only one instance of hemorrhage and none of perforation.

These tables are, in a way misleading, since it would appear that all the patients who were fed recovered, while all who were not, from one cause or another, died. It should be pointed out that those who died were so ill from the very day of admission that they never became hungry, and, therefore, following the rule already mentioned, they were never offered anything but liquids. At the same time, it might also be claimed that some of those who were fed might have died, had their vital forces not been kept up by a sufficient amount of nourishment. If such a diet as Coleman recommends were given, it might be made use of in just such cases as are here described, that is, with patients who were too ill to chew their food.

Conclusions.—From the published reports of others, and after a trial of the more liberal diet in typhoid fever in my own practice, irregularly for about eight years and as a routine, when possible, for the past five years, I draw the following conclusions:

1. The patients are far more comfortable.

2. When it is possible to begin the varied diet early, they do not fall into that profoundly nervous state so often seen in the insufficiently nourished.

3. Neither hemorrhage nor perforation is more frequent than among those kept upon liquids, and delirium is less pronounced.

4. Convalescence is far more rapid. The patients get up in good condition and rapidly return to a normal physical and mental state.

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THE DOWD PHOSPHATOMETER:

FOR TAKING THE PHOSPHATIC INDEX OR PULSE OF THE NERVOUS SYSTEM.

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In the Medical Record of May, 1908, and June, 1909, the writer fully described the phosphatic index or pulse of the nervous system with the method of phosphatic estimation. Since that time many reports have been received where the index has made an open book of obscure conditions, also numerous inquiries regarding the apparatus.

The method and apparatus as described in the original articles are very simple, but of course necessitate either making measurements each time in cubic centimeters, or having a tubular glass marked showing the amount of urine or solution to be used, and the normal index. That an estimation and study of the phosphates in the urine is an important procedure in diagnosis and treatment, both of medical and surgical conditions, is fully borne out by, not only cases in the writer's practice, but in numerous reported instances occurring in the practice of others.

The taking of the phosphatic index can be compared only with urinary or blood examination, but is much farther reaching in importance. It must be remembered that the nervous system controls the whole economy in health and disease, and if this system is unduly excited or rendered almost useless by heavy withdrawal of its reserve energy, conditions may be aggravated or cease to improve as the case may be. The elimination of the phosphates shows most positively which of the conditions are present in the same way that the thermometer shows fever or oncoming collapse from a subnormal temperature.

Not only for the reason quoted heretofore, but for the benefit of the profession, the author has constructed a simple, cheap but accurate apparatus whereby the general practitioner can in ten minutes make many complicated conditions clear. This instrument, made by the Sands Surgical Instrument Company of Buffalo and the Adolph Levy Surgical Instrument Company of New York, is shown in the above illustration. It is a simple tube graduated to show the amount of urine and the amount of the solution to be added, and below are graduations showing the normal phosphatic index.

40 North Pearl Street.

Immediate and Remote Results of Resection of the Knee Joint in Youth for Tuberculous Lesions.—Pietro Calcagni reports 102 cases of resection of the knee joint, in children, which were done in the last ten years in the Hospital for Incurables in Naples. Of these he gives the detailed histories and many photographs of the condition before and after operation. Out of 102 cases, 8 were operated on by amputation; 5 were treated with cautery and immobilization; 89 were resected. Of these, 75 were completely cured; 7 had secondary amputation; 5 were incompletely cured; 2 died of intercurrent disease. After a cure has been obtained with deformity the author operates to remove the deformity, which is contrary to the general practise. It has resulted successfully in the author's hands. An osteocuneotomy of wedge shape, with the base in whatever direction was required, is done.—*Giornale Internazionale delle Scienze Mediche.*

Remains of Verbal Hearing in the Deaf Mute; Their Utilization in the Family and Socially.—Vincenzo Cozzalino represents the value of educating the remains of hearing, however small, in the deaf mute. Itard and Toyubu have systematized a method for this education. The first thing necessary is to arouse the interest of the deaf mute. The mind is undeveloped, images are those obtained by sight alone, intelligence and memory are torpid in a baby who has never heard. In a child older when deafness occurred there are generally remnants of hearing for portions of the scale, with lacunæ between, in which there is no hearing. If these remnants of hearing are not exercised they gradually become less from atrophy of the portions of the internal acoustic apparatus involved, and inertia of the cerebral center. By patience and careful training they may be reeducated and increased in amount. The joy of these poor people when they first hear something is pathetic, and their anxiety to improve and increase the amount heard. Education is carried out by acoustic-phonic exercises, used with care not to tire out the dulled hearing organs. The patients must be selected with reference to the condition of intelligence, and of the central and peripheral organs of hearing. Apparatus is used in the nature of a telephone which increases the volume of sound four or five times to the listener.—*Giornale Internazionale delle Scienze Mediche.*

The Climacteric and Preclimacteric Arteriosclerosis, a Consequence of Internal Secretory Disturbances.—Schuster of Bad Nauheim says that the frequency of the appearance of an early climacteric or rather preclimacteric arteriosclerosis, especially of the aorta, is notable in the female sex. The phenomena of the natural cessatio mensuum or artificial menopause find vent to a great extent on the circulatory apparatus causing rushes of blood, palpitation of the heart, or tachycardia. They should, therefore, be considered as a hyperfunction of the sympathetics, the suprarenal, and to a less extent of the thyroid and hypophysis, which we know, with certain restrictions as regards the two last named, stand in apposition to the ovaries, which belong to the autonomous group of organs. If the suprarenal bodies during the preclimacteric gain predominance over a hypo-, or even hyperfunctioning, thyroid, an adrenal influence is established which has been experimentally shown to produce changes, especially in the aorta, closely resembling arteriosclerosis. In hypofunction of the ovaries, enlargement of the suprarenal bodies has been observed. Hypofunction of the ovaries is often associated with hyperfunction of the suprarenal glands. The ovaries have, however, still other intensive relations above all with the thyroid. Hypofunction of the thyroid occurs with hypofunction of the germinal gland. Hypofunction of the ovaries is thus often combined with hypofunction, or with hyperfunction, of the thyroid. Excision of the thyroid may produce arteriosclerosis of the aorta and hypertrophy of the suprarenal gland. Briefly, the preclimacteric hypofunction of the ovaries, alone or coupled with hypo-, or eventually with hyperactivity, of the thyroids, leads to hyperfunction of the suprarenals and to arteriosclerosis, particularly of the aorta. There are other similar combinations, *i. e.* diabetes (hypofunction of the pancreas with hyperfunction of the suprarenal bodies) is often complicated with impotence (hypofunction of the germinal gland) and arteriosclerosis.—*Fortschritte der Medicin.*

MEDICAL RECORD.

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HEREDITY AND ENVIRONMENT.

As the earth becomes more populated, far-seeing persons are turning their attention to the conservation of its natural resources. The question of public health is closely allied to the conservation and care of natural resources. It is for both the material and the physical welfare of man that the country should not be wholly denuded of its forests, and it is certainly for the good of his health that rivers, lakes, and streams should not be foully polluted. In the United States and in Canada the principles of conservation have been adopted, and it is to be hoped that in the near future the water supplies on the entire continent of North America will be thoroughly safeguarded against contamination. When this has been done, a step in advance as regards public health will indeed have been made, but there are other matters intimately related to public health which also call for immediate notice. The cities congested with people are producing a physically and mentally inferior stock and at so rapid a rate that the average ability and capability of the whole community are being lowered. In Europe the situation has reached the acute stage, but it is only in England that the question has been seriously considered from the standpoint of eugenics. Emigration used to afford a safety valve to some extent, but now neither this country nor Canada will admit those termed undesirables, the people that Europe is most anxious to get rid of, so that the problem of how best to deal with this class must be faced at home.

The problem is intricate. In Europe and especially in Great Britain, and in this country in a lesser degree, the state of affairs is this: In the large cities and in the poor parts of these in particular, the population is increasing by leaps and bounds. That is to say, the most prolific urban inhabitants are generally speaking wretchedly poor and not infrequently vicious and criminal. The point is, what is to be done to stay this form of propagation of the human species, or, perhaps, rather what steps shall be taken to uplift the masses. The decision to be arrived at is whether the next generations of city dwellers are to be recruited from the five-cent show, the music hall, the skating rink, the unsanitary dwelling and factory, or from a healthier, purer, and more elevated environment and class. In brief, it is a question of breeding and environment.

Galton says that the possibility of improving the race of a nation depends on the power of increasing the productivity of the best stock. This, he believes, is far more desirable than that of repressing the production of the worst. Civilization has done away with the elimination of the unfit to a great extent. The days when an individual who could not earn his living or get his living had to die have gone, and man is no longer subject to the unrestrained laws of natural selection. For example, he prevents some diseases and cures others, makes life possible for the feeble, the ailing, and the malformed and affords them the opportunity of propagating their kind. By some of his laws and customs, indeed, he sets the principle of natural selection at defiance and seems to pave the way for physical and mental deterioration and even for degeneration. Rousseau and his school held that civilization involved degeneration, but without going so far as this it may be said that where civilization is, there also is degeneration.

Are the schemes of Galton and of others for improving the human stock feasible or, if feasible desirable; and are the plans for limiting the reproductivity of degenerates and of diseased persons practicable or do they commend themselves to the intelligence and sense of justice and humanity of scientific men and of the community at large? The measures suggested up to the present time for improving the human stock by careful mating or by judicious repression of reproductivity do not come within the sphere of practical politics, or, at any rate, the mass of the people are not educated to that point as yet; nor if feasible are these measures altogether desirable. After all man is more dependent upon brains than upon muscle. The mental powers of a Pasteur, a Koch, or a Lister are worth more to the world in every way than the muscles of a Jeffries, a Johnson, a Grace, or a Hanlan. The puny, sickly, or deformed child, which in primitive circumstances would have succumbed to the law of nature known as the survival of the fittest, may possess, often, indeed, has possessed, the brain of a great discoverer. As a matter of fact such a child in civilized life is as fit to survive as the primitive splendid *animal*. Both are creatures of their environment. Physical excellence is to be desired and every legitimate means should be taken to attain it for a race, but this does not prove that it would be wise, if possible, to try to improve the species by select mating and by methods to prevent the breeding of the unfit. Manifestly, there are congenital animals and persons suffering from certain physical and mental diseases who should not marry, and it would be to the benefit of all if such were not permitted to propagate their species, but to lay the ban upon those wishing to marry because some scientists might say they were unfit will not, in existing circumstances, meet with the assent of the laity. The most potent remedy for the present condition of things is to render it easy for people to live

under healthy conditions, in the country for choice, but if in the city in as healthy a manner as can be attained therein. If little or nothing can be done now to improve the breed by the methods discussed above, much can be effected as regards environment in country as well as in town.

THE FUNCTIONS OF THE THYMUS GLAND.

To the majority of medical men the chief, if not the only, function of the thymus gland appears to be that of scapegoat for all cases of sudden death under anesthesia, an opinion which receives but little enlightenment from a consultation of the standard text books of physiology, in which the articles upon the subject are vague in the extreme. During the past few years, however, a number of experimenters have been investigating this little-known organ, and some have drawn some definite, though not unfrequently contradictory, conclusions as to the part which it plays in the regulation of the animal organism. In the *Berliner klinische Wochenschrift* for May 2, 1910, Hart and Nordmann report a long series of painstaking and elaborate researches into this subject, which have led them to the opinion that the thymus gland may be an important, and possibly an essential, organ in the life history of the animals.

By developing a careful technique they have succeeded in completely extirpating the gland from a large number of young puppies, in each case an entire litter being used, part for the extirpation operation, and part for controls. The most striking result obtained was that, though the puppies stood the operation well and recovered quickly from its immediate effects, in no instance did an animal live longer than a year afterwards. The effect of the removal of the thymus gland upon the general condition of the animal appeared to be to inhibit its power of making proper use of its food. Though kept in the best of hygiene conditions, and given plenty of good food to satisfy the inordinately voracious appetite which they developed, the dogs did not develop as did their normal brothers; they were distinctly below the average weight and their muscles were flabby and soft; they tired easily, and showed no inclination to romp and play as does the healthy puppy. Signs of rickets which have been reported by other observers were not present, the bones being quite normal and the backwardness being confined to the soft parts.

Some distinct correlation between the action of the thymus and the other ductless glands was suggested by the experiments. That with the generative organs was shown by loss of all sexual instincts in the dogs, by sterility, and by atrophic changes in the testes and ovaries. The antagonistic relation of the thymus to the adrenals was indicated by a hyperemia of the latter, and a constant arterial hypertension in the animals from which the thymus had been removed. The combined action of the lowered nutritional power of the muscles and the increased blood pressure was marked in the effect upon the heart, while the increased resistance caused marked cardiac dilatation, the lowered nutrition prevented compensatory hypertrophy, and in practically every case the dogs died from paralysis of the over-distended flabby heart. The power of the animals to combat infection also seemed to be greatly reduced. This was especially pronounced in the lowered resistance to pyogenic infections of the skin, successive crops of boils appearing, showing very sluggish powers of healing, and recurring quickly in nearly all of the thymectorized dogs, while the normal control animals, occupying the same kennels, were not attacked.

These experiments, when coupled to our anatomical knowledge of the large size of the thymus gland in infancy, and its gradual decrease and almost disappearance at or near puberty suggest that the organ has an important function in regulating not only the bodily but the sexual growth of the young animal. The uniformity of the symptoms produced by total extirpation of the thymus, and their complete absence whenever intentionally or by accident even a small fragment of the gland remained, rules out the possibility of the results being due to the general manipulation of the operation, and makes it appear probable that the internal secretion of the thymus gland is as vital to the animal organism as that of the thyroid and the other ductless glands.

THE QUESTION OF BOVINE TUBERCULOSIS.

Recent statistics seem to show that tuberculosis is not decreasing in civilized lands at a rate commensurate with the trouble and expense which is being put forth to stay its spread. In all countries there has been an energetic crusade against tuberculosis during the past two decades, and while much success has met these efforts, there is still plenty of opportunity for the expenditure of zeal. The vexed question as to the transmission of bovine tuberculosis to man has been by no means settled, and this point has been clearly brought out within the past few weeks. Arthur Latham, a recognized British authority on the subject, has contributed to the *Medical Chronicle* for May an article entitled "The Conquest of Consumption," in which he indicates two main sources of the seed supply of consumption: (1) expectoration of sufferers from the disease, and (2) the products of the cow—milk and butter. At the present time, no disagreement exists among medical practitioners with regard to the spread of pulmonary tuberculosis by means of expectoration. Germans, Americans, and British, as well as students of other nations are all agreed in this connection. But, with respect to the other somewhat dogmatic statement of Latham, opinions differ. The German school generally, with some brilliant exceptions, take the view that bovine tuberculosis is not transmissible to man, while a few hold that if it is transmissible, it is only so to such a small extent as to be almost a negligible quantity. Many Americans are in accord with this belief and are sceptcal as to the transmissibility of the cattle form of the disease to the human being, or, grant-

ing that the two diseases are practically identical and therefore transmissible, contend that only a small percentage of young children are susceptible to infection. On the other hand, British observers almost as a body, believe in the transmissibility of bovine tuberculosis to man, and with them in this belief are a very large number of the medical profession of this country.

Latham, being as he is, a hard and fast exponent of the British views, is, of course, convinced that a very considerable amount of the disease is disseminated by the agency of milk. He states that 20 per cent. of the milk supplies of towns in Great Britain and 10 per cent. of the butter supplies contain living tubercle bacilli capable of causing disease, and that one glass of milk out of every five sold across the counter may carry the seed of death to one of the adult British population and to children. This language, perhaps, will strike one who has made any study of the matter as scarcely sufficiently restrained. As said before, it is likely that the majority of American physicians do believe in the possibility of bovine tuberculosis being transmitted to young children by infected milk, and in Great Britain the greater part of the medical profession is of the opinion that infected milk is an important factor in the spread of tuberculosis among children. But they are comparatively few in number who assert that infected milk is the cause of pulmonary tuberculosis in adults.

In prescribing a remedy which is at once simple and inexpensive, Latham urges pasteurization, which, he declares, destroys all the germs of consumption and of other diseases in milk, does nothing to diminish its food value, and does not materially affect the taste. Most authorities in this country will agree with the writer on this point, though in Great Britain he will find many opponents. Pasteurization is not looked upon there as an ideal method, but as, at present, perhaps, a necessary means for avoiding infection. Indeed, many British medical men still hold that pasteurization injuriously affects the nutritive properties of milk. Of course, stringent inspection of milk from the cow to the consumer is the ideal solution of the problem, but, like most ideals, it is unattainable, though ever to be striven after. In the meantime pasteurization is called for as the one absolute safeguard.

The Wassermann Reaction in Hodgkin's Disease.

Though the affection which is known as Hodgkin's disease, malignant pseudoleukemia, malignant lymphoma, and various similar names is fairly well recognized as a clinical entity, there are many observers who are unwilling to accept the condition as an idiopathic disease, and have tried to associate it with one or other of the well known infections, especially tuberculosis or syphilis. In the *Münchener medizinische Wochenschrift* for May 10, 1910, Albert Caan presents a small contribution to this subject, by finding that four typical cases of Hodgkin's disease, which gave no previous history of syphilitic infection, nevertheless gave positive, though not very strong, Wassermann reactions, both by the Landsteiner modification of the Wassermann reaction and the v. Dungren and Hirschfeld modification of the Noguchi method. Such results suggest two possibilities as to the etiology of Hodgkin's disease. It may, on the one hand, be a late manifestation of hereditary or acquired syphilis. On the other hand, as it has been shown that the complement fixation reaction is not absolutely specific for syphilis, but is present in such diseases as leprosy, relapsing fever, and sleeping sickness, all of which are caused by organisms somewhat closely related to the *Treponema pallidum*, it is possible that the presence of the Wassermann reaction in the blood serum of Hodgkin's disease indicates that this affection also is produced by some organism closely related to the spirochetes or trypanasomes.

News of the Week.

The Conference on the Care of Sick Babies held its second meeting at the Department of Health building, New York, on Thursday, June 16, 1910. The meeting was called to order by Dr. William P. Northrup, chairman. The committee on literature recommended that the lithographed card and literature as adopted in the year 1909 be adopted for the season of 1910. A most important step was taken in authorizing the compilation of a directory embodying the organization, objects, and facilities of each agency represented in the conference. This ready reference book will be distributed gratis to all the child-caring agencies throughout the city. It was requested that each agency report what it was prepared to do in instructional work, medical care, and convalescent care. Through the Department of Health as a clearing house, the work of each agency could be controlled and protected against duplication of effort, and overlapping of district.

The Birth Rate in France.—According to the French vital statistics for 1909, a further decrease of 22,000 has occurred in the birth rate. The total births in 1908 were 792,000, while in 1909 there were only 770,000.

The Mortality Statistics in Chicago for the first five months of 1910 show an increase in death rate of 4.7 per cent. over 1909. Increases in deaths were noted as follows: Measles, 5; scarlet fever, 18; pertussis, 55; diphtheria, 11; tuberculosis, 58; pneumonia, 488. Decreases in the number of deaths occurred in typhoid fever, 44; diarrheal diseases under two years of age, 2.

Plague Ship Quarantined.—Owing to the development of bubonic plague among laborers landed in Honolulu from the Japanese Oriental liner *Nippon Maru*, the ship was quarantined on her arrival at San Francisco recently.

Smallpox in Mexico.—An epidemic of smallpox has prevailed in the district of Ozumba, Northern Chihuahua, Mexico, for the past six months. There have been six hundred deaths from the disease during that period. An appeal has been made to the Federal Government for medical officers and soldiers to enforce quarantine.

New York State Board of Regents has annulled its action taken in 1906 which established medical reciprocity between New York and New Jersey. The following appointments have been made to the State Board of Medical Examiners for a term of three years: Dr. William Warren Potter and

Dr. Lee H. Smith of Buffalo, and Dr. Wentworth Reeves Butler of Brooklyn; to the State Board of Nurse Examiners, to serve five years, Miss Lydia B. Anderson; to the State Board of Examiners in Optometry, Charles F. Prentice of New York and George R. Fox of Buffalo; to be secretary of the Board of Pharmacy, William T. Bradt; to be State Dental Examiners, Dr. A. M. Holmes, Dr. H. J. Burkhart, and Dr. E. G. Parker; to the State Board of Veterinary Examiners, Prof. James Law of Ithaca, Dr. F. C. Greenside of New York, Dr. R. C. Reed of Elmira, Dr. H. S. Beebe of Albion, and Dr. George A. Knapp of Millbrook. Miss Annie W. Goodrich of New York was appointed inspector of nurse training schools.

Ambulance Board in New York.—Mayor Gaynor has instructed the police commissioner of New York that the director and deputy director of the new ambulance board be appointed from a classified civil service list. This necessitated the withdrawal of the men recently appointed to these positions.

The Sea Side Hospital at New Dorp, Staten Island, belonging to the St. John's Guild has been opened for the season for the care of sick infants. The floating hospital of the Guild will make its first trip July 5.

The Sanatorium for Hebrew Children at Rockaway Park, Long Island, will open on or about June 20.

Antimeningitis Serum.—The Rockefeller Institute for Medical Research, which has been supplying the antimeningitis serum gratis for several years, has announced that it may discontinue, at any time after the expiration of the next six months, its preparation and distribution on a large scale. The consensus of medical opinion, based on the employment of the antimeningitis serum in widely separated epidemics of meningitis, is to the effect that it is of undoubted value in reducing the mortality and preventing the severe consequences of the disease. The serum is without effect in any other form of meningitis than that caused by *Diplococcus intracellularis* (Weichselbaum) and its favorable action is most pronounced when it is applied early in the course of the disease. Hence it is desirable that State and municipal laboratories engaged in the preparation of diphtheria antitoxin and allied products should undertake the preparation of the serum and provide means for controlling the bacteriological diagnosis of meningitis, as they now do that of diphtheria and some other diseases.

The Peter Bent Brigham Hospital, for which ground has been broken on land adjoining the new buildings of the Harvard Medical School, has announced the appointment of Dr. Harvey Williams Cushing, associate in surgery to the Johns Hopkins Hospital and associate professor of surgery in Johns Hopkins University, to the position of surgeon-in-chief, and of Dr. Henry A. Christian, dean of the Harvard Medical School, to that of physician-in-chief. The funds of the hospital, originally $1,800,000, have been increased by investment to $8,000,000. About $1,000,000 will be spent upon the erection of the new buildings.

The Boston University School of Medicine has announced a gift of $200,000 from Mrs. Robert Dawson Evans of Boston for the purpose of erecting an Institute of Clinical Research and Preventive Medicine in memory of her late husband. This institute will be under the direction of the Massachusetts Homeopathic Hospital, and will be for the mutual benefit of that institution and the Boston University School of Medicine. It will be built upon a lot of land immediately adjoining the Medical School. As planned, the building will consist of a large structure four stories high with a roof sun-parlor. The first floor will be devoted to auditoriums in which public lectures will be given, and to the various administrative offices. On the next floor will be wards for neurological patients, forming a psychopathic department. The third story will also be devoted to wards for patients who are being studied and treated by the various members of the staff of the Institute. The uppermost floor will be devoted to laboratories of pathology, bacteriology, physiology, chemistry, and drug pathogeny.

The New York University held its annual commencement exercises on June 8, 1910. The degree of Doctor of Medicine was conferred upon sixty-four students of the University and Bellevue Hospital Medical College. The degree of Doctor of Laws was conferred upon Dr. Egbert Le Fevre, professor of clinical medicine and dean of the medical faculty.

The Long Island College Hospital held its annual commencement exercises June 1, 1910. The degree of Doctor of Medicine was conferred upon sixty-six candidates.

Jefferson Medical College of Philadelphia.—At its annual commencement, June 6, the college conferred the honorary degree of Doctor of Laws on Dr. S. Weir Mitchell in recognition of the sixtieth anniversary of his graduation from the college. Dr. J. Chalmers Da Costa has been elected Samuel D. Gross Professor of Surgery.

University of Pennsylvania.—Dr. Louis A. Duhring has resigned from the chair of dermatology on account of ill health. Dr. A. M. Richards of Northwest University has been elected professor of pharmacology, Dr. K. F. Meyer of South Africa assistant professor of veterinary pathology, and Dr. C. H. Shaw of the Medico-Chirurgical College assistant professor of botany.

Fordham University.—At the graduation exercises held recently announcement was made that a building for the School of Medicine will be erected and ready for occupancy this coming fall. The building will be on the university grounds facing Pelham avenue. As planned it will be 200 feet wide and 100 feet deep and will be equipped with laboratories and a clinic. The dean also announced the erection of a maternity hospital in connection with the university in the near future.

Drake University Medical School.—It is announced that the campaign to raise $150,000 to endow the medical department of Drake University has been successful.

Dr. J. J. Henna of New York has been made a chevalier of the Legion of Honor by President Fallières, in commemoration of the one hundredth anniversary of the French Benevolent Hospital, of which the French Hospital in New York is a branch. Dr. Henna is dean of the medical staff of the French Hospital and the only survivor of the founders of the hospital.

Dr. Walter R. Brinkerhoff, who for the past five years has been working among the leper colonies of the Hawaian Islands, has been appointed assistant professor of pathology at Harvard University.

Dr. James B. Dinnan of Meriden, Conn., has been appointed medical superintendent of the Undercliff Sanatorium by the Connecticut State Commission on Tuberculosis.

The Associated Physicians of Long Island will hold their midsummer meeting June 25, 1910, on an unused estate on the banks of the Nissequoque River. A special train will leave Jamaica at about 11 A. M. The members will alight at Smithtown and travel by automobile and boat to the place of meeting. Dr. Harvey W. Wylie will speak on Preventive Medicine from a chemical standpoint.

The Homeopathic Medical Society of the County of New York, at a regular meeting held June 9, 1910, passed a resolution favoring the establishment of a National Department of Health, as follows: Whereas, in the public print representations have been made that the practitioners of the Homeopathic School of Medicine are opposed to this bill, the Homeopathic Medical Society of the County of New York, at its regular meeting, passed the following resolution. *Resolved*, that the Homeopathic Medical Society of the County of New York heartily endorses the proposed National Department of Health, feeling that such a department will increase the efficiency of State Boards of Health, and produce a unanimity of action which is essentially lacking under the present conditions. William Francis Honan, M.D., president; John Strother Gaines, Jr., M.D., secretary.

The American Hospital Association will hold its twelfth annual conference at the Planter's Hotel, St. Louis, Mo., September 20-23, 1910.

American Gastroenterological Association.—At the thirteenth annual meeting of this association, held at St. Louis, Mo., June 6 and 7, 1910, the following officers were elected: *President*, Dr. Walter B. Cannon, Boston; *First Vice-President*, Dr. John A. Lichty, Pittsburg; *Second Vice-President*, Dr. George D. Kahlo, French Lick, Ind.; *Secretary and Treasurer*, Dr. Charles D. Aaron, Detroit; *Member of Council*, Dr. Julius Friedenwald, Baltimore.

The Massachusetts Medical Society held its one hundred and twenty-ninth annual meeting in Boston June 7-8, 1910. The election of officers resulted in the following: *President*, Dr. George B. Shattuck of Boston; *Vice-President*, Dr. Henry B. Stetson of Greenfield; *Secretary*, Dr. Walter L. Burrage of Boston; *Treasurer*, Dr. Edward M. Buckingham of Boston; *Librarian*, Dr. Edward H. Brigham of Brookline; and *Orator*, Dr. Maurice H. Richardson of Boston. The section on tuberculosis elected the following officers for 1910: *Chairman*, Dr. Arthur L. Cabot of Boston; *Secretary*, Dr. Thomas F. Harrington of Boston; and *Recording Secretary*, Dr. John Hawes, 2d, of Boston.

The Rhode Island Medical Society meeting at Providence, R. I., May 31, 1910, elected the following officers: *President*, Dr. Augustine A. Mann of Central Falls; *Vice-Presidents*, Dr. Frederick T. Rogers of Providence, Dr. Alexander B. Briggs of Ashaway; *Secretary*, Dr. Stephen A. Welch of Providence; *Treasurer*, Dr. Winthrop A. Risk of Providence. The society voted to purchase a house to be used as a club house and library.

The Connecticut State Medical Society held its 118th annual meeting at New Haven, May 26, 1910. The following officers were elected: *President*, Dr. Frank K. Hallock of Cromwell; *Vice-President*, Dr. E. P. Douglas of Groton, and Dr. E. T. Bradstreet of Meriden; *Secretary*, Dr. Walter R. Steiner of Hartford; *Treasurer*, Dr. J. H. Townsend of New Haven. *Delegate to the American Medical Association*, Dr. E. J. Knight of Hartford.

The Franklin County (Vt.) Medical Society held its annual meeting at St. Albans on May 26, 1910. The following officers were elected: *President*, Dr. C. A. Pratt of Enosburg; *Vice-President*, Dr. J. Reynolds Patton of Fairfield; *Secretary*, Dr. E. A. Hyatt of St. Albans.

The White River Medical Society met at Hartford, Vt., May 17, 1910, and elected the following officers: *President*, Dr. George W. Weymouth of Lyme, N. H.; *Vice-President*, Dr. J. D. Brewster of Windsor; *Secretary and Treasurer*, Dr. G. N. Cobb of White River Junction.

The Association of the Alumni of the St. John's Guild Hospitals for Children was organized at a meeting held in New York City on May 26, 1910. Those physicians who served as regular appointees of the St. John's Guild, either as residence physicians at the Seaside Hospital or as physicians on the Floating Hospitals, for one or more seasons, are eligible for active membership. The following officers were elected: *President*, Dr. Medwin Leale; *Vice-President*, Dr. Russell Bayly; *Secretary*, Carlisle S. Boyd, 46 West 84th street; *Treasurer*, Dr. Ten Eyck Elmendorf.

The Connecticut Homeopathic Medical Society held its annual meeting in Hartford, May 17, and elected the following officers: *President*, Dr. H. A. Cameron of Waterbury; *Vice-President*, Dr. Samuel Worcester of South Norwalk; *Treasurer*, Dr. Henry P. Sage of New Haven; *Secretary*, Dr. W. W. Christian of Berlin.

The Vermont Homeopathic Medical Society held its sixtieth annual meeting in Montpelier on May 18 and elected the following officers: *President*, Dr. Fremont Hamilton of Brattleboro; *Vice-President*, Dr. James Haylett of Moretown; *Secretary*, Dr. George O. Forbes of Burlington; *Treasurer*, Dr. Fred E. Steele of Montpelier.

The Ninth District Society of the Indiana State Medical Association held its annual meeting at Tipton, May 20. Ft. Wayne was chosen as the place for the next meeting, and the following officers were elected: *President*, Dr. A. S. Dickey of Tipton; *Vice-Presidents*, Dr. Edgar Cox of Kokomo and Dr. W. H. Fernald of Frankfort; *Secretary and Treasurer*, Dr. Paul Barcus of Crawfordsville; and *Assistant Secretary-Treasurer*, Dr. George T. Williams of Crawfordsville.

Obituary Notes.—Dr. Camillus Bush of San Francisco died on May 28, 1910, aged 32 years. Dr. Bush received his bachelor's degree from the University of California, in 1898, and in 1902 was graduated with honors from the Johns Hopkins Medical School. After serving for one year as surgical house officer, and one as assistant resident surgeon in the Johns Hopkins Hospital, he returned to California to become an instructor in surgery at the University of California and attending surgeon to the St. Helena Sanatorium. He was a member of the San Francisco County Medical Society, the Medical Society of the State of California, and the American Medical Association.

Dr. Simon L. Elsner of Rochester, N. Y., died suddenly of heart disease June 5, 1910, while driv-

ing his automobile. He was a graduate of the College of Physicians and Surgeons of New York in 1887, and was a member of the Medical Society of the County of Monroe, the Medical Society of the State of New York, the American Medical Association, the American Urological Association, and the Rochester Academy of Medicine, and was assistant physician to the Rochester City Hospital.

Dr. Louis Clark Pettit of New York died on June 2, 1910, aged 53 years. He was a graduate of the University of Pennsylvania in 1883, and at the time of his death was second assistant at the Manhattan State Hospital on Ward's Island. Dr. Pettit was a member of the American Medico-Psychological Society, the New York Academy of Medicine, and the New York Neurological Society.

Major John S. Kulp, Medical Corps U. S. Army, retired, died in Seattle, Wash., June 2, 1910, aged 44 years. He entered the army in 1893.

Dr. Daniel Merritt Griffen of Portchester, N. Y., died suddenly June 4, 1910, at Hot Springs, Va., aged 43 years. He was a graduate of the College of Physicians and Surgeons in New York in 1890.

Medical Director Richard C. Dean, U. S. N., retired, died at his home in Washington, June 9, 1910, aged 77 years. He entered the navy as assistant surgeon in 1856, after graduating from the Jefferson Medical College. During the Civil War he served on the Tuscarora. From 1870 to 1874 he was assistant chief of the bureau of medicine and surgery. From 1876 to 1877 he was fleet surgeon of the North Atlantic fleet. After his retirement he performed varied board duty in Washington until August 10, 1904, when he was ordered to his home. He was advanced to the grade of medical director with the rank of Rear Admiral on the retired list because of his Civil War service.

Dr. Warren Andus James of Brooklyn died at his home, June 9, 1910, aged 71 years. He was a graduate of the Bellevue Hospital Medical School in 1865, and was physician to the Children's Aid Society of Manhattan and consulting physician to the St. David's Society.

Dr. Clarence L. Addleman of Mammoth, Utah, died at Green Castle, Pa., May 28, 1910. He was a graduate of the University of Pennsylvania in 1875.

Dr. George Waldron Bartlett of Brooklyn, N. Y., died at his home, June 5, 1910, aged 57 years. He was a graduate of the New York Homeopathic Medical College in 1895, and was a member of the American Institute of Homeopathy and the Homeopathic Medical Society of the State of New York.

Dr. Rio Delos Barber of Corona, Cal., died May 26, 1910, aged 72 years. He was a graduate of the Harvard Medical School in 1867, and a veteran of the Civil War.

Dr. Stiles Kennedy of St. Louis, Mich., died at his home, May 27, 1910, aged 73 years. He was a graduate of the University of Pennsylvania in 1858, and was a member of the Gratiot County Medical Society and the Michigan State Medical Society.

Dr. Robert Gordon Leverty of Bridgeport, Conn., died May 28, 1910. He was a graduate of the New York University Medical College, in 1895, and was physician to the Emergency Hospital.

Dr. Angus McDonald of Boston died at his home, June 1, 1910. He was a graduate of the Boston University School of Medicine in 1876, a member of the Massachusetts Homeopathic Medical Society, and a visiting physician to the Homeopathic Hospital.

Dr. Alexander C. Smith of Sterling, Ill., died at his home, May 30, 1910, aged 70 years. He was a graduate of the Long Island College Hospital, in 1877, and was a member of the Whiteside County Medical Society and the Illinois State Medical Society.

Dr. John Philip Henrique of Providence, R. I., died at his home recently, aged 53 years. He was a graduate of the Yale Medical School in 1878.

Dr. James Holmes Wikoff of Princeton, N. J., died at Atlantic City, June 8, 1910, aged 78 years. He was a graduate of the New York University Medical School in 1854, and was a member of the Mercer County Medical Society and the Medical Society of New Jersey.

Correspondence.

THE ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION.

(From Our Regular Correspondent.)

Toronto, June 5, 1910.

The address in surgery was given by Dr. John B. Murphy of Chicago, on the afternoon of June 3, and dealt with the surgery of joints. Dr. Murphy pointed out that it was the anatomy and pathology of the capsule that gave the surgeon the most work in treating the injuries of joints. The fact that the capsule was non-vascular and composed of fibrous tissue and of inelastic structure, had an important bearing on the correction of joint deformities. In treating such deformities Dr. Murphy said it was a mistake to use force, that cutting was the remedy and not force. Infection of joints was difficult to treat, because the capsule did not inflame. Draining a joint was, as a rule, the wrong procedure, as the endothelial layer was thereby destroyed. In order to save a joint from any loss, the closing of the joint was indicated. Rheumatic joint-infection had no definite pathological significance and covered a lot of surgical sins. Ankylosis was not the result of rheumatic infection, but of metastatic. Many cases of joint infection were ushered in by chills, metastatic infection began with chills; infection of the rheumatic type did not so commence. Dr. Murphy said that he had convinced himself by close observation of human subjects, aided considerably by animal experimentation, that in a large number of cases of infection of joints the primary infection should be looked for, and that it should be assumed that the infection was metastatic and not rheumatic. Having settled this point, the treatment should be to relieve the destructive pathological processes, and this object should be achieved by aspirating joints and not by opening. Therefore, aspirating with formalin and glycerine, and sometimes with turpentine, should be done before pathological processes had had time to effect their work of destruction, for it must be borne in mind that every acute infective process in joints might lead to a ankylosis by pressure. Further, the injured limb should be kept extended. Dr. Murphy drew attention to the fact that the knee was the part of a limb on which it was most difficult to operate, for the reason that it could not easily be kept plumb. He advised, too, that the patella should be injected with formalin and glycerine eight or nine days before operating, so that there might be no effusion. Dr. Murphy illustrated his address by a very large number of beautifully taken photographs, which showed the results of his operations in various stages, and which also gave ocular evidence of their successful issue. Dr. Murphy's address was brilliant and followed with deep attention by a very large audience.

Dr. S. P. Beebe of New York City opened a symposium on exophthalmic goiter, discussing the disease from the pathological aspect. Dr. Beebe reviewed our knowledge, or rather our lack of knowledge, as to the cause of Graves' disease, and as to what particular influence the functions of the thyroid had on the origin and on the course of the disease. That the thyroid gland was always hypertrophied in exophthalmic goiter seemed evident, and there was also an alteration in the type of its secretions during the disease, but as Dr. Beebe showed clinical conclusions could not be reconciled with pathological findings. It was likewise pointed out that it was not necessary to have a definite goiter in Graves' disease with regard to the administration

of iodine in the treatment of the disease. Dr. Beebe stated that such treatment should be followed with caution, as iodine was readily taken up by the thyroid gland in Graves' disease, and fatal clinical results might ensue. A serum for the treatment of exophthalmic goiter is prepared by inoculating animals with proteins from human thyroid gland, and according to Dr. Beebe, its use has been attended with fair success. Dr. Beebe said that he was opposed to operative measures.

Dr. Alex. McPhedran discussed the malady from its medical aspect. He said that it was not prevalent in Canada. In the General Hospital, Toronto, during a period of five years, there had been 55 cases of Grave's disease out of 8,000 medical cases treated. Dr. McPhedran gave an exhaustive description of the various phases of the disease and observed that surgical writers did not believe in its medical treatment. Statistics seemed to justify the opinion but he remarked that medical treatment did not lend itself favorably to statistics. He recommended rest, proper feeding, and general care, with the administration of drugs found to be suited to the case. If under such treatment improvement did not follow in a few weeks' time, surgical aid should be sought.

Dr. F. Shepherd of Montreal considered the disease from the surgical aspect. He recognized that surgical treatment of Graves' disease was not the ideal treatment, and thought that the only rational mode of treatment was to remove the cause by means of vaccine or serum. Pending the successful prosecution of methods of this nature, he was of the opinion that operative measures were called for in many cases. He had not found local anesthesia when operating for Graves' disease satisfactory. Dr. Shepherd pointed out that early cases lent themselves far more favorably to operation than cases of longer duration, and therefore thought that physicians should be urged to send cases to surgeons before the disease was far advanced.

A lengthy discussion followed, physicians and surgeons debating the pros and cons of the matter from their different standpoints, with earnestness not unmingled with a certain degree of heat. Dr. Heringham of London stated that he had examined several patients, both before and after operation for Graves' disease, and that in all cases he had found tachycardia had not been relieved by operation. In this opinion many concurred. In the *British Medical Journal* for May 28, 1910, Dr. F. P. Sturm Leigh of Lancashire, England, wrote to say that he had recently been wholly successful in an operation for exophthalmic goiter of long standing, and that in three other operations for the same condition the results had been very satisfactory.

On the evening of June 3, Dr. Henry C. Coe of New York City gave the address in gynecology, treating of the old and new gynecology. Whereas, Dr. Murphy in his address conveyed the impression that not only had the limits of surgery not been nearly reached, but that in some respects surgery was almost in an elementary stage. Dr. Coe was distinctly conservative and expressed the opinion that the surgical side of gynecology, at any rate, would soon become less prominent, and rather unkindly went on to say that the trained man of mature experience would supersede the half fledged specialist. Dr. Coe classed gynecology and obstetrics together, and while predicting for these allied branches of surgery a glorious future, seemed more inclined to dwell upon their glorious past. In these days of self-glorification, such an attitude is healthy and refreshing. Dr. Coe recalled many of the great names in abdominal surgery of the past two or three generations, as Lawson Tait, Emmet, and Thomas, and gave them their due meed of praise for rendering possible the vast progress in this branch of surgery. Dr. Coe referred to the many and various surgical fads, and extraordinary operations which had sprung up from time to time in the past twenty or thirty years, and said that American surgeons were somewhat akin to the French, in that they embraced with enthusiasm every and all the out-of-the-way operations that were introduced on the Continent of Europe. However, indiscriminate operating seemed to be passing away and conservatism appeared to be setting in. Dr. Coe confessed to a considerable degree of pessimism in regard to surgical treatment of malignant disease of viscera. He was of the opinion that there were more inoperable cases of cancer than operable cases. Generally operation was delayed too long. However, he thought its cure must be sought for in serum therapy and not in surgery. On one point in Dr. Coe's most excellent address there will be by no means complete agreement. He placed himself in the category of those who hold that marriage will one day be subject to State control. He said that this view was no mere fanciful dream, but at the present time was being worked out. There must, he thought, be a survival of the fittest among human beings as among the animals of the lower order.

Dr. J. C. Connell of Kingston, Ont., gave an able and thoughtful address on the much vexed question of medical education. Dr. Connell, who has had twenty-two years' experience as a teacher of medicine, is like many another in a similar position, uncertain as to whether present methods of medical education are best fulfilling the object for which they were intended. Dr. Connell in his paper compared the curricula of Canadian universities twenty-five years ago and of the present day, not altogether to the advantage of the former curriculum. He said that the burdens of students and professors alike were now much heavier than in 1885, and that there was a considerable amount of wasted effort. A quarter of a century ago every professor was a general practitioner; now every teacher was a specialist, and the student must become a sort of general specialist. The curriculum was now overcrowded thereby defeating its own ends. Dr. Connell proposed the appointment of a committee of the association to deal with the subject of medical education. His proposal was accepted and a committee appointed.

The program of papers to be read in the section was extremely long. Without any desire to be hypercritical, it may be perhaps said that it was even too long. The average standard of papers was high, while some were of great merit. On the whole, the most instructive and interesting subject dealt with at the meeting was that of the psychoneuroses. The question of nervous complaints of all kinds is of medical and of general interest. The neuroses and psychoneuroses, under their various appellations, are the most common and increasing maladies of the present time. Further, it is argued, and doubtless with truth, that our conceptions of these affections have been wrong and that consequently treatment has been of little avail. It is argued, too, that recently a school has arisen, or perhaps it would be correct to say that teachers have arisen, who have at last grasped the fundamental truths in connection with the causation of the psychoneuroses. In the Section of Medicine of the Canadian Medical Association on June 1, a symposium on the psychoneuroses was held, and papers were read and the matter discussed by some of the foremost neurologists of America.

The first paper read was by Dr. J. J. Putnam of Boston on psychoanalysis, and was in effect an account of the method of treatment initiated, developed, and pursued by Professor Sigmund Freud of Vienna. Dr. Putnam is a friend and disciple of Freud, and has treated patients by his methods during the period of a year, and, of course, was fully qualified, both from the standpoint of theory and practice, to present the matter in its true light. It is needless to say that Dr. Putnam fulfilled these expectations. The next paper read was by Dr. August Hoch of New York City on the same subject. Dr. W. H. Hattie of Halifax, read a paper on the psychoneuroses in asylum practice, and Dr. Ernest Jones read a paper on the general significance of these conditions. Dr. Jones was a pupil and is a friend and staunch follower of Freud. Dr. Jones is a most voluminous writer on various mental states, and more especially on the psychoneuroses in relation to Freud's theory and treatment. In fact, it would have been scarcely possible that the Vienna professor's tenets should have been better set forth than they were in Toronto. Several took part in the discussion that followed. Among these were Dr. C. K. Clarke of Toronto and Dr. D. C. Meyers. However, no one took exception to the statements which had been made until Dr. Joseph Collins of New York sharply criticised Freud's theory and therapeutic methods. He complained that the followers of Freud regarded him as almost inspired and seemed to resent criticism of his teachings. After all, Dr. Collins said, neither his theory nor practice had been as yet proved to be right, and would be subjected to very destructive criticism ere this were accomplished. One June 2, in the Section of Medicine, Dr. Collins read a paper entitled "The Psychoneuroses," an interpretation, in which he dealt with Freud's theory and treatment at length. According to Dr. Collins, the theory of Freud was an extension of the doctrine propounded by Janet, that hysteria was a psychosis belonging to a group of mental diseases due to cerebral insufficiency. It was characterized especially by moral symptoms. The essential feature was the weakening of the faculty of psychological synthesis. The hysterical process caused a splitting, a disintegration, a doubling, of personality. Freud adopted this theory and contended that the disintegration was initiated by a force which he termed sexual trauma. In short, hysterical phenomena are the outward expression of the unpleasant element in an idea, while the idea itself exists but is repressed in the subconscious mind. In addition, all ill-health which can be

referred to psychic cause is due to sexual life. Even in early childhood this is the case.

The treatment by Freud's method is denominated psychoanalysis. Dr. Putnam has defined it as "his method of analysis into the structure of the working of the whole mind, the whole man carried out with a searching and merciless vigor which is in the end justified by the fact that it brings at last a sense of freedom and manhood."

Dr. Collins' objections to Freud's theory and practice were that his mode of interpretation was too arbitrary, that the psychoanalysis became a source of autosuggestion, and that it gave a conspicuousness to the sexual factor as a causative agent which it had not yet proved to be. Even admitting that sexual factors had the importance in the psychogenesis of hysteria that Freud maintained, very little had yet been vouchsafed us upon which to base the belief that psychoanalysis was a reliable therapeutic agency.

Dr. Putnam stated that during a period of a year he had had much success in treating the psychoneuroses by means of psychoanalysis. Whenever a new theory is originated, although Freud's theory of psychoneurosis had been in vogue for several years, there is certain to be much opposition before it is established on a firm base. The discussion at the Toronto meeting was timely, and the arguments advanced on both sides were calculated to arouse increased interest in the matter. It may be pointed out that, outside Germany and France, America takes the lead in the study and practice of neurology. Indeed, in so far as practice of neurology is concerned, there is no country which is in advance of America.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

MEETING OF MEDICAL COUNCIL—ORATION OF MEDICAL SOCIETY OF LONDON—INTERNAL INJURIES—ANKYLOSTOMA DUODENALE—CONFERENCE AS TO A SANATORIUM—REDUCED DEATH RATES—MIDDLESEX HOSPITAL—ANTIVIVISECTIONISTS' CONTRITION AND EXCUSES.

London, May 27, 1910.

The General Medical Council met on Tuesday for its ninety-first session and on the proposal of the president, Dr. Donald Macalister tendered a loyal address to the King expressive of sympathy with the personal sorrow of the royal family in its sudden grief and of devotion to the throne. All other medical corporations, like all national institutions, have adopted similar resolutions. This, therefore, may be taken as representing the whole of the profession. In proposing it the president said they could appreciate better than many the kingly courage of their late beloved sovereign, who refused to yield to any but the last inexorable summons, and while consciousness remained strove to carry on the duties of his state. Nine years ago the Council hailed His Majesty as one who ever evinced a wise and effectual interest in his people's health, and his reign would be memorable for what he initiated or fostered as well as for what he accomplished. Happily King George has shown the same interests and sympathies.

The president then referred to the recent legal decision that the Dentists' Act does not prevent unqualified practice, as for a time it was thought to do. It is as ineffectual as the Medical Act. It did not seem to occur to the president that the Council cannot be exonerated from blame in this matter. They have not made any efforts to protect the profession and in this respect their ninety sessions have been useless. Even now the president looks "for the formation of enlightened public opinion" from arrangements he hears are in progress for publishing a parliamentary paper of information collected by the Local Government Board on unqualified practice, and such a compilation he thinks "almost a pre-requisite." Was there ever such a case of how not to do it?

The president also referred to the revision of the Register, which has been completed and which he thought a heavy task, calling for thanks to the Registrar for superintending and the other employees for carrying out with efficiency. The "labor involved has been heavy," he said, and the cost moderate. Of course, it is well to have the Register corrected as may be required. But the task is no greater than the Medical Directory undertakes every year, giving, moreover, much more information as to every name contained in it.

The remainder of the session has been occupied with formal proceedings and the consideration of cases under the penal clauses of the acts.

The Medical Society of London held its annual conversazione on Monday. The president, Dr. Samuel West, was supported by Sir William Church and a number of leading members of the profession. Sir William was elected an honorary Fellow on the occasion. A good entertainment was provided, the Blue Viennese Orchestra contributing the music. The feature of this gathering is the annual oration, which this year was delivered by Mr. W. H. Battle, who took for his subject the "Treatment of Internal Injuries."

In the course of his oration Mr. Battle made some interesting observations on rupture of the spleen—an accident common enough in malarious countries, where the organ is so constantly diseased, but rarely met with here except as the result of great violence, a large proportion occurring in children "run over" in the streets. He said the view that adhesion to the diaphragm must occur before rupture of the spleen could be produced was now abandoned. So it was proved that every rupture was not necessarily fatal, for healed cicatrices had been found at necropsies. Cases had also been reported in which life had been much prolonged after rupture, but it was not possible to exclude doubt as to the diagnosis. There must be clear evidence of great hemorrhage into the peritoneum. This is so great that death generally occurs in a few minutes. But sometimes there is delay perhaps from clotting about the laceration. Then there will be recurrence. If the patient survive and no relief be given, peritonitis will be added to the other symptoms. In such cases the orator thought it advisable to remove the spleen and empty the peritoneum. Tamponage was sometimes of use, but efficient pressure on such a vascular organ might produce sloughing. In one case with adhesion to the diaphragm he had ligated the splenic vessels and so arrested the hemorrhage. Then saline infusion seemed to be of use, but the patient only survived four days.

At the previous meeting Dr. F. M. Sandwith made an interesting statement about *Ankylostoma duodenale,* illustrated by lantern slides from Prof. Looss of Cairo, who had experienced infection through the skin in his experimental work. Previously it was not believed that this could take place, and it can scarcely be said now that such infection is accepted. Dr. Sandwith assumed that his audience were well aware of the entry by the mouth, and so he devoted his time to giving an account of the discovery that the larvæ may enter through the skin, a fact of great significance in the study of other parasites whose life histories are not yet fully elucidated. It was in 1898 that Looss accidentally dropped on his hand a drop of water containing more than 1,000 lively larvæ. Local irritation was produced, followed by anemia, debility, and the eggs of the parasite were found in the feces. When cured this involuntary experimenter proceeded to repeat his experiment voluntarily, with the same results. Next he tried whether the larvæ would enter a piece of skin taken from a patient immediately after death and kept at 99° F., but this they would not do. He then applied a compress containing larvæ to a living patient's leg one hour before it had to be amputated. After the operation the hair follicles under the compress were infected. Later he used an analagous worm which infests dogs (*Ankylostomum caninum*) and after a long course of experiments in those animals he was able to declare that the larvæ entered the skin, passed into the lymphatics, and thence into the subcutaneous veins, and so to the heart, lungs, larynx, winding round the epiglottis, and so passed down the esophagus to the duodenum, their natural goal, where they grow and multiply. Schaudinn confirmed this by experiments on monkeys and showed that the larvæ remained of the same size until they reached the air vesicles, when they began to grow rapidly.

On Wednesday a conference of London Borough Councils was held to consider the question of producing sanatorium accommodations at the cost of the boroughs, of which about twenty-five sent delegates. The debate was rather confused, amendments were piled up on one another, and a number of suggestions were adopted in parts, so it is only safe to say that it was pretty generally agreed that there should be a central sanatorium for consumption in London. I have gathered since that the Medical Officer of Health for Shoreditch desired such accommodation for the working classes, to be maintained by the several boroughs in proportion to their rateable values and under the control of the Asylums Board. The Medical Officer of

Health for Woolwich held that it was better for each borough to lease beds at an existing sanatorium for favorable cases and for the Asylums Board to provide for the advanced cases. He said Woolwich had sent during the last six years 160 patients to existing institutions at a cost of £500 and had thereby saved the rates four times as much by preventing the spread of the disease and helping the wage earners to continue their work. The Medical Officer of Health for Kensington suggested that it would also be desirable to establish in each borough dispensaries for treating consumptives.

The Registrar-General in his annual summary mentions the need of a quinquenial census, as in its absence, he says, the rates will hereafter require revision to an appreciable, many of them to a serious extent. The death rate of the year was 14.5 per 1,000; this was 0.2 per 1,000 below the rate of 1908 and was lower than the rate in any other year since civil registration was established. The rate in London was 14; that is 0.9 below the average for the five years, 1904-1908. For Greater London (corresponding to the police districts) the crude death rate was 13.3, as compared with 14.4, 13.9, and 13.2 in the three preceding years.

Yesterday was foundling day at the Middlesex Hospital, when a service was held in the chapel and a recital given on the new organ. There was also a meeting of the Court of Governors, at which Prince Francis of Teck presided for the first time in the capacity of chairman. He referred in his address to the loss of their patron—and such a patron—the great King they had laid to rest. He said the patients in the cancer ward had subscribed pence to send a wreath to Windsor, and he felt sure the patronage of his successor would be given to the hospital, for King George had been all along so closely associated with King Edward's hospital fund and the working of all the other big hospitals in London.

The antivivisectionists have this week managed to draw upon themselves an unexpected amount of contempt. They circulated a leaflet about King Edward's illness and the vaccine treatment, the falsehood of which was stated in a notice authorized by the Queen-Mother. The offending society has met and recorded expressions of contrition and regret, adding that steps would be taken to place the issue of leaflets upon a proper basis. The other society, carried on by Lord Llangattock and Mr. Coleridge, hastened to inform the public that the "smaller society" was not theirs and they disassociated themselves from the issue. No doubt, now they see the public contempt and indignation, they think themselves happy that they did not hurry in the same direction. They condemn their "smaller" rivals. They should ask themselves whether they did not teach those rivals this method of advertising.

Progress of Medical Science.

Boston Medical and Surgical Journal, June 2, 1910.

Graves' Disease.—J. G. Mumford reviews the recent results of the treatment of this disease and presents the following summary: (1) Graves' disease is due to abnormal activity of the thyroid gland. (2) In advanced Graves' disease degenerative changes in the thyroid gland may lead to a shifting symtom complex, ending at last in the positive signs of myoidema. (3) The histology of the gland in this malady indicates shifting, advancing, and retrograding symptoms. (4) An enlarged thymus is nearly always found on postmortem in patients dead of the disease. (5) Advanced Graves' disease may exist without the presence of all the symptoms. (6) The disease can nearly alway be cured if taken early. (7) The sera of Rogers and Beebe cure a goodly number of cases. (8) Through hydrobromate of quinine (neutral) as used by Forcheimer and Jackson we find a great percentage of improvements and of cures. It is a pity that so few cases have been reported. (9) The great and increasing experience of qualified operators is showing that more than seventy per cent. of Graves' disease patients are now being cured by partial thyroidectomy and the percentage of such cures is rising. (10) Treat the cases seen early by rest, by sera and by hydrobromate of quinine; if no improvement results in two months, operate by throidectomy and always regard the operation as the surest cure.

Tonsillectomy, with Special Reference to Recent Points in Technique.—O. A. Lathrop comments on the recent change of view in the minds of the profession regarding the advantages of tonsillectomy over tonsillotomy and gives in detail the method of his own procedure. He operates under ether anesthesia, the patient being upright in a chair, and requires only one assistant. He counsels against haste and says that it is well to devote about ten minutes to the removal of both tonsils. The after-pain in his method is very slight and, he claims, much less than that following the method of finger dissection. He says in regard to the checking of hemorrhage which is liable to occur in any and in all methods, to first press a pledget of gauze on a holder into the tonsillar sinus for at least three minutes. If this does not suffice, the anterior pillar may be retracted, and perhaps a bleeding point caught with a long hemostat. If these attempts are unsuccessful the pillars may be sutured together over a pledget of gauze. This should check any ordinary hemorrhage. As a last resort, a tonsillar clamp may be applied. Astringent applications and adrenalin are not efficient in the presence of much blood, and are not reliable. They render the tissues more susceptible to infection and secondary hemorrhage. The surgeon should see that all bleeding has stopped before leaving the patient. Because of the liability to hemorrhage tonsillectomy is more safely done in a hospital.

New York Medical Journal, June 4, 1910.

The Relation of the Nervous System to Diseases of the Skin.—J. A. Fordyce summarizes the rôle of the nervous system in the production of skin diseases by saying that from the higher centers in the brain to the peripheral distribution of the nerves the skin may reflect circulatory or trophic disturbances, some of which are typical and others only suggestive of a relationship. In the one case the etiological factor is single and specific, and in the other the rôle of a nervous influence is only contributory in a complicated causation which our present knowledge does not permit us to interpret in an exact manner. The nervous system is directly concerned in sensory disturbances, as the hyperesthesias, anesthesias, and paresthesias. The posterior root ganglia and their analogues, the Gasserian and geniculate, together with the peripheral nerves are concerned with the most characteristic skin lesions due to primary nerve involvement. Next to these are the skin lesions of syringomyelia, the changes which follow disease of the peripheral nerves in leprosy, and other forms of neuritis, or after division, partial or complete, of nerve trunks. The nervous system may act as a predisposing or contributory cause in eczema, dermatitis herpetiformis, lichen planus, pemphigus, etc., by lowering the nerve tone. Psychic shock, mental strain from anxiety, grief, or overwork are states which are often invoked in such conditions. Hysteria leads to selfmutilation—the so-called feigned eruption—sensory disturbances, and possibly to spontaneous bullous affections and gangrene. It is possible that the nervous system through the sympathetic, the adrenals, and other chromaffin tissue related to the sympathetic, is concerned in certain pigmentary and leucodermatous changes.

A Possible Method of Infection in Acute Poliomyelitis.—N. M. Shaffer refers to the possibility of infection through a solution of continuity of the skin. He asks that close observations along this line shall be made by medical observers. He has found several town-bred patients who, going to the country for the summer, preferred to run about barefooted, to paddle in the water (especially fresh water), or to play about without foot protection in wet or sodden soils—and who had either skin abrasions, bruises, or cuts, or had acquired them in so doing. Given, as has been demonstrated by Flexner, the nasopharynx as a well defined, and perhaps the favorite, seat of infection, and given an infected secretion from this region, a further point of infection may exist in an abraded skin, through, for example, a neglected handkerchief or an infected finger. While Flexner has demonstrated the certainty of an infection via the nasopharynx, it does not follow that this is the only way. It is not impossible that a prolific source of infection may exist, especially in a sporadic case, in the earth, or water, or in some form of insect life, peculiar to their everyday association, which reaches the nerve centers through an abraded cuticle in a manner not unlike that which occurs in rabies or tetanus. The infection, occurring in a sporadic case, under favorable conditions, either in the city or country, may easily become the focus of an endemic of the disease, through, if not easily traced, well known channels of transmission.

Large Vesical Calculus.—H. W. Austin reports this case, the calculus being attached to a catheter in the urethra and being successfully removed by the suprapubic method.

His patient was a man of forty-nine years, who was using a catheter on his own responsibility, and lost it in the urethra, though this fact was not known when he was admitted to hospital. He suffered from complete incontinence and was having chills and slight fever. An obstruction was found just forward of the bulbous urethra. A urethral forceps grasped what was apparently an elastic catheter, but its removal by the natural passage was impossible. So the suprapubic incision was made and a lithotomy forceps (a stone having been detected in the bladder) inserted and the calculus was removed without breaking. The catheter was coiled up in the stone, the free end extending into the urethra. However, with a little manipulation stone and catheter were cleanly withdrawn. The stone was of the phosphatic variety, weighed ninety grams and measured six inches in its smallest circumference, and over seven inches in its longest. It is, the author believes, about as large as any which has been reported.

The Surgeon's Responsibility in Anesthesia.—R. H. Greene recommends a closer differentiation of the type of patient, a fuller realization that anesthetics are drugs which have an immediate direct effect on metabolism and a closer correlation between the surgeon and anesthetist. He confines his observations entirely to general anesthesia. Concerning spinal anesthesia he is not much in favor of it. He has found a tendency to secondary hemorrage the after effect of spinal anesthesia, a fact not mentioned by previous writers. In general work he has noted two facts: (1) Whether the anesthesia is to be of long or short duration it is a very general fault for the attending surgeon to delay the commencement of the operation unnecessarily for a greater or less length of time after the patient has been anesthetized. (2) The next most prevailing fault during the conduct of an operation in his opinion, and one from which he feels he is not entirely free, is the lack of cooperation which so often exists between the surgeon and the anesthetist, and, in his opinion, the fault is more apt to be with the surgeon than with the anesthetist. Following the operation ordinarily an enema of salt water is of use, to which one ounce of whisky may be added. Hot water bottles are not required, but many blankets, and the patient should be kept warm and dry. One or two glasses of water to drink may be of benefit from the autolavage instituted. If this is done four hours after the last vomiting has taken place a tablespoonful an hour of some predigested beef preparation is indicated. Patients ordinarily do better if no fluid is given for twenty-four hours, or until the marked effects of the anesthetic have passed off. If the thirst necessitates, however, the autolavage mentioned above should be tried. If the patient is kept from draught following operation, pneumonia can be largely prevented. Sepsis from which the patient suffers at the time of operation will be found to be the main causation factor. For the relief of nerve shock medically the writer has little to offer. The Murphy drip when kidney inefficiency is present seems popular. Internally an infusion of dried violet flower is of benefit as a sedative and diaphoretic, while the calming properties of ignatia and passiflora have been found preferable to those of the more commonly used sedatives and narcotics.

Journal of the American Medical Association, June 4, 1910.

Some Public Health Problems.—G. N. Linthicum, after first reviewing the successes of the past in the management of important diseases, such as smallpox, yellow fever, cholera, scurvy, typhus, and diphtheria, and the increased average length of life due to the development of sanitary science, notices the problems of the present and the future. The first of these mentioned is tuberculosis, and he says that when we realize that probably 90 per cent. of all persons are at some time in their lives affected with tuberculosis, and that only 10 per cent. die, we are justified in saying that in few diseases, not self-limited, is there a greater tendency to recovery. Owing to better housing and sanitation, the death rate in Great Britain from this cause is only one-third of what it was 70 years ago. The pollution of water supplies is the second problem, and it is becoming daily a more and more serious one, which must be met by proper legislation and sanitation. Pneumonia is another important problem, as it causes more deaths than tuberculosis at the present time in the United States, and it must be solved largely as a laboratory problem. Malaria is a preventable disease, and its prevalence is far greater than it should be and the more formidable disorder as regards mortality, plague, is now known to be controllable if only certain domestic pests, like the rat, can be exterminated. Hookworm is another disorder that can be controlled, and the increasing prevalence of mental disorders, drug habits, and venereal diseases, as well as cancer, nephritis, and diabetes, are all subjects for careful study. Of some of these we do not yet know the real causative factors, but we are hopeful that we sometime will. The great problem of the future is the betterment of health by the education of the whole people as to its possibilities. Why, he asks, should not the physician take the place of an advisor in health? Would it not be an economical move to have an inspection of the vital resources at regular periods, as is done of the financial resources? Certain recent legislation in Maryland is noticed with commendatory comment, and Linthicum speaks a good word for animal experimentation as a means of saving life, and for the advancement of our knowledge of disease, and also for the proposed department of health.

A Water Curtain.—W. J. Manning suggests the use of a water curtain for cooling purposes and avoidance of dust in work rooms, factories, tenements, etc. It may also be available in residences in tropical countries. As advised by him it consists of a curtain with a perforated tin tube thrust through its upper hem, like an ordinary curtain stick, and connected by a rubber tube with a water faucet. At the bottom of the curtain is suspended a tin trough on a slight slant to carry off the water dripping from the curtain. He also adds an electric fan placed at one end of the curtain to hasten the evaporation. Formalin or similar agents may be used with the same apparatus when germicidal effects are required. Tests made in the emergency room in the government printing office in Washington showed a reduction of seven to eleven degrees F. during the hot weather of last summer. This, when a temperature of 96 or 98 degrees in the shade exists outside, is a very much to be appreciated reduction. The apparatus is inexpensive and very adaptable to any quarters. The curtain can be removed for washing and its clean duplicate put in place in a few minutes. The method is illustrated.

Respiratory Crepitus.—C. M. Cooper says that for years he has occasionally noticed confusing adventitious sounds over the scapular region during auscultation that are not mentioned in text books. These sounds may be of a creaking, crunching, or bubbling character and occur during both phases of respiration. They are somewhat superficial and are confined to the scapular areas, or if they extend beyond are less intense. Displacement of the scapula forward causes them to disappear. He has hitherto called these sounds the "scapular rub" in his clinics, but three cases recently seen have enlightened him as to their origin. In all three cases they were produced in the apparently healthy shoulder joint during its respiratory movements. From this point of maximum intensity they were propagated over the scapulæ and down along the humerus. In two cases they aroused a suspicion of tuberculosis and on account of this possibility he thinks them worthy of mention. It seems not improbable that similar confusing joint sounds may be produced in the sternoclavicular and acromioclavicular joints.

Bronchial Vincent's Angina.—J. H. Rothwell reports two cases of bronchial affection following pneumonia in which the bloody sputum was full of Vincent's spirilli, which indicates to him that this infection may sometimes attack the bronchial mucosa without showing itself in the pharynx or throat or tonsils. He has not seen such reported so far. He has also had another similar case, and mentions still another in the practice of another physician.

Renal Senescence.—Joseph Walsh calls attention to an observation made by him of a thickening of the interstitial tissues at the apex or capillary end of the kidney as age advances. He has found this so uniformly that he says the age of the individual can be estimated by the amount of interstitial tissue found. The following precautions should be taken, however: "First, the apex of the pyramid should be in view. Sometimes a cross-section of the kidney is made in such a way that we see a long stretch of pyramid but instead of one we are looking at two pyramids, end to end; in other words, a specimen may be cut across two pyramids in such a way that the apical portion of one pyramid will run into the apical portion of the other so as to make the end of the specimen actually near the second cortex though the second cortex is not in view. Second, edema must be differentiated from thickening of the interstitial tissue. Third, the amount of interstitital tissue should be estimated, not from one single location, but from several fields of a two-third lens. Fourth, interstitial nephritis increases the amount of interstitial tissue at the apex of the pyramid and must be accounted for. Fifth, pyelonephritis and hydronephrosis obscure completely the thickening due to age."

Tampon for Nasal Hemorrhage.—M. D. Stevenson uses a tampon composed of compressed cotton modified

from Simpson's tampon, three inches long by one-half inch wide by one-sixteenth thick, wrapped as in a cigarette with gutta percha tissue, the free edge being gummed down by some sterile ointment except at the ends. These smooth-surfaced tampons are easily and usually painlessly removed, and he thinks they are much better than trusting to local medicinal applications in cases of postoperative hemorrhage. Sterile water or salt solution should be dropped at the ends to cause the tampon to swell and fill the passage. Two can be used side by side in very wide fossa and they can readily be narrowed by clipping.

The Lancet, May 28, 1910.

Intracranial Complications of Middle Ear Disease.—A. J. Hutchinson gives in detail the histories of four cases. He says that the principal complications are meningitis, intracranial abscess, and sinus phlebitis and pyemia; also that the question is often asked "What proportion of the general death rate is due to middle ear suppuration and its sequelæ?" Taking four series of consecutive post-mortems in general hospitals amounting to 23,838 cases, it is found that death in 198 resulted from middle ear suppuration. A second question often asked is "What percentage of patients with middle ear suppuration die of that disease or its results?" To this question no satisfactory reply has as yet been given, as all investigators mention the elusiveness of their material. One author estimates the death rate at two and one-half per cent. Of 973 cases reported by several writers as to complications, 362 had meningitis, 355 abscess, and 256 sinus phlebitis. Of the author's four cases, two had temporosphenoidal abscess, one not recognized during life, the other diagnosed correctly, opened, and drained, but ending fatally from septic encephalitis, the third had extradural abscess and the fourth lateral sinus thrombosis. Both of the latter made good recoveries.

Demonstration and Study of Spores in the Schizomycetes.—A. F. Stanley Kent says that in his researches on this subject it occurred to him that the old idea of there being an envelope or film of a fatty nature in the neighborhood of the spore, shutting it off from evaporation and from contact with aqueous solutions, while providing some explanation of the difficulty of decolorizing already stained spores might also give some indication of a method for enabling the stain to penetrate more readily. The method ultimately elaborated by him consisted at first in the solution of the staining agent in a fatty solvent, and some success was attained in this way, but soon another procedure was adopted and a different principle employed. The peculiarity of the method consisted in the employment of an alkali for the purpose of rendering the resisting envelope of the spore permeable and readily penetrated by the staining solution. The desired result was found to be actually brought about by the alkali employed, and the resulting preparations showed the spores sharply stained, while the cell body was uninjured and might readily be tinged with a counter stain if necessary. Briefly, then, the process consists in preparing a film in the usual manner and fixing it by heat or by other means. Solution of sodium hydrate is then flowed over the film and allowed to act for some seconds, after which the still wet (and alkaline) film is flooded with carbol-fuchsin solution and heated as usual. This heating, which adds considerably to the intensity of the staining, need not be at all prolonged, a few minutes being amply sufficient. It will be found that a precipitate is produced by the soda solution in the carbol-fuchsin stain, but this may be neglected, as it will to some extent disappear as the temperature rises, and in any case does not appear to damage the preparation. The ordinary 25 per cent. hydrochloric acid is next flowed over the film and allowed to act for a second or two, then washed thoroughly off and the film flooded with 1 per cent. aqueous solution of methylene blue, which may be slightly heated if an intense stain is required. Thereafter nothing remains but to wash, dry, and mount as usual.

A Case of Cephalic Tetanus.—A case of this disease (known also as Kopftetanus of Rose), is reported by C. V. Kebbell, his patient being a boy of five years, who had fallen from a wagon. A large flap of scalp had been torn from the skull, exposing about one square inch of bone over the right parietal bone in the region of the eminence. One week later the boy was doing well. Then commenced right facial paralysis, and in a few days there was slight head retraction, with rigidity of the arms and legs. The possibility of a localized inflammation or suppuration was recognized, and it was decided to trephine. A piece of bone was removed at a point three-quarters of an inch above and behind the right external auditory meatus. The meninges bulged and pulsation was slight. A director inserted toward the base of the brain revealed no pus. On the following day three spasmodic seizures occurred, and there was now some rigidity of the abdominal muscles between the attacks, and tetanus was diagnosed. Two c.c. antitetanic serum were injected. The further clinical course is given in detail. In a month the patient had no more seizures, but it was three months after the original injury before the trismus was completely gone. The interesting point in the case is the association of the facial paralysis with tetanus. This condition is uncommon, and is very fatal, the mortality in the acute form being 41 out of 45 cases, while in the chronic form 8 out of 32 died. The origin of the paralysis of the facial muscles may be suggested as due to other causes apart from tetanus. An isolated facial palsy, due to involvement of the cerebral cortex or internal nucleus, as a result of injury is uncommon. There is usually hemiplegia as well. Damage to the nucleus of the seventh nerve from hemorrhage is likewise unusual. There were no signs of concussion or affection of other nerves to suggest a fracture of the base of the skull. A very localized patch of meningitis involving the seventh nerve, or hemorrhage, affecting the face center only from contre-coup, might be possibilities. There was no evidence of any bruising or damage at the level of the stylomastoid foramen to occasion an injury of the nerve there. There were no signs of ear disease, or involvement of the eighth nerve, and paralysis of the face of this duration due to cold is not common, so far as the author has noted, in children. After considering all the above points, he thinks the diagnosis was correct, and that this was undoubtedly an unusual form of infection with the tetanus bacilli—cephalic tetanus.

The Specificity of Cancer and the General Principles of Its Treatment and Prophylaxis.—A. W. Brand says that no disease more plainly bears upon itself the impress of specificity than does cancer. It is not due to a parasite in the shape of the cancer cell. No somatic cell can be a pathogenic parasite so there must be an intracellular influence which endues it with malign parasitic power. Why the extrinsic origin of cancer is not universally accepted is to the author incomprehensible. The infective agent of the disease resides in the invaded cell, since from a single cell a cancerous tumor is capable of reproducing the disease in another host. Unless distant extension is obvious, free excision of the accessible diseased area including infected lymph vessels glands and adjacent structures as muscles and especially fascia may be attempted as the first line of treatment. It is a marked characteristic of cancer and one which it shares with syphilis that it may remain quiescent for a time. It is evident from accumulated experience that lack of success after surgical treatment must be attributed either to incomplete removal or to the occurrence of distant dissemination prior to operation. Dark, indeed, says the author, must the prospect be to the man who believes that cancer is a constitutional affection with local manifestations and having an intrinsic origin, for the surgeon can then do nothing for its removal. If cancer is ever to be successfully treated the cause must be attacked, and this can be done only by specific means. Should the infective agent prove to be a protozoon, as in syphilis, malaria, etc., and the author believes that this will be shown to be the case, then a paraciticide is indicated, and among the methods of exhibition, kataphoresis of the accessible neoplasm would doubtless commend itself. On the other hand, if the causal agent be proven to be a bacterium, then success may follow the use of a cancer vaccine prepared after the methods of Wright. From the foregoing statements the author submits that the successful treatment of cancer will consist in the removal by surgical means of accessible tumors, more especially those threatening life from mechanical causes, combined with the internal exhibition of specific remedies, the latter being relied on to check the further spread of the disease and neutralize that already existing by destroying the causal parasite, while inoperable disease, whether accessible or inaccessible from the first, can be treated only with the specific remedies and such non-operative mechanical means as fulguration, *x*-rays, radium emanations, kataphoresis, etc. Cremation of the cancerous cadaver is imperative. This means of disposal would remove a very obvious risk obtaining where earth burial is resorted to. Earthworms, which convey soil from a depth of six to eight feet to the surface, might communicate by the contamination by percolation and the poison to water supplies. All dressings from cancerous wounds, all discharges and dejecta from cancerous patients should be destroyed by fire. Finally, all cases of cancer should be subject to notification.

British Medical Journal, May 28, 1910.

Artificial Respiration in Newborn Infants.—B. F. Pendred relates a most unusual occurrence. A woman

was delivered of twins, no skilled attendant being present. The first child cried lustily, was separated, and put aside as usual. The second child was born *en masse* with the placenta, without rupture of the second bag of membranes, there being but one placenta, with two cords and two separate bags. The attendant, thinking the whole mass was afterbirth, put it in a pan and to one side. The physician did not arrive until forty-five minutes later. The child (male) was then removed from the bag and showed some feeble signs of circulation. Artificial breathing induced respiration after half an hour. The child is now three months old and has doubled his weight since birth. The author's theory as to the survival of the child is that as the placenta lay exposed to the air in the pan, an opportunity was afforded for a small amount of oxygen to enter the fetal circulation. The method of respiration he employed was to apply the lips to the mouth of the child, only a handkerchief intervening, and "blowing up" the lungs, then compressing the chest with the hands, and so on. One great advantage of this method is that it can be carried out while the child is immersed in warm water, and another is that the hand grasping the chest can feel a definite and highly satisfactory expansion at each "blow," and one is not left in doubt as to whether air enters or not. Further, there is no fear of injury to the child's shoulder joints or neck muscles by over-vigorous stretching. He always employs this method and believes it superior to any other.

Preparation of the Skin for Operation by Means of Dichloride of Ethylene and Iodine.—After a brief description of the physical and chemical properties of dichloride of ethylene, A. J. Wallace says that when it is painted on the skin temporary mild tingling or pricking sensations are produced, and as the violet liquid quickly dries the light brown iodine stain appears. Immediately—a few minutes to an hour—before operation, swabbing with sterile swabs, saturated with a mixture of equal parts of dichloride and alcohol (metholated spirits). (2) Swabbing with sterile swabs saturated with pure dichloride. (3) Painting with iodine-dichloride—ethylene solution—about 2½ per cent. (4) Application and fixation of sterile lint over the prepared area. The iodine is added directly to the dichloride ethylene solution in the proportion of about 2½ per cent., giving a violet color which in bulk looks black. The general effects seem equal to those of the iodine-acetone solution previously recommended by the author, without the irritant effects of the latter.

Some Ophthalmic Conditions Caused or Influenced by Diseases of the Upper Respiratory Tract.—A. S. Cobbledick says that in every obscure eye case, especially where there is a complaint of a long-standing nasal or post-nasal catarrh, the accessory sinuses should be examined by an expert, and if diseased they should be radically treated for the benefit of the eye trouble. When an eye operation is contemplated, not only should a careful examination be made of the conjunctiva, but the mouth and nose with its diverticulum, the nasal duct, and lacrymal sac should be examined. If pyorrhea is present, no operation should be entertained until the mouth is perfectly clean. Even then the system may be so permeated with staphylococcus toxins as to render the likelihood of an endogenous eye inflammation possible as a result of the traumatism of the operation. The same remarks apply to atrophic rhinitis and chronic sinusitis. The condition of the operator's mouth and nose must also be considered in this connection; carious teeth, pyorrhea, or nasal trouble, including acute coryza, should be looked upon as a possible source of infection, and precautions taken; speaking during the operation should be forbidden for obvious reasons. The bacteriology of post-operative inflammatory eye troubles indicates that the pneumococcus and staphylococcus play an important part; these microorganisms are not frequently found in the conjunctival sac, but the mouth is a common habitat, hence the great likelihood of infection arising from the operator's or assistant's exhalations. Mention must be made of blindness resulting from the onset of optic atrophy, caused by intranasal operations. Such cases are, of course, not frequent, but there are a number on record. Perhaps the most common accident has been entry of the orbit when exploring the antrum of Highmore with a trocar or cannula, or in forcibly boring a hole in the alveolus of the superior maxilla, for drainage purposes; loss of control and the absence of a stop on the drill has resulted in puncture of the floor of the orbit and either injury to the optic nerve or infection of the orbital contents. Forcible removal of bony nasal spurs and of the middle turbinal bone may produce a fracture involving the optic canal, the formation of callus, pressure of the callus on the nerve, and subsequent atrophy.

Berliner klinische Wochenschrift, May 16, 1910.

Hemolytic Free Fatty Acids in the Liver of Acute Yellow Atrophy and Phosphorus Poisoning.—Joannovics and Pick have made a study of the extraction of hemolytic substances from the liver of a man who died of acute yellow atrophy, of a man who died of phosphorus poisoning, and of dogs and rabbits which were killed by phosphorus. They summarize their results as follows: (1) Hemolysins of exceptional activity may be obtained from the liver in acute yellow atrophy and phosphorus poisoning in both man and animals. (2) These hemolytic substances are soluble in ethyl and methyl alcohol, ether, and acetone, and are made up almost entirely of fatty acids; the lipoids insoluble in acetone are practically without hemolytic action. (3) In experimental phosphorus poisoning this hemolysin is present in the blood in large quantities. (4) The subcutaneous fat in phosphorus poisoning does not contain this hemolytic substance. (5) The presence of such an intensely active hemolysin in the liver is valuable for the demonstration of free fatty acids. (6) The fatty acids which come in consideration in hemolysis in organic extractions, appear from the manner of their hemolytic action to belong to the higher unsaturated fatty acids. (7) In acute yellow atrophy and phosphorus poisoning it would appear that these unsaturated fatty acids, which normally are combined in lecithin, are set free by the destruction of the latter.

Münchener medizinische Wochenschrift, May 10, 1910.

The Lymphocytosis in Basedow's Disease and "Basedoid."—Max Bühler has examined the blood of twenty definite cases of exophthalmic goiter and a considerable number of the abortive forms and pseudo-Basedow cases. He finds that in true Basedow's disease and in the *formes frustes*, there is almost constantly a relative lymphocytosis. The identification of a doubtful case may be aided by a blood examination, when a relative increase of the lymphocytosis gives evidence of the thyreotoxis basis of the condition. The presence of a lymphocytosis is of considerable value in differential diagnosis. The absence of a lymphocytosis, however, in a case of Basedow's disease or pseudo-Basedow is not sufficient to reject the diagnosis.

The Growth of the Eye After Iridectomy in Early Youth.—L. Schomburg calls attention to the work of Wessely, who found that if he performed the operation of iridectomy and sclerotomy on rabbits during the second week of life, and then weighed the eyes of the animals after they had reached maturity, that the eyes which had been operated on showed distinctly a lesser development than did the normal eyes. Schomberg then reports his observations on two twin boys of 7 years of age, who on account of blennorrhea neonatorum had had iridectomies done at the age of eight months. Examining the eyes of these two boys by the Hertel exophthalmometer and the Juval ophthalmometer, he found that in one boy the iridectomized eye was larger than its mate, and in the other boy it was smaller. He was thus unable to confirm Wessely's experiments on animals.

Skin Hemorrhages in Typhoid Fever.—Adolf Huber reports three cases of hemorrhage into the skin in the course of typhoid fever, and says that this complication may occur in mild as well as severe cases of the disease. They appear at the height of the disease and are not of necessity associated with intestinal hemorrhage. These hemorrhages cannot be called roseola hæmorrhagica, either if one under this title places the hemorrhagic infiltration of the usual rose spots, or if one considers the hemorrhages to occur instead of the rose spots. The characteristics of the special typhoid bacillus does not determine the occurrence of the hemorrhages, but the relation of the human organism thereto; this is usually called the hemorrhagic diathesis. No such diathesis was present in the three cases reported either before or after the disease. It must have developed and disappeared during the course of the disease. The prognosis of the disease must not be based entirely upon the presence of hemorrhages in the skin, though if they are very numerous they are an unfavorable sign.

Sterilization of Habitual Criminals.—Santos Fernandez and F. M. Fernandez call attention to the advantages that this method would bring to all civilized countries. They are in favor of the method recommended by Dr. Sharp in 1899. The authors review the subject and mention the several methods recommended by Sharp, Carrington, and Belfield. They conclude by urging the Cuban Government to try the method in its penal institutions.—*Crónica Médico-Quirurgica de la Habana.*

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-first Annual Meeting, Held in St. Louis, June 6, 7, 8, 9, and 10, 1910.

(Special Report to the MEDICAL RECORD.)

(*Continued from page* 1033.)

HOUSE OF DELEGATES.

Wednesday, June 8—Third Day.

DR. WILLIAM H. WELCH, PRESIDENT, IN THE CHAIR.

Report of Public Health Education Committee.—Dr. ROSALIE SLAUGHTER MORTON of New York presented the work of this committee which it seemed had not been appointed with due regard to parliamentary law and was, therefore, not an integral part of the A. M. A., but not being aware of this the committee had prosecuted a vigorous campaign in educating the public in matters of health and hygiene. Courses of lectures were given under the auspices of the women of the A. M. A. working through their various county societies. In all, 2,250 lectures were given in forty States and were listened to by 102,575 people. They were given on twenty-eight subjects chosen by the committee. Dr. G. W. Wagoner, in his presidential address before the Medical Society of the State of Pennsylvania, said that doctors were losing confidence and receiving the criticism of the laity, and this was due to the fact that throughout the country the public was being exploited by pseudoscientists who affirmed that the so-called drug doctors were commercially interested in keeping the people ill while they were working to prevent disease. The laity was interested in public health education. The psychological moment had come and it would be a serious reflection on their profession if they did not educate the public to an appreciation of the position of the doctor as the protector of the health of the community. The fact that such a movement was being carried on as a national movement under the auspices of the American Medical Association carried much weight with it. They felt sure that another year would give opportunities for a wider usefulness. They had had the cooperation of the United Charities Association and were helping to extend the work of the Special Committee on the Prevention of Blindness. Evidence was presented to show that the work was commended by physicians who were leaders in the profession. They had refrained from a discussion of vivisection in their lectures until the aims of their work should be better understood as the opening of controversial questions might lead to misconstruction of their motives and thus limit their influence.

The House of Delegates voted to make provision for a continuation of this work when revising the by-laws.

Report of Reference Committee on Medical Legislation.—Dr. J. W. CLEMMER of Ohio urged that the committee working on a uniform medical practice act be continued. He reported great progress with optometry bills, five new bills having been passed. They now had optometry bills in twenty-two States. They urged the trustees to have court decisions on medical practice acts published as soon as possible, and congratulated them on having obtained the cooperation of the Civic Federation and the Commission on Uniform Laws. They recommended the adoption of a resolution urging greater effort to secure amendment of State food and drug laws so that they would conform to the Federal laws. After having amended this resolution to read "Providing the standard of drugs demanded by Federal law conformed to that of the U. S. Pharmacopeia and the National formula." This resolution was adopted.

Report of Reference Committee on Officers.—Dr. GEORGE W. GUTHRIE of Pennsylvania presented this report which recommended that the resolution authorizing the appointment of a commission of seven to draft a plan for the organization of a National Bureau of Public Health be adopted, after being amended so that Dr. Welch be included as a member of this commission. They also recommended that a resolution be adopted approving of the principles of the Owen bill, having for its object the creation of a National Department of Health, and that they send resolutions expressing their approval and thanks to Senators Owen, Creager, and Hanna and also to Mr. Irving Fischer and other coworkers who had assisted in the solution of the greatest problem now confronting the people, the conservation and promotion of health. The House adopted these resolutions.

Resolutions on the Death of Dr. Ricketts.—A committee appointed by the House of Delegates, consisting of Drs. T. D. Tuttle, Frank Billings, and Alexander Lambert, presented resolutions on the deaths of Dr. Howard Taylor Ricketts and of Dr. Conniff of Ohio, who contracted typhus fever while assisting Dr. Ricketts and had since died at his home. These resolutions were adopted by a rising vote with the request that they be published in the *Journal of the American Medical Association.*

Report of the Reference Committee on Insignia.—This committee reported that in accordance with the decision at the meeting of 1909 that it was desirable to change the insignia of the association owing to the fact that it contained the Red Cross, designs had been submitted to them. They had chosen one in scarlet and gold, one-half inch in diameter, and having in the center a rod and serpent in a red field, surrounded by a band of gold in which appeared the words, American Medical Association. The house ratified this selection.

Committee on Award of Medals.—This committee, consisting of Drs. E. E. Southard, T. D. Coleman, and Hugh H. Young, awarded the Gold Medal to Dr. Claude A. Smith of Atlanta, Ga., for research work in hookworm disease. No medal was awarded in clinical surgery. Certificates of honor were awarded to the following: University of Minnesota; St. Mary's Hospital, Rochester, Minn.; St. Louis City Hospital; Indianapolis Department of Health; University of Michigan; Special Committee on the Prevention of Blindness of New York; Northwestern University, Chicago; St. Louis Medical History Club, and Dr. J. J. Houwink of St. Louis for an exhibit of skin diseases.

Thursday, June 9—Fourth Day.

DR. ALEXANDER LAMBERT, THIRD VICE-PRESIDENT, IN THE CHAIR.

This session was devoted to a revision of the By-laws in accordance with recommendations made by the Reference Committee on Amendments to Constitution and By-Laws. A thorough revision of the By-Laws was made; most of the changes, however, did not affect the meaning but only modified the wording for the purpose of securing greater lucidity. The amendments that involved a change provided for the coordination of standing committees; limited associate membership to physicians who were members of chartered national societies of foreign countries adjacent to the United States, dentists holding the degree of D. D. S., who were members of State or local dental societies, and pharmacists who were active members of the American Pharmaceutical Association; and provided rules for the establishment of a council on Health and Public Instruction which should have an office at the headquarters of the Association and whose work should embrace the following subjects: Legislation, organization, publicity, defense of medical research, and public health. An amendment was also adopted striking out the word "General" throughout the By-Laws when followed by Secretary

so that the office heretofore known as that of General Secretary would henceforth be known as Secretary.

The House of Delegates also adopted a resolution providing that certified copy of the Constitution and By-Laws of the American Medical Association as amended at this session be sent to the secretary of each constituent association with the request that the changes be brought to the attention of the House of Delegates of the constituent association.

Election of Officers.—The following officers were elected by the House of Delegates of the American Medical Association for the ensuing year: *President,* Dr. John B. Murphy, Chicago, Ill.; *First Vice-President,* Dr. E. E. Montgomery, Philadelphia, Pa.; *Second Vice-President,* Dr. R. C. Coffey, Portland, Ore.; *Third Vice-President,* Dr. W. G. Moore, St. Louis, Mo.; *Fourth Vice-President,* Dr. H. L. E. Johnson, Washington, D. C.; *Secretary,* Dr. George H. Simmons, Chicago, Ill.; *Treasurer,* Dr. Frank Billings, Chicago, Ill.

Election of Trustees.—Three trustees were elected to serve until 1913: Dr. W. W. Grant, Denver, Col., to succeed himself; Dr. Frank P. Lutz, St. Louis, Mo., to succeed Dr. Philip Marvel of New Jersey; Dr. C. E. Cantrell, Greenville, Texas, to succeed himself. Member of Council on Education to succeed Dr. E. E. Southard. Massachusetts, Dr. George Dock, Washington University. Appointed to the Council of Health and Public Instruction, Dr. H. M. Bracken, Minneapolis; Dr. Hugh Cabot, Boston; Dr. Henry B. Favill, Chicago; Dr. J. N. McCormack, Bowling Green, Ky.; Dr. W. O. Woodward, Washington, D. C.

Election of Honorary Members.—The House of Delegates elected Dr. Alfred Saenger, Hamburg, Germany; Dr. J. Herbert Parson, F. R. C. S., London, Eng.; and Dr. H. J. Honan, Berlin, to honorary membership in the American Medical Association.

Place of Meeting.—Los Angeles was selected as the place of meeting for 1911.

Resolutions Adopted.—Among resolutions adopted by the House of Delegates were the following: Resolutions providing for the publication of journals of pediatrics and surgery similar to the *Archives of Internal Medicine.* This action was taken in accordance with the requests from the sections on pediatrics and surgery in order to provide for the publication of a class of special articles not suitable to a journal like the *Journal of the American Medical Association.* These journals were to be published as soon as publication facilities were available.

A resolution providing that, in view of the fact that suicides had increased 50 per cent. during the last seven years and in view of the fact that the publication of such facts in the daily papers had a bad effect on account of their suggestive influences, a recommendation be sent to the public press requesting that material of this kind be omitted from the newspapers.

A resolution to the effect that inasmuch as much of the teaching of hygiene in normal schools and colleges was defective and based on misinformation, a movement be initiated to provide proper instruction for such institutions.

A resolution expressing regret that an institution of such standing as Columbia University had seen fit to establish a school of optometry thus giving countenance to the practice of optometry by persons not having a medical education.

Resolutions from the Section on Ophthalmology protesting against the appointment by governors of the States of assistants to examining ophthalmologists who were not medical men. Physicians should not encourage this by sending patients to optometrists to have their eyes examined. Also resolutions to the effect that every general practitioner should receive such training as would fit him to treat infectious disease of the eye and errors of refraction. Another resolution requesting that steps be taken to establish a definite standard for the examination of the eyes of pilots. And a resolution extending the scope of the work of the Committee on Ophthalmia Neonatorum so that it would embrace the prevention of blindness from other causes as well as changing the name of the Committee on Ophthalmia Neonatorum to Committee on Preventable Blindness.

A resolution recommending the drawing up of a plan whereby every member of a county society should be *ipso facto* a member of the State society and every member of a State society should be *ipso facto* a member of the American Medical Association. At present every State had a plan of its own.

SECTION ON SURGERY.

Tuesday, June 7—First Day.

DR. CHARLES H. MAYO OF ROCHESTER, MINN., CHAIRMAN.

Prophylaxis of Cancer.—The chairman, Dr. CHARLES H. MAYO of Rochester, Minn., said that the mass of recent studies on the subject of malignant growth had revealed the fact that malignancy was very common throughout the vertibrate kingdom. The domestic animals were more subject to it than the wild, probably because of their living longer. As to prevalence by regions, it was least common in Japan and most frequent in England, with the United States as very close second. It might be described as a lawless proliferation of epithelial cells destroying and ultimately itself destroyed. All studies tended to show that a precancerous state existed and this had its most common seat in the regions of chronic irritation. It was significant that the "organs of convenience—the stomach, great gut, and bladder, and their appendages—were the common seat of cancer. There was no question following the researches of McCarthy and Wilson that cancer was relatively common in the appendix and had its too frequent seat in the base of gastric ulcers. The high per cent. of malignant growths developing in the prostate was in itself alone an important factor in determining operation. Unable to verify the parasitic theory, we were forced to the hope that some cytolytic agent would be found, either from autogenous sources or possibly from extracts made from embryos of the same species. Whatever the future of these experiments held in store, the present duty of the profession was clear. All tumors should be subject to surgical consultation and it should always be remembered that risk lay not in surgery but in delay.

Surgical Treatment of Compression Paraplegia.—Dr. A. PRIMROSE of Toronto said that hemorrhage, the cause of compression in the dural canal, might be either intra- or extradural. The symptoms differed from those of congestion by the greater speed of onset. It was very probable that certain cases of Potts disease remaining paraplegic after months of rest and extension should be laminectomized, for there occurred occasionally a small localized abscess which would respond to no treatment save evacuation. Indeed, in rare cases of specific spines, where the pressure was so great as to cause danger of degeneration before relief could be expected from medication, immediate operation might be indicated. There was no possibility of restoration of function of the severed cord, but recent researches suggested the possibility of gaining some control over the bladder and rectum by splicing the lower dorsal to the sacral nerves.

Anastomosis of Facial and Spinal Accessory Nerves and the Distal End of Spinal Accessory with Descend-

ing Hypoglossal.—Dr. W. W. Grant of Denver said that the success of this operation demonstrated that the proximity of the cortical centers of anastomosed nerves had not the value which had been ascribed to it. The advantage of using the spinal accessory was a technical one, it being far the most easily reached.

Dr. J. T. Bottomley of Boston said that the subject of Dr. Primrose's paper was still very undeveloped. Laminectomy in itself was not considered a dangerous operation, and he wished to make a strong plea for its early employment.

Injuries of Abdominal Viscera Without External Signs of Violence.—Dr. H. H. Sherk of Pasadena, Cal., said that of utmost importance was the history of the injury and particularly the nature of the violence which had been applied. The condition of the clothing, the region of the impact, the degree of fullness of the hollow organs—these were considerations of great importance. Often the nature rather than the degree of traumatism was the determining factor. Some symptoms, of course, were peculiar to certain groups of organs. Pain, while important, was often inverse to the degree of injury. In early stage it was due to tearing of the peritoneum, in late to inflammation following the course of extravasations. The first would be local, the second general. Distention occurring early suggested rupture, that appearing late, intestinal paralysis. Cessation of peristalsis, if occurring late, was suggestive of gut perforation.

Dr. M. H. Richardson of Boston was glad this timely and trustworthy paper had been read. For, after years of experience, he had come to regard surgical diagnosis as of much greater importance than mere technique. Except in obvious emergency cases, the most extreme of which were furnished by the class under consideration, he stood for conservatism. There was, however, reason in all things, and he felt convinced that, given an adequate blow on the belly and some signs, one should operate without ever waiting for vomiting and distention.

Present Status of Vaccine Therapy.—Dr. E. E. Irons of Chicago said the method was far from being a cure-all and was in danger of being brought into disrepute because of its employment by ill-qualified persons. Its realm lay in conjunction with surgery rather than as a substitute for it. The use of vaccines as a last resort was to be discouraged. The autogenous were usually preferable to the stock vaccines. The therapeutic use was best shown in chronic conditions, such as pyuria, acne, colon bacillus infection, etc. In general the infections due to the staphylococcus responded better to vaccination than did those arising from the streptococcus and other more active forms. The status of gonococcus preparations was still unknown. The protection afforded in tropical diseases was encouraging and in Russia definite results had been claimed in the therapy of scarlatina. Pneumonia was being treated with some success by injections of detoxicated virus. Finally, these little known agents were powerful and dangerous and were as yet adjuncts only to other therapeutic measures.

Dr. J. B. Deaver of Philadelphia regarded the opsonic index as clinically valueless; thought that the vaccines should be used with great care, and admitted that tuberculin had given some promising results in bone tuberculosis.

Dr. Cram of Kalamazoo, Mich., reminded Dr. Deaver of his attitude some years ago as to the clinical uselessness of the leucocyte count and reminded him that the opsonic index could be obtained to-day almost as rapidly as this now widely adopted diagnostic agent. The index was the chief agent whereby we could with certainty determine the degree and frequency of dosage of vaccines.

Appendicitis in Children, with Report of 500 Cases.—Dr. H. C. Deaver of Philadelphia said it was epigrammatic that every bellyache in a child should be considered appendicitis until proved otherwise. Rectal examination was of the utmost importance. The chief differential diagnosis to be made was from right-sided pneumonia. Infantile appendicitis was far more frequent than generally supposed. Operation was imperative in the first twenty-four hours. No opium or purgatives was to be given.

Dr. L. S. McMurtry of Louisville said that the difficulties of diagnosis were greatly increased by the absence of subjective symptoms, as well as by the known variability of position of the appendix in children.

Wednesday, June 8—Second Day.

Final Results in Congenital Dislocation of the Hips.—Dr. E. H. Ochsner of Chicago said that the sixth year in double and the eighth in single dislocations were about the age limits for the bloodless operation. The open operation probably was never justifiable in double dislocations, but was frequently indicated in single. The functional, weight bearing method in early life was ideal, but not frequently reached because of inability of the average general practitioner to recognize the lesion. He reported 71 per cent. of successes with the congenital condition treated under the age limit. He advocated the employment of moderate force only and urged that the head must be brought over the posterior border of the acetabulum. The hamstrings need not be stretched. A cast should be rigidly applied and kept in position for one year with but a single change.

Dr. A. J. Gillette of St. Paul thought that considerable force might be employed. The only danger was fracture and temporary paralysis. Neither was serious. In any event, an ankylosed hip was much better than an unreduced one, because of the freedom of motion of the sacroiliac joint. He advocated leaving the cast on for from three to six months.

Dr. J. P. Lord of Omaha had for the past two years used Bradford's device for replacement and regarded it as far superior to anything yet devised. He kept the cast on for three months, after which atrophy of disease was apt to take place.

Tuberculosis of Adult Knee Joint, with New Theory and Plan of Operation.—Dr. Leonard W. Ely of New York said that his report was based on the study of sixty-two specimens in the laboratory. Ignorance of fundamentals underlying the physiology and pathology of joint conditions alone was responsible for the chaotic condition in which the study was still found. The facts were these: Synovia and bone marrow were the only tissues ever involved in tuberculosis. Furthermore, the author's studies had shown that not all bone marrow was susceptible, for the shaft or yellow marrow was much less vulnerable than the red. This probably explained the nonoccurrence of tuberculosis in bone shafts. An interpretation of nature's attempt at cure shows that she strives to deprive the joint of function. By human agency this could best be done by simple resection. After this operation the author had observed that at once there was a disappearance of the synovia and of the red marrow, followed by cure. No elaborate dissection was necessary and no more than three-fourths of an inch of bone should be lost. This was a great improvement over the old operations, which blindly sought to remove all foci of disease. All scraping and packing should be abandoned; the crucial and lateral ligaments should be left *in situ* and the least trauma possible should be inflicted, for

the *sine qua non* was primary union. He denied that means at present existed whereby the best clinicians could make a positive diagnosis of joint tuberculosis.

Dr. Binnie of Kansas City said that the paper was a most important contribution to the surgery of joints. Of course, he understood that the operation advised was intended solely for joints without mixed infection. If pyogenic, a very radical operation was immediately called for, and it was extraordinary what extensive regeneration was possible after such mutilating operations.

Dr. Ely in closing said that no matter how thorough the operation no one could help leaving some tuberculous tissue. Recovery was made possible because loss of function had allowed of the absorption of all vulnerable tissue. It must be a true and not a pseudo-anklyosis and this was the only form produced by rest.

Acute and Chronic Joint Infections and Their Surgical Treatment.—Dr. J. B. Murphy of Chicago said that metastatic infections of bone rarely entered the joint. "Rheumatism" as a term must go in time, as "malaria" had gone, for all acutely inflamed joints were undoubtedly septic. The all-important question was the degree of injury to the synovia. It was capable of protecting against any degree of infection if uninjured. Hence the treatment of all acute joints lay in aspiration and extension, and the injection of a fluid calculated to increase the polymorphonuclear reaction about the joint. A 2 per cent. solution more than twenty-four hours old of formalin in glycerine served this purpose.

Radium: A Contribution to Surgery.—Dr. Robert Abbe of New York delivered this oration. We know to-day as little of so-called radiant energy as of the vital forces of our own bodies. What was known of the instability of the atoms, of the speed of transmission, of the actual nature of the bombardment which seemed at all events to take place when one's eye traversed the spintharascope? What, therefore, could we be expected to know of the action of this magic force which was perhaps a vital manifestation of life itself on the cells of aberrant growths? In using radium we probably were supplying electricity in + or — form. Less complex in cellular as in physiologic development were plants, and on them radium exerted extraordinary reactions. Seeds exposed for a few hours were delayed in germination, and all germination stopped if exposed for two days. While there was marked reaction to radium in all forms of dry skin growths, unhappily on the wet surfaces there was little if any reaction. What determined this was unknown. In embryonic tissue there was a response to the specific element in radium which always caused retrograde degeneration of the cells.

Open Treatment of Fractures.—Dr. A. F. Jonas of Omaha said that most fractures would in the future as in the past be treated by the general practitioner. Screws in bone held for two or three days only, because of physiological softening. He advised early decision as to employment of open or closed methods because of this softening. He urged especially general anesthesia in reduction of fractures of the humerus and femur because the decision as to treatment depended on getting good definite crepitation. In the presence of this sign the closed method should be used.

Dr. Pease of Kansas City said that most cases coming to open operation were in fractures near the joints. Bone was merely the crystallization in the muscles of lines of force. If this force were removed atrophy would result. The rarefaction referred to as physiological did not occur in the presence of perfect apposition which preserved the lines of force.

Congenital Atresia of the Ureter.—Dr. J. T. Bottomley of Boston said that the embryonic development was important. He had found 56 cases reported. It occurred at the extremes of life and was often associated with supernumerary ureters. The ureter usually reached the bladder where the stricture most frequently was found. It might be passable or impassable, but usually ended in a blind sac. The important thing was to remember the condition as a clinical entity, for it gave rise to a sausage-like dilatation of the ureter which clinically resembled intussusception. Infection of this sac was disastrous, but otherwise the cyst might continue throughout life unrecognized.

Dr. D. M. Eisendrath of Chicago reported a case and presented a specimen which demonstrated the condition as occurring in a ten-day-old child.

Extracapsular Fixation of the Kidney.—Dr. C. A. L. Reed of Cincinnati said that this operation was based on the presence of fibrous elements in the fatty capsule, which, on wiping away the fat content, made it possible to utilize this capsule for suspension without damaging the intima.

Surgical Diseases of the Umbilicus.—Dr. T. S. Cullen of Baltimore said that secondary carcinomata of the umbilical region were not rare. Autopsy had shown the primary focus usually to be in the stomach, whence the growth passed via the liver and suspensory ligament to the belly wall. Many cases of peritonitis in children were evacuated through the umbilicus, but this avenue was closed in adults. In cases where the omphalomesenteric duct remained open, round or even tapeworms were sometimes evacuated at this point, as also might be gallstones and hydatid cysts.

Traumatic Rupture of the Fixed Portion of the Male Ureter.—Dr. Otto C. Gaub of Pittsburg said that this injury occurred either by falling astride an object or else by the crushing of the pelvic bones. He described a method which consisted practically in the application of Young's technique to the direct repair from below of the torn organ. Proust's position was of the utmost value, as the extreme flexion brought the parts into view under tension.

Dr. Harry Sherman of San Francisco said that the mechanics of wounding the urethra by bones was either by their being crushed together when the rami acted as scissors or else by the separation of the bones when the soft parts were torn. It was very important to drain the space of Retzin's.

Dr. Hugh Cabot of Boston said that the immediate posttraumatic care comprised preferably a simple drainage of the bladder. The subsequent care consisted in very free mobilization of the anterior urethra, even to the extent of 1½ inches. This secondary operation should not be undertaken until the crushed parts had had some time in which to recover from the primary injury and immediate suture was rarely indicated. There was no danger of devitalization of urethra by freeing it.

Surgical Considerations in Treatment of Chronic Suppurative Nephritis.—Dr. D. S. Fairchild of Clinton, Ia., said that mild infections of the kidney were more frequent than generally supposed. For these radical treatment was not necessary, decapsulation accomplishing everything necessary for cure. This operation had unjustly fallen into disrepute.

Kidney and Ureteral Stones.—Dr. Miles F. Porter of Fort Wayne, Ind., said that concretions, sometimes of extraordinary size, might be carried for years without giving the slightest sign or symptom. Stones in the bladder usually accompanied ureteral calculi, and stones in any part of the canal might frequently be the cause of cancer. The *x*-ray was the most valuable we at present had in diagnosis.

Dr. Hugh Young of Baltimore said that, despite all modern methods, stones were frequently wrongly diagnosed. He recalled no less than 25 cases of periprostatitis which closely simulated stone. In multiple abscess, nephrectomy was almost always indicated. For a stone in any position in the ureter the extraperitoneal route should be used. In removing stones via the bladder by means of the operating cystoscope great care should be taken not to injure the ureterovesical sphincter.

Dr. Maurice Richardson of Boston said that while nothing human was infallible, the modern *x*-ray came as near to being so as anything could be. Yet healed infarcts, for example, might cast good dense shadows.

Dr. A. D. Bevan of Chicago preferred pyelotomy to nephrolithotomy because of the danger of subsequent hemorrhage. The incision should be small, then stretched by forceps. He used a perineal incision for stone in the lower urethra.

Surgery of Congenital Cystic Kidney.—Dr. T. C. Witherspoon of Butte, Mont., said that all cystic conditions of the kidney were related and that all suggested new growth. The diagnosis was based on four symptoms: Blood, size of organ, discomfort or pain, and uremia. Nephrectomy should not be employed, but if possible the cysts should be removed from the organ.

Dr. Daniel Eisendrath of Chicago said that the disease was almost always bilateral and led to a fatal termination.

Dr. Witherspoon in closing said that the difficulty in determining the underlying cause had left us in the dark as to treatment.

Phrenitis Prostatica.—Dr. J. F. Percy of Galesburg, Ill., said that pelvic rather than cerebral pathology was responsible for many sexual excesses. The microscope often failed to show the relation of the glands either to each other or to the general economy. Many cases of dementia were relieved by prostatectomy.

SECTION ON MEDICINE.

Thursday, June 9—Third Day.

Election of Officers.—*Chairman,* Dr. A. Allen Jones of Buffalo; *Vice-Chairman,* Dr. C. L. Green of St. Paul, Minn.; *Secretary,* Dr. Wilder Tileston of New Haven, Conn.; *Delegate,* Dr. J. A. Capps of Chicago, Ill.; *Alternate,* Dr. Alexander Lambert of New York; *Orator,* Dr. C. F. Hoover of Cleveland, Ohio.

Persistent Patency of the Ductus Arteriosus, Stenosis of the Isthmus of the Aorta, with Degeneration of the Coronaries, of the Cardiac Muscle, and of the Sinoauricular Bundle.—Dr. Kate C. H. Mead of Middletown, Conn., said that out of 400 cases of congenital defects of the heart, Abbott found 106 cases of patency of the ductus arteriosus in combination with other cardiac defects. In the case she reported the patient had at the age of ten years an attack of measles which first brought to notice a heart already dilated and laboring under mitral incompetency and aortic stenosis. The congenital lesion was overlooked for many years. Repeated attacks of influenza further weakened the heart, and the patient died in 1909, at the age of twenty-five, of rupture of the right auricle.

Dr. Wilder Tileston of New Haven, Conn., said that Schroetter of Vienna a few years ago reported a case of patency of the ductus venosus with paralysis of the recurrent laryngeal nerve which resulted from pressure upon that nerve. At that time this was the only case that had appeared in the literature.

Regional Vasomotor Hypertonus, with a Report of a Case.—Dr. C. F. Hoover of Cleveland reported the results of a study of the cephalic, brachial, and femoral arteries which was required in making an estimate of the mass movement and distribution of blood in the arterial system. The sphygmomanometer might be misleading unless controlled by palpation of the arteries. The distinction between vascular tension and endovascular pressure was recognized by palpation. He reported the case of a patient, fifty years old, with symptoms characteristic of angina pectoris; during the past fifteen years scarcely a week had passed without an attack. He discovered that these attacks could be prevented by the use of nitroglycerin, and he also discovered that they were accompanied by a high blood pressure. A striking thing in this case was that the patient had no enlargement of the heart. For two years he had had a variation in the blood pressure between 250 and 350. Therefore the blood pressure did not mean as much as it was generally supposed to mean in these cases. Trinitin was given in this case and then nitroglycerin. Afterwards there was found apparently a normal resistance in the arteries. An interesting point in this case was the disparity in the blood pressure readings between those taken of the upper and of the lower extremities.

Dr. Judson Daland of Philadelphia called attention to the fact that the blood pressure varied at different times of the day and was notably influenced by many conditions. Even the mere application of the pneumatic cuff in certain neurotic patients oftentimes caused an increase of the blood pressure, sometimes as high as 30 or 40. He had no recollection of any case in his practice giving such a disparity in the readings of the blood pressure in the upper and lower extremities, and he said he would be glad to know some theory explaining such a condition.

The Electrocardiogram in Clinical Diagnosis.—Drs. L. F. Barker, A. D. Hirschfelder, and G. M. Bond of Baltimore presented this communication. This consisted of a lantern slide demonstration illustrating the value of electrocardiograms as a supplement to other methods of investigation of cardiovascular conditions. The curves were especially helpful in the diagnosis of cardiac arrhythmias, including the extrasystoles and heart block, in hypertrophy of the right and left ventricles, in arterial paralysis and the pulsus irregularis perpetuus, in tachycardias and bradycardias, and in fibrillation of the atrium. The work was done with Einthoven's string galvanometer, the smaller model of Edelmann's.

Hookworm Disease; Infection and Its Prevention.—Dr. Claude A. Smith of Atlanta reviewed the experimental work previously reported through which he had proved that infection through the skin was the most common mode of entrance into the body. Comparatively few physicians realized the full extent of the prevalence of this disease and the majority of physicians were apt to overlook all cases of the mild or medium variety. A clear history of ground-itch was a much surer means of diagnosis than mere inspection of the patient. In producing experimental hookworm it was found that polluted soil could not transmit the disease unless there was sufficient moisture through which the parasite could pass from the soil to the skin. He had also called attention to the fact that soil pollution could not take place during the fall, winter, and early spring in most sections of the South. The parasite might develop during the winter when the temperature did not go much below 50° F., but it was so sluggish that it was unable to penetrate the skin. The larvæ had a tendency to climb to the highest point attainable in the soil and remained there as long as the moisture was present, but they shrivelled up and died if the moisture completely evaporated. After a long dry spell there was almost no pollution of the soil; a certain amount of larvæ might retain their vitality upon green plants, but they had no chance of producing infection until rainy weather intervened. Thus it was possible for hookworm

infection to take place only at certain seasons. Soil pollution was due to unsanitary conditions and if it were possible to stop this soil pollution the disease would die out in a few years even if no cases were given treatment. Theoretically the prevention of soil pollution was possible but from practical investigations he felt convinced that it was an impossibility. The habits of the people were so thoroughly fixed that it would take years of education and training to make any appreciable progress. After a careful study of the subject and a practical investigation he had become convinced that the most effective procedure in eradicating and preventing the disease was to have it thoroughly understood in all country districts that wading in the mud or sand or shallow ditches after rains during the summer months was to be strictly forbidden. Also people should be taught that ground-itch was the beginning of a serious disease and not to be treated lightly. It had been his experience that the disease was not nearly so frequent nor so severe among negroes as among whites. Some were of the opinion that he had acquired immunity through long exposure to the disease but he had found that frequently negroes were careful to avoid wet soil and dew. There were many points that indicated that the mildness of the disease in the negro was not altogether due to the possible immunity. He hoped to report further on these points at a future time.

Dr. Henry B. Ward of Urbana, Ill., said it was very necessary that they should determine the number and the life history of these parasites because it would lay the foundation of prophylaxis, and he felt positive that all were indebted to Dr. Smith for his extensive, careful, and scientific investigations of this problem. Every detail in the life history of the hookworm was of great importance in connection with this problem of the transmission of the disease and its suppression.

Dr. B. B. Bagby of West Point, Va., said that at a recent meeting of railway surgeons who were connected with Southern railroads the question was asked as to the number of cases of hookworm disease met with and one-half of those present said they had met with it in their locality; the other one-half had met with no cases. The reason it was not diagnosed in one-half of the cases, in all probability, was because the men were looking for typical symptoms of the disease. There were no typical symptoms of hookworm disease.

Dr. Morgan Smith of Little Rock, Ark., asked Dr. Smith if he had ever been able to produce the disease in the negro experimentally.

Dr. Smith replied that he had not attempted to produce the disease experimentally in the negro.

Dr. William Litterer of Nashville, Tenn., said it was very difficult to recognize mild cases of hookworm disease unless an examination of the stools was made. In an examination made in one of the industrial schools of the South, out of 58 worms, 42 were found to be females, and every one of these had ova. The longest infection in a patient that he knew of was eleven years. This was not a case of reinfection.

Dr. John William Colbert of Albuquerque, N. M., told of his experience with hookworm disease in Porto Rico, during the early days of the campaign there.

Dr. Claude A. Smith of Atlanta, Ga., closed the discussion.

Pathological Relationship of Ulcer and Carcinoma of the Alimentary Canal.—Drs. Louis Blanchard Wilson and Byrd Charles Willis of Rochester, Minn., stated that the pathological material studied embraced 167 cancers of the lip, 46 of the mouth, 2 of the esophagus, 189 of the stomach, 15 of the gall-bladder, 22 of the appendix, 20 of the cecum, 42 of the remainder of the colon, and 67 of the rectum, making a total of 570 cases. They had found that 30 per cent. of the cases of cancer of the lip gave evidence of previous isolation of epithelium; such evidence was given in 67 per cent. of the cases of cancer of the stomach, in 33 per cent. of cases of cancer of the gall-bladder, in 100 per cent. of cases of cancer of the appendix, in 10 per cent. of cases of cancer of the cecum, in 40 per cent. of cases of cancer of the colon, and in 31 cases of cancer of the rectum. Their study led them to the following conclusions: 1. The relationship to cancer of simple chronic irritation of the unbroken free surface of the mucosa of the alimentary canal, as indicated by clinical data, was not readily demonstrable pathologically. 2. Scar tissue at the bases of ulcers and obliteration of the lumina of appendices and diverticula segregated portions of mucous epithelium from the neighboring epithelium and from the lumen of the alimentary canal. 3. These portions of segregated mucous epithelium tended to degenerate from pressure and diminished the blood supply, or they tended to proliferate and infiltrate the surrounding tissues, thus forming cancer. 4. These islands of segregated epithelium should be regarded probably as points of least resistance only, and requiring the presence of other factors for the production of carcinomata.

Drs. H. E. Roberts of Minneapolis, Minn., Frank Wilbur Foxworthy of Indianapolis, Ind., D. C. Walt of Little Rock, Ark., Charles G. Stockton of Buffalo, N. Y., Richard Weil of New York, A. Jacobi of New York, Hugo A. Freund of Detroit, G. C. Smith of Boston, Mass., Frank Smithies of Ann Arbor, Mich., John A. Potter of Indianapolis, Ind., and others discussed this paper.

The Importance of a Low Protein Diet in Chronic Nephritis.—Dr. H. D. Arnold of Boston said that in planning a diet for chronic nephritis three cardinal principles must determine their selection of food. (1) They must limit the amount of protein food. (2) They must furnish a sufficient amount of nutrition. (3) They must provide variety. With regard to the limitation of protein food he thought it was safe to say that an average adult in health did not require more than 90 grams of protein in his food daily. For practical purposes he took 90 grams of protein a day as the maximum for cases of chronic nephritis, and had taken 50 grams as the minimum. Roughly speaking the average adult required 2,000 calories in twenty-four hours if at rest, 2,500 for light activity, and 3,000 for moderate activity. Loss of strength and energy and a marked feeling of lassitude were symptoms frequently complained of by these patients; this arose in part from insufficient nutrition and in part from the ingestion of too much protein in the food. He alluded to the fad of using soured milk and its dangers. He objected to the use of an exclusive milk diet; to obtain sufficient nutriment one must give an excess of protein, whereas they should diminish it in order to spare the kidneys. Whatever was accomplished by the regulation of the diet depended upon the stage of the disease and its activity. The treatment was both prophylactic and palliative as well as curative. The stumbling block in the past had been not in the absence of sufficient knowledge, but in the difficulty in getting that knowledge into a sufficiently simple form so as to enable the physician to apply it in every day practice. He demonstrated by charts and tables which he presented, how this difficulty might be overcome, in large measure.

The Relationship of Blood Platelets to Bleeding in Certain Cases of Purpura.—Dr. W. W. Duke of Baltimore said he had made a study of cases of purpura with hemorrhage, in several of which the patients had been transfused. Previous to the transfusion in two cases the plates were practically absent from the blood, as determined by stained smear and counting chamber. For three days following, the platelets were observed in moderate numbers, and during this period there was no tendency to hemorrhage. With the disappearance of these platelets

the bleeding continued. The coagulation time in the cases reported was normal throughout. The tendency to bleed seemed to depend upon a low platelet count. From a study of experiments made it could be stated that about one-fourth to one-third of the number of platelets in the body were destroyed and regenerated each day, and that the life of a platelet was between four and eight days.

Clinical Results of Gastroenterostomy for Nonmalignant Diseases.—Dr. JOHN DUDLEY DUNHAM of Columbus, Ohio, based this report on 48 cases in which he had personally examined the cases before operation. Of this number 15 had died, 12 within 17 days of the operation. The total mortality was 31.25 per cent. In this series there were 12 males and three females. The average age was 50 years. In 27 of these patients known to be alive, there were 14 perfect recoveries, four recoveries in which care was required in choice of food who were improved and one unimproved, the cases of ulcer of the stomach or duodenum with stenosis numbering 21. Of three who had ulcer of the stomach or duodenum without stenosis there was one perfect recovery, one improved, and one unimproved. Two cases of nervous dyspepsia were unimproved and one case of atony with diltation was unimproved. From a study of these cases he concluded that: 1. Hyperchlorhydria as a symptom of chronic gastric ulcer was inconstant and should be disregarded. 2. Perfect recovery might occur when atony of the stomach had existed before the development of ulcer and motor insufficiency persisted. 3. Many of the fatalities cited in this report would have been averted had the family physician made a diagnosis before serious complications had developed. Forty cases in this series gave a history of ulcer covering five years or more before the diagnosis was made. 4. Pylorectomy offered a better prognosis for recovery in five of the fatal cases. Several of the patients were lost by fatal hemorrhages from the ulcer area. Two of the patients died as a result of carcinomatous transformation of the pyloric ulcer. 5. The legitimate field for gastroenterostomy in benign diseases of the stomach was in chronic ulcer near or below the pylorus with stenosis.

Influence Upon Gastric Secretions from Perigastric Lesions, Based Upon Clinical and Experimental Study.—Dr. M. J. LICHTY of Cleveland said that in a review of 600 cases who consulted him in private practice who complained of symptoms referable to the stomach, and on whom gastric analyses were made, 318, or more than 50 per cent., had a gastric juice which was hyperacid. Among 56 cases of acute and chronic appendicitis and analyzed, 83 per cent. had an hyperacidity. Among the gall-bladder cases 75 per cent. showed a gastric hyperacidity. A study of the gastric secretions of a number of dogs before and after operations on the gallbladder and appendix showed (1) A decrease of acidity and secretion in starvation; (2) an increase following excitement; (3) a decrease from perigastric lesions causing inflammation and shock; (4) an increase when the function of the perigastric organ was retarded by adhesions.

Preliminary Report on the Clinical Significance of Indicanuria Based on Ten Thousand Examinations for Indican.—Dr. GUSTAV BAAR of Portland, Ore., said that during the past four years he had made it a routine practice to examine the urine of every patient for indican. In 10,000 urinary examinations he had found indicanuria present in about one-third of the cases. True cases of intestinal autointoxication were rare. It was not the quantity of putrid substances formed in the bowel but the quantity of putrid substances entering the blood which caused the symptoms of autointoxication. Ether narcosis had no influence whatever upon the excretion of indican. All gastroenterostomies, enteroanastomoses, appendectomies, showed excessive indican and distinct traces of bile in the urine for a week or more following the operation. Moderate handling of the intestines during the course of an abdominal operation did not cause any indican to appear in the urine, while prolonged handling did cause excessive indican in the urine. Indican was constantly found in cases of constipation which were complicated by cardiac insufficiency. Among the chief emunctories for those products of intestinal putrefaction which were circulating in the blood ranked the kidneys. Any renal insufficiency should lead to the retention of certain products, *i. e.* "autointoxication." In more than 500 examinations of the gastric contents he found that hyperacidity quite frequently was coupled with indicanuria. If there was simultaneously present ulcer of the stomach or duodenum, indicanuria was always present. About 50 cases of icterus, with complete occlusion of the common duct, showed indicanuria in but 10 cases. He said he had endeavored to remove indicanuria, which he had considered for these four years only as an indiator of intestinal putrefaction, by all means advocated heretofor, but without avail. At last he resorted to high enemas in the knee-chest position of 1 per cent. ichthyol; in two cases this was quite successful and thought they were noteworthy enough to report, which he did.

The Roentgen Ray in the Diagnosis of Diseases of the Alimentary Tract.—Drs. JUDSON DALAND and GEORGE E. PFAHLER of Philadelphia presented this communication. They desired to present certain conclusions based upon fluoroscopic and radiographic examinations of the alimentary tract. The time allotted to this paper forbade reporting cases in detail, and furthermore compelled them to limit the lantern slide demonstration to malignant affections of the esophagus, stomach, and colon. (1) The Roentgen ray demonstrated not only the location but also the nature, degree, and extent of stricture of the esophagus. (2) It demonstrated the location, size, and contour of the stomach and intestines; whether they were normally movable or adherent; whether the peristaltic waves were normal, increased, or decreased in frequency and vigor, or absent; and finally, whether food left the stomach normally, too slowly, or too rapidly. (3) The time required for a bismuth meal to traverse the alimentary tract might be determined by x-ray examinations repeated at intervals of four or six hours. (4) Atony might cause delay in transit of the bismuth food through the alimentary tract. This delay might be limited to the stomach, to the splenic flexure; to the transverse colon; to the hepatic flexure, the sigmoid, or rectum. The small intestine was rarely involved. (5) It demonstrated not only the existence, but also the degree of gastroptosis, enteroptosis, or coloptosis. The influence of decubitus, pressure of the hand, massage, electricity, or an abdominal belt might be observed. (6) It demonstrated the existence of hour-glass contraction of the stomach. (7) In cancer, involving the gastric wall, the Roentgen ray sometimes showed a corresponding alteration in the contour of the stomach, and also a cassation of the peristaltic waves at the seat of the tumor. (8) In pyloric obstruction the secondary dilation of the stomach was bowl-shaped, usually occupying the lower region of the abdomen, and strong peristaltic waves were frequently observable. (9) When gastrectasis existed without pyloric obstruction, the peristaltic waves were usually feeble or absent. (10) The existence of tumors of the pylorus might be suspected from alterations in the outline of the shadow produced by the bismuth food in the pyloric portion of the somach and the duodenum, and the relationship of these shadows to each other. (11) Gastric spasm might be diagnosed by observing a deep stricture of the somach, which might remain nearly an hour before disappearing. (12) Pylorospasm might be suspected, when, intermittently, the time required for the bismuth mixture to pass from the stomach into the duodenum was prolonged. (13) In gastric ulcer, spasmodic con-

ditions of the stomach were usually present, in association with frequent and powerful peristaltic waves. (14) A duodenal kink might be diagnosed by observing that the bismuth food in the duodenum was retained for a time just beyond the pylorus. (15) Slight, moderate, or extreme stricture of the intestine might be demonstrated by the accumulation of the bismuth food at the point of obstruction and dilatation of the intestinal tube above the obstruction, as shown by the increased width of the bismuth shadow. A narrow current of bismuth food might be seen traversing the strictured portion of the intestine. The slow, gentle introduction of bismuth and oil by hydrostatic pressure into the sigmoid flexure might demonstrate the location of the distal portion of the stricture of the colon.

Friday, June 10—Fourth Day.

The Different Forms of Mediastinal Exudative Pleurisy, with Report of Three Cases.—Dr. Anders Frick of Chicago read this paper. The clinical manifestations of mediastinal exudative pleurisy differed radically according to the part of the mediastinal pleura which was involved and its contents which were exposed to pressure. For this reason three forms of mediastinal pleurisy were to be distinguished: (1) Pleuritis mediastinalis anterior dextra, the most important symptom of which was a very deep cyanosis due to pressure on the right auricle and on the superior vena cava; (2) pleuritis mediastinalis anterior sinistra, which gave a clinical picture that resembled very much the one of exudative pericarditis; (3) pleuritis mediastinalis posterior, sive dextra, sive sinistra, which would, provided the exudate was sufficiently large, cause stridulous inspiratory dyspnea and sometimes deviation of the trachea by pressure on the trachea, dysphagia by pressure on the esophagus, enlargement of the intercostal veins by pressure on the vena azygos, paroxysmal cough by pressure on the vagus, and dysphonia, spasmus glottidis, or spasm of the pharynx and esophagus by pressure on the recurrent laryngeal nerve.

The Diagnostic Significance of the Paravertebral Triangle of Percussion Dullness (Grocco's Sign).—Dr. Frank Smithies of Ann Arbor, Mich., read this paper and offered the following summary: (1) In cases of fluid existing in the pleural sac and impinging on the spine, it was possible to map out in the average case an area of percussion dullness on the opposite side of the spine to that of which the effusion occurred. This area was an area of relative dullness, and was roughly triangular in outline. It might disappear on change of position of the patient or might show marked variations in shape or size. The triangular area was generally associated with certain auscultatory findings, similar to those found in connection with pleural exudates. (2) Paravertebral dullness might be the result of other pathological conditions than pleural effusion. These might be intrathoracic or extrathoracic. In intrathoracic diseases, such as pneumonia, mediastinal tumor, lung abscess, enlarged mediastinal glands, etc., dullness to the opposite side of the spine might be made out. This was rarely triangular, was usually not a movable dullness and was not generally associated with auscultatory phenomena. In extrathoracic diseases, as ascites, subphrenic abscess, abdominal tumor, or pregnancy, paravertebral dullness sometimes triangular in outline, might be made out. In these instances abdominal pathology was not wanting, whereas thoracic affections were generally absent or secondary. (3) A certain amount of experience with the sign and of skill in percussing was necessary in its demonstration. Even when more than ordinary skill was available, the presence of thick parietes, fibroad pleura, improper position of the subject, etc., might mask the sign.

Autogenous Vaccine Therapy in Endocarditis.—Dr. E. C. Rosenow of Chicago said that the value of the injection of dead bacteria in certain localized infections, particularly those of long duration, could no longer be questioned. Their effect in the more generalized infections, particularly in endocarditis, was still a question. In that form of endocarditis with insidious onset, with a prolonged course which showed a progressive anemia from which organisms with a low grade of virulence were isolated, the type known as chronic septic or infectious endocarditis, all observers reported an invariably fatal result, regardless of the form of treatment employed. All agreed that the injection of large doses (200,000,000 and over) did harm. Most observers had noted temporary good effects from the injection of small doses, ten to one hundred million. The evidence seemed conclusive that the continuation of the infection in chronic infectious endocarditis was due largely to a process of immunization or adaptation of the bacteria to the antibodies of the host. A peculiar behavior of the patient's bacteria and blood was found particularly striking during the time when the number of bacteria were increasing in the circulating blood and for variable periods previous to the occurrence of embolism or arthritis. During the clinical reaction occasioned by the shower of emboli or joint involvement (autoinoculation), or following the injection of dead bacteria, and especially of normal human serum, this peculiar relation of the patient's serum was present, the leucocytes and bacteria disappeared, the destructive power of the patient's blood returned and the number of bacteria in the blood showed a corresponding drop. The patient was temporarily improved but weaker than before. A striking fact was that often during the time when the bacteria in the blood were on the increase and the destroying power of the patient's blood was below normal, the temperature and leucocyte count was lower and the patient seemed better. The temperature, however, at once rose when the drop in bacteria began. In other words the destruction of bacteria liberated a toxic material which poisoned the individual. Hence to combat endocarditis successfully it was necessary to inject in addition to something which activated the patient's blood a neutralizing substance which would prevent the intoxication of the already overwhelmed patient. The outlook for a specific serum was very gloomy because the results of animal experimentation showed that the injection of organisms isolated from chronic infectious endocarditis produced an increased susceptibility to subsequent infections instead of an immunity.

The Treatment of Typhoid Carriers, with Report of a Case Treated by Inoculations of Typhoid Vaccine.—Dr. Willard J. Stone of Toledo, Ohio, said he had made a survey of the literature citing typhoid carriers treated by bacterial inoculations which, although few in number, appeared to warrant the following conclusions: (1) The time element was an important factor in the reaction of susceptibility to inoculations of bacterial vaccines in typhoid carriers. Typhoid carriers injected within a comparatively short time after their infection, would in all probability receive more benefit from properly prepared autogenous vaccine than from any other known form of treatment. (2) "Contact carriers" who never, to their knowledge, had had typhoid, were more susceptible to the inoculations than carriers who had had a definite attack of this disease, and were in all probability more immune. (3) Where the infection had persisted for years, it might be difficult to clear up the condition by bacterial inoculations. The effort should at least be made, since, in the somewhat similar condition, chronic carriers of apparently non-virulent tubercle bacilli, the bacilli often disappears from the sputum during a course of inoculation of some one of the tubercle products. (4) The immunity manifested by typhoid carriers was in all probability a partial immunity in the sense that while these individuals were protected against the infection through an augmented

phagocytic power held by their body cells, the antibacterial substance such as the bactericidins and lysins were lessened to a degree sufficient to exert any destructive power against the infection.

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

Wednesday, June 7th—Second Day.

DR. J. G. CLARK OF PHILADELPHIA, CHAIRMAN.

Plication of the Round and Anterior Fold of the Broad Ligament on the Anterior Surface of the Uterus for Retrodisplacement.—Dr. R. C. COFFEY of Portland, Ore., described this operation, saying that the round ligament was a muscle and not a suspensory fascia. That the support of the uterus depended upon the broad ligament. Hence, he shortened the broad ligament and left the round ligament free to contract and to pull through the tuck taken in the broad ligament. In the 272 cases in which he had done this operation, the results had been uniformly good. There had been eighteen cases of pregnancy follow the operation, all of which had passed off without any interference that could be attributed to the operation. In five cases the abdomen had been opened up after the primary operation and in all of these the uterus had been found in good position. The round ligament had shown a postoperative development so that the round ligament, which was attenuated prior to operation, had developed into a good muscle.

Attachment of Ligaments Posterior to the Uterus.—Dr. J. M. BALDY of Philadelphia thought that the primary anatomy and physiology of the suspensory structures need not be considered but any available structures should be used to correct the pathological conditions. In addition to the mere prolapse of the uterus he considered the fall of the pelvic floor and the prolapse of the ovaries as very important and these were corrected by the posterior shortening of the round ligaments, pulling the round ligaments through the broad ligaments and suturing them together behind the uterus. The point of perforation of the broad ligament should be just below the ovary and close to the uterus. The fact that the uterine end of the round ligament was doubled on itself was not a contraindication to the operation since the attenuated end at the inguinal canal could be cut freely across and the support of the uterus remained. The benefit came from the support given the uterus from the two round ligaments which hugged the uterus. The operation had been widely used and was apparently perfectly satisfactory.

Intraperitoneal Implantation of the Round Ligaments.—Dr. D. TOD GILLIAM described this as the original round ligament suspension of the uterus. The operation was simple, safe, easy to do, and efficient. It had been done in many hundreds of cases, and had given excellent results. The chief argument raised against it had been the possibility of intestinal obstruction from the suspensory band, but no such cases had ever been reported. The operation was applicable in complete procedenture.

Intraperitoneal Shortening of the Round Ligaments.—Dr. F. F. SIMPSON of Pittsburg described his modification of the Alexander operation in which the round ligament was pulled through the inguinal ring over the rectus and sutured in the median line to the ligament of the opposite side. The operation took full cognizance of the functions of the pelvic organs and gave no abnormal intraperitoneal conditions.

Shortening of the Round Ligaments Through the Temporarily Dilated Inguinal Canals, Combined with the Bassini Technique in Closure of the Wounds.—Dr. A. GOLDSPHON of Chicago described the technique of an operation which shortened the round ligaments through the inguinal canal by a pair of forceps being inserted into the canal to grasp the ligaments in the broad ligament. He claimed better results after this operation as shown by the double test of pregnancy and labor which was followed by a smaller number of recurrences than after any other, less than 1½ per cent. But since it was desirable to inspect the peritoneal cavity for one reason or another in a large number of cases in which reposition of the uterus was needed, he had recently given up this operation or done it with the abdomen opened. A transverse skin incision with a median fascial incision gave an excellent exposure for this operation with the abdomen open. Since opening the abdomen, however, he had been using to a large extent the intraperitoneal implantation of the round ligaments.

Résumé of the Surgical Treatment of Retrodisplacements of the Uterus.—Dr. E. C. DUDLEY of Chicago read this paper. He classified all retroversion operations as supporting the uterus either by peritoneal adhesions, or by shortening of ligaments. In the first class the Kelly fixation and suspension of the uterus were the type, and these were not based on anatomical and physiological grounds, and, hence, were unsurgical. The second class by shortening of ligaments, was preferable, and of the ligaments available, the shortening of the uterosacral ligaments was often unsatisfactory in its permanent results. The pure Alexander shortening of the round ligaments was no longer a good routine procedure. The doubling of the round ligaments also was not as permanent in its results as was to be desired. Hence, the Gilliam type of operation was the most acceptable. Personally he now followed (to the exclusion of most others) the pulling of the round ligaments through the broad, carrying with it enough peritoneum to give good peritoneal adhesions.

Dr. E. E. MONTGOMERY of Philadelphia said that his operation was merely an adjustment of other operations. He chose the Pfannenstiel incision and then did a Baldy attachment of the round ligaments to the posterior surface of the uterus.

Dr. J. B. MURPHY of Chicago recognized the relief that came in the replacement with a pessary if no additional damage was done. The objections to the fixation operations lay in the pain caused by sudden abdominal movements and elongation took place and allowed the uterus to fall back again into its old place. The choice of operations depended upon the condition. In the nullipara he thought that Alexander's operation was the choice. While, at the other extreme in complete procedenture, he believed in splitting the uterus, shortening the round ligaments, and supporting the bladder with the uterus.

Dr. HERMAN J. BOLDT of New York said that the pure retrodisplacement gave no symptoms except from pressure or mechanically associated trouble. In such cases a pessary was adequate, or an Alexander's operation. If any adhesions were present or there was any indication for opening the abdomen his choice was for the Gilliam operation.

Dr. CARSTENS of Detroit believed in the use of the pessary after labor to prevent retrodisplacements.

Dr. FARRETT of Chicago believed in inspecting and correcting other abdominal associated conditions, and in using the best part of the natural ligaments so that he did a modification of the Gilliam operation.

Dr. H. O. MARCY of Boston transplanted the round ligaments to a higher level in the inguinal canal and covered them well with peritoneum.

Dr. WARTHIN of Ann Arbor believed that anterior suspension of the uterus gave the best results unless there was some destruction of the pelvic floor.

Dr. G. BETTON MASSEY of Philadelphia considered the chief cause of the symptoms associated with retroversion to be due to the chronic inflammation of the uterus. And

that no operation would relieve these unless they were treated also.

Dr. Gelhorn of St. Louis thought that any operation would suffice so long as it observed certain principals, the chief of which were to avoid fixation in a pathological position, to avoid blind operations, to avoid using the weak end of ligaments, and to avoid the deceptive small ligaments like the uterosacral.

Dr. Byford of Chicago considered the inguinal end of the round ligament as a strong tendon, though it might not be as large as the muscular uterine end. He thought, however, that the uterus should be supported by the ligaments in their normal channels.

Embryological and Anatomical Causes of Obstinate Constipation in Women; Operative Methods for Relief.—Dr. John G. Clark of Philadelphia read this address. He considered, principally, the condition of enteroptosis, which was potential at birth and then developed later with some special strain such as childbirth, persistent crying in infancy, or persistent coughing. In the autopsy study of fifty infants under six months, owing to the embryologic conditions of development, irregular conditions in the colon were not infrequent. A redundant transverse colon was frequent, and there occurred, also, many cases of descent of the colon into the pelvis at the cecum, or a low splenic flexure, or a redundant sigmoid. It seemed as if, normally, at birth one-half of the colon was in the sigmoid. If such a condition persisted the origin of Hirschsprung's disease was evident. In some cases the sigmoid extended up to the liver. In the adult the autopsy study showed the lower border of the transverse colon to be near the line of the crests of the ilium. Descent of the colon and stomach here go together and adhesions of the omentum hold the stomach down, and the traction pulls down the pylorus, giving obstruction and motor insufficiency. Similarly the transverse colon, when full, pulls down on the flexures and at the pylorus. This type of case is nutritionally deficient from birth. The babies are constipated and the deficiency shows in the lack of development of thorax and bones, and the bad posture. The time taken for material to pass through the small intestine is about six hours, and through the large intestine sixteen to eighten hours. If salt solution is injected into the colon with the patient in the Trendelenburg position, the colon is straightened out into its fairly normal position. So that an injection of hot salt solution after an operation, while the patient was still in the Trendelenburg position, tended to straighten out the intestine, supplied an intraabdominal hot water bottle, and supplied fluid to be absorbed. Dr. Clark noted the frequency of deviation of the sigmoid flexure, and reported one case of sigmoid three feet long, when, normally, it should be but from seven to nine inches. The indications for operation on the colon were not in the position of the colon as determined by examination, seen on operation, or in an *x*-ray photograph, but only in the symptoms which arose from these conditions. The cases of enteroptosis associated with neurasthenia, when operated on, gave worse than bad results as the exhausted nerves were only made to go through extra strain. In such cases the elevation of a descended cecum from inside the pelvis might be helpful. The Coffey operation, pulling up the transverse colon and suturing it in folds to the abdominal wall maintained in place temporarily by through and through nonabsorbable sutures tied to gauze pads on the outside of the abdomen, gave 48 per cent. of functional relief. Resection of the transverse colon in the four cases where he had tried it gave excellent results. In the cases where the sigmoid was redundant a lateral anastomosis of the loops of the sigmoid sidetracking the unnecessary length of the sigmoid did good in some of the cases.

Enteroptosis, with Special Reference to Its Etiology and Development.—Dr. R. R. Smith of Grand Rapids described the type of woman in which enteroptosis was most frequently found as one with frail form and features, little fat or muscle, the tissues lax, without vigor, the neck long, the chest collapsed, the lower ribs close together and slanting greatly, and the upper abdomen with very little space. The combination of enteroptosis and a large abdomen was very uncommon. The symptoms most common were the pain in the back and groins, the weight in the abdomen, the upset in the menses and the function of the bladder, and neurasthenia. The time of onset of the symptoms ascribed to the prolapse in the marked cases always went back to childhood but did not follow any special disease. Chronic influences on digestion and nutrition might be a factor; bad hygiene certainly was a factor.

The X-Ray in the Diagnosis of Enteroptosia.—Dr. E. H. Skinner of Kansas City showed pictures of the normal and abnormal position of the stomach and colon as determined by the *x*-ray picture. He showed a series of pictures of prolapse of the stomach in which the stomach retained its tubular form but was dragged down towards the left iliac fossa, maintaining the high position of its fixed extremities, so that the stomach took the shape of a syphon trap. In the colon the splenic flexure remained high and sharp.

Value of the Roentgen Ray in Enteroptosis.—Dr. A. W. Crane of Kalamazoo showed slides demonstrating the development of the drain trap stomach of the tubular type from gastroptosis. The fixed point of attachment was the cardiac orifice and the symptoms were determined by the position of the pyloric antrum. The pain of gastric ulcer might easily be mistaken for any other acute pain in the abdomen and the low position of the stomach very misleading.

The Physician's Viewpoint.—Dr. J. H. Musser of Philadelphia considered this side of the subject. He emphasized the point that enteroptosis was, frequently, present without producing any symptoms. He noted the importance of the environmental conditions which made for effeminacy. The middle and lower classes of society were not victims of the neuroses that afflicted the higher class. Neurasthenia was shown in the dying-out class. Of 100 patients with gastroptosis, 37 had always had poor health and 27 had had poor health since puberty. Analyses to determine abnormal changes in metabolism were made in 10 cases with no abnormal findings which would account for the toxemia. The patient's habits seemed to account for much of the trouble. There were no defensive protections, as yet, found in the system to combat the diseased condition. He thought that the mother could do much in childhood to conserve the health of the child. Attacks of biliousness and headache showed that the child was not resting and should be met by rest and withdrawal of food. So he considered the symptoms of enteroptosis as a condition rather than a disease, and the cure to lie in hygiene with indirect therapy for each organ. There was a certain amount of psychic relief and some physical relief that came from wearing an abdominal bandage in 25 per cent. of the cases. And this period could be used to build up the body hygiene. Secondary enteroptosis following some surgical complication might need surgical treatment. The early diagnosis of enteroptosis in childhood with an early operation might prevent the development of the nervous symptoms, but after the neurosis was present operation only added additional nerve insult. All of the operative procedures so far had been unsatisfactory.

The Surgical Viewpoint.—Dr. A. J. Ochsner of Chicago discussed this side of the question. He considered the disease as secondary to the condition of the patient. He had found the condition most frequent in children with hernia. They had diastases of the recti and pendulous

abdomens. The condition was associated with digestive upsets with the production of gas, constipation, and phimosis, chronic coughs, chronic appendicitis, crying, straining, and so on. In these cases the removal of the cause of the pressure cured the hernia without operation. The conditions could be cured, largely, by rest, putting the patients to bed at 6 P. M., and elevating the foot of the bed so that all strain would be taken off of the abdominal supports for a large share of the time. This preventive work on the children was the most valuable. Surgical treatment failed, or at times made the patient worse. The indications for operation as stated by Blake were symptoms that were due to the enteroptosis; that could not be cured without an operation, and that could be cured by operation. In gastroptosis Bier's operation that did not fix the organ was good. Fixation always did more harm than good. In ptosis of the liver, splitting the right rectus and sewing the gall-bladder to the transverse fascia and then draining the gall-bladder would reduce the size of the gall-bladder and liver. In ptosis of the spleen operation should be done only for obstruction to the blood supply.

Dr. MAX EINHORN of New York City considered that not starvation, but high feeding, was essential to the cure of these cases. The stomach should be educated to digest good food. The enteroptosis as such needed no surgery and gave no symptoms.

Dr. COFFEY of Portland, Ore., said that, while many of the leading men of the country opposed surgery in these cases, yet, in selected cases surgery did good. His first case had been one of obstruction, and he had sutured the omentum to the anterior abdominal wall with relief of the symptoms and the woman had been well now for eight years. In one case he had narrowed the lower abdomen by plication of the fascia, and had done a plastic operation, increasing the size of the thoracic abdomen.

(*To be continued.*)

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

AT a stated meeting held June 1, Dr. ALFRED STENGEL read "A Memoir of the late Dr. J. Alison Scott." Dr. JOHN H. MUSSER presented a communication entitled "The Fundamental Principles of Therapeutics," discussing the subject particularly from a biological standpoint. Dr. ROBERT N. WILLSON, Jr., gave a lantern demonstration illustrative of "The Gross Pathology of the Heart." He depicted affections of the heart wall, such as hypertrophy and aneurysm, dilatation of the cavities of the heart, with its effects on the competency of its valves, diseases of the valve leaflets, endocarditis, sclerosis, lesions of the aorta, atheroma, sclerosis, aneurysm. Dr. HOBART A. HARE read a paper entitled "The Difference Between the Systolic Blood Pressure in the Arm and in the Leg in Aortic Regurgitation," relating observations confirming those previously reported by Dr. Leonard Hill to the effect that in the presence of aortic regurgitation the blood pressure in the lower extremities is considerably higher than in the upper extremities. The higher pressure in the lower extremities could be reduced by immersing the feet and legs in hot water or exposing these parts to the action of the hot pack. Drs. RALPH PEMBERTON and J. EDWARD SWEET presented a communication entitled "The Induction of Pancreatic Activity by the Removal of the Adrenals." Dr. WALTER G. ELMER presented the "Report of a Case of Profound Blood Destruction Following Calomel." He reported the case of a man who took ten grains of calomel at hourly intervals by mistake for 1/10 grain dose. After a short time there developed profound depression, with bloody stools and the signs of marked blood deterioration. It was thought that the unpleasant effects were due to the conversion in the intestinal tract of the mild chloride into the corrosive chloride.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

ALABAMA STATE BOARD OF MEDICAL EXAMINERS.

Montgomery, January 11-14, 1910.

ANATOMY.

(For graduates of less than five years' standing.)

1. Describe the upper third of the femur.
2. Give the class of joint, the articulation, and ligaments of the shoulder joint.
3. Trace blood from the heart by way of the subclavian artery to the circle of Willis, naming the arteries uniting to form the circle.
4. Name the muscles of the anterior chest, and give origin and insertion of the largest one of them.
5. Name the main superficial venous trunks of the upper arm, describing one of them.
6. Describe the gall-bladder and the bile-ducts.
7. Describe the great sciatic nerve.
8. Describe the rectum.

(For graduates of more than five years' standing.)

1. Name the bones of the lower extremity.
2. Name and locate the valves of the heart.
3. Describe in full the sartorius muscle.
4. Locate the spleen and describe its gross anatomy.
5. Describe in full the pulmonary veins.
6. Describe the contents in Scarpa's triangle and give their relations.
7. Name the lobes and ventricles of the brain.
8. Name the ligaments supporting the uterus and describe its blood supply.

PHYSIOLOGY.

1. Explain the functions of the spinal cord.
2. What are the functions of the trifacial or fifth pair of cranial nerves?
3. What is meant by cell action? Give examples.
4. What are the supposed functions of the spleen?
5. What are the supposed functions of the thyroid gland? What symptoms sometimes follow its removal?
6. Explain the glycogenic function of the liver.
7. How is the equilibrium of the circulation of the blood maintained in the body?
8. What are the functions of the skin?

CHEMISTRY.

(Answer eight.)

1. What is the difference between analytic and synthetic methods in chemistry? Illustrate each.
2. Explain the reaction which occurs when the aqueous solutions of the two parts of a Seidlitz powder are mixed.
3. Write the equations which show the reaction occurring when corrosive sublimate and potassium iodide in solution are brought together.
4. What is the essential element of all acids? Differentiate between hydracids and oxyacids?
5. Give a test for H_2SO_4 when an adulterant in vinegar.
6. Give the technical names of (*a*) aqua regia, (*b*) oil of vitriol, (*c*) green vitriol, and the formula of one of them.
7. What is the chemical composition of ordinary alum?
8. Give the chemical reaction of (*a*) tears, (*b*) bile, (*c*) blood, (*d*) saliva, (*e*) milk, and state what salt causes acidity of urine.
9. Give a test for ferrous salts.
10. Explain the difference between a sulphate and a sulphite. Give an example of each.
11. Give tests for albumin and sugar in urine.
12. Describe a chemical test for blood.

PHYSICAL DIAGNOSIS.

1. In what pathological conditions of the lungs is moderate dullness found; in what is absolute dullness found?
2. Give differential diagnosis between acute bronchitis and lobar pneumonia.
3. What are the principal points of difference between pleuritic friction sounds and bronchial râles.
4. Give the diagnostic signs of aortic aneurysm.
5. What are the conditions most favorable for the production of metallic tinkle?
6. Give the differential diagnosis between endocarditis and pericarditis.
7. Give the diagnostic symptoms of emphysema of the lungs.
8. Differentiate between aortic stenosis and mitral insufficiency.

ETIOLOGY, PATHOLOGY, SYMPTOMATOLOGY, AND DIAGNOSIS.

1. Give the etiology of cirrhosis of the liver.
2. Give the etiology of pyelitis.
3. Give the pathology of arterial sclerosis.
4. Give the symptoms and diagnosis of hookworm disease.
5. Give the differential diagnosis between pericarditis and acute pleurisy.
6. Give the pathology of cerebrospinal meningitis.
7. Give the etiology of erysipelas.
8. Give the pathology of pneumonia.

OBSTETRICS.

1. What is meant by the inclined planes of the pelvis?
2. What are the forces by which the child is expelled?
3. Give operation for adherent placenta.
4. Give mechanism of left occipitoposterior position.
5. How would you manage a shoulder presentation?
6. Give causes and treatment of asphyxia in a new-born child.
7. How would you apply forceps at the inferior strait when the occiput has rotated to the pubic symphysis?
8. Give the degrees of perineal laceration and management of each.

GYNECOLOGY.

1. Give causes and treatment of hemorrhage of the uterus.
2. Give the cause and treatment of amenorrhea.
3. Define ectopic pregnancy and give varieties.
4. Give differential diagnosis between fluid and solid neoplasms in the abdominal cavity.
5. Under what conditions and why would you prefer vaginal to abdominal hysterectomy?
6. Give symptoms of fibroid tumors of the uterus.
7. Give etiology of retrodisplacement of the uterus.
8. Describe the technique of a gynecologic examination.

SURGERY.

1. Give general rules for the treatment of wounds.
2. Give symptoms and treatment of traumatic spreading gangrene.
3. Give general rules for the treatment of tubercular abscesses.
4. Give differential diagnosis between chancre and chancroid.
5. Give treatment of a compound, comminuted fracture of the femur.
6. Give symptoms and treatment of subcoracoid dislocation of head of humerus.
7. Give symptoms and treatment of stone in the kidney.
8. Give treatment of penetrating gunshot wound of the abdomen.

EYE, EAR, NOSE, AND THROAT.

1. Give symptoms and management of acute catarrhal conjunctivitis.
2. Give the symptoms, dangers, and management of gonorrheal ophthalmia in the adult and in the new-born.
3. Give the management of ulcer of the cornea.
4. In what part of the ear does cerumen sometimes become impacted, and how diagnosed and treated?
5. What is the seat of acute suppurative otitis media, and what the symptoms, dangers, and management?
6. In the absence of the special instrument for the purpose how would you arrest an alarming hemorrhage from the nose?
7. What is the most conclusive symptom of diphtheria, and how ascertained? What is the most generally accepted treatment? Give in detail the method of administering the treatment, and the dose.
8. Name three instances in which intubation of the larynx would be indicated. Name three in which laryngotomy or laryngotracheotomy would be required, and describe the operation.

HYGIENE AND MEDICAL JURISPRUDENCE.

1. What is the period of incubation of smallpox? Of measles? Give the differential diagnosis between these two diseases.
2. What is immunity? What susceptibility?
3. How is typhoid fever disseminated? Give the hygienic management of a case.
4. Describe briefly the proper location and construction of a school building.
5. Define malpractice.
6. What are illusions? Delusions?
7. Give the differential diagnosis between strychnine poisoning and tetanic convulsions.
8. What are the symptoms of acute poisoning from coal tar derivatives?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

ALABAMA STATE BOARD OF MEDICAL EXAMINERS.

Montgomery, January 11-14, 1910.

ANATOMY.

(For graduates of less than five years' standing.)

1. See Cunningham's "Anatomy" (1909), page 223; or Gray's "Anatomy" (1908), page 223.

2. The *shoulder joint* is an enarthrodial variety of a diarthrosis; it is formed by the head of the humerus being received into the glenoid cavity of the scapula; the ligaments are: Glenoid, capsular, coraco-humeral, and transverse humeral.

3. Heart, aorta (innominate, on right side only), subclavian, vertebral, basilar; then to posterior cerebral (which is part of Circle of Willis). This circle is formed: In front by the two anterior cerebral arteries (branches of the internal carotid), which are connected by the anterior communicating artery; behind, by the two posterior cerebrals (branches of the basilar artery), which are connected to the internal carotid on each side by the posterior communicating artery.

4. Muscles of anterior chest are: Pectoralis major, pectoralis minor, and subclavius. The largest of these is the pectoralis major. *Origin:* Anterior surface of inner half of clavicle, anterior surface of sternum, from the cartilages of the second to sixth ribs, and from the aponeurosis of the external oblique of the abdomen. *Insertion:* Into the outer bicipital ridge of the humerus.

5. See Cunningham's "Anatomy" (1909), page 891; or Gray's "Anatomy" (1908), page 745.

6. THE GALL-BLADDER AND BILE-DUCTS. The *gall-bladder* is a conical bag placed in a fossa on the under surface of the right lobe of the liver. Its upper surface is attached to the liver, and its fundus and posterior surfaces are invested by peritoneum reflected from the adjacent surface of the liver. The body is in relation in front with the liver, and behind with the first part of duodenum, the pylorus, and the hepatic flexure of colon. The fundus is in contact with the parietes opposite the ninth right costal cartilage.

The *hepatic duct,* formed by union of ducts from right and left lobes, issues from the liver at the bottom of the transverse fissure. It passes downward and to the right in the layers of gastrohepatic omentum, having the vena porta behind and the hepatic artery on the left. It joins the cystic duct, the two forming the common bile-duct.

The *cystic duct* passes from the neck to the gall-bladder downward, backward, and to the left, to join the preceding.

The *ductus communis choledochus* or *common bile-duct* is the result of the union of the hepatic and cystic ducts. It passes behind the first part of the duodenum, in front of the vena portæ, with the hepatic artery on the left, between the layers of the gastrohepatic omentum, and, passing between the pancreas and second part of the duodenum, enters the small intestine obliquely a little below the middle of the descending part of the duodenum by an opening common to it and the pancreatic duct.—(From *Aids to Anatomy.*)

7. See Cunningham's "Anatomy" (1909), page 648; or Gray's "Anatomy" (1908), page 1030.

8. See Cunningham's "Anatomy" (1909), page 1087; or Gray's "Anatomy" (1908), page 1320.

(For graduates of more than five years' standing.)

1. Os innominatum (ilium, ischium, pubis), femur, patella, tibia, fibula, os calcis, astragalus, cuboid, scaphoid, three cuneiforms, five metatarsals, and fourteen phalanges.

2. In the *right auricle* are the Eustachian and coronary valves; the former is situated between the anterior margin of the inferior vena cava and the auriculo-ventricular orifice. In the *right ventricle* are the tricuspid and semilunar valves. In the *left ventricle* are the mitral and semilunar valves. Aortic valves, behind the third intercostal space, close to the left side of the sternum. Pulmonary valves, in front of the aortic, behind the junction of the third rib, on the left side, with the sternum. Tricuspid valves, behind the middle of the sternum, about the level of the fourth costal cartilage. Mitral valves, behind the third intercostal space, about one inch to the left of the sternum.

3. See Cunningham's "Anatomy" (1909), page 356; or Gray's "Anatomy" (1908), page 518.

4. The *spleen* is situated in the back part of the left hypochondriac and epigastric regions, being covered by the ninth, tenth, and eleventh ribs, on the left side. It is of an oblong, flattened form, the external surface being convex; on the inner surface is a vertical ridge dividing it

into two parts, the posterior of which is applied to the outer surface of the left kidney, while the anterior one receives the tail of the pancreas and lies against the cardiac end of the stomach. Near this ridge is a fissure, *the hilum*, where the vessels enter. The anterior border is notched and the lower end is pointed and rests on the costocolic ligament, situated in the left hypochondriac region. It is covered by peritoneum, except at the hilum, where it passes forward and inward in a double line enclosing the vessels, as the gastrosplenic omentum, to the fundus of the stomach. It usually measures 5 by 3 by 1 or 1½ inches, and weighs about 7 ounces.—(From *Aids to Anotomy.*)

5. See Cunningham's "Anatomy" (1909), page 870; or Gray's "Anatomy" (1908), page 723.

6. *Contents:* The femoral vessels pass from about the center of the base to the apex, the artery being on the outer side of the vein; the artery gives off the superficial and profunda branches, and the vein receives the deep femoral and internal saphenous; the anterior crural nerve lies to the outer side of the femoral artery; the external cutaneous nerve is still further external, lying in the outer corner of the space; just to the outer side of the femoral artery, and in the sheath with it, is the crural branch of the genitocrural nerve. At the apex the vein (which at the base was internal to the artery) lies behind the artery. The triangle also contains fat and lymphatics.

7. *Lobes of brain:* Frontal, parietal, occipital, temporal, central (or island of Reil), limbic, olfactory, cuneate, orbital, precentral, postcentral, quadrate. *Ventricles:* Two lateral, third, fourth, and fifth.

8. *Ligaments of uterus:* Anterior, posterior, two broad (or lateral), two sacrouterine, and two round ligaments. *Blood supply:* Uterine and ovarian arteries and veins of same name.

PHYSIOLOGY.

1. *The functions of the spinal cord* are: (1) The conduction of nerve impulses; (2) reflex action; (3) coordination; it also contains special centers which preside over definite functions.

In the spinal cord: (*a*) The white substance simply conducts nerve impulses; (*b*) the gray substance contains groups of cells which act as centers for and distributors of nerve impulses, and are also concerned in reflexes; (*c*) the anterior cornua have a motor and trophic function; (*d*) the posterior cornua are sensory.

2. THE FUNCTIONS OF THE FIFTH CRANIAL NERVE. *First ophthalmic branch* supplies sensation to conjunctiva and skin of upper eyelid, cornea, skin of forehead and nose, lachrymal glands, mucous membrane of nose. *Second, or superior maxillary branch,* supplies sensation to skin and conjunctiva of lower lid, nose, cheek, upper lip, upper teeth and alveolar processes, and palate. *Third, or inferior maxillary branch,* supplies sensation to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower teeth, lower lip, and skin of the lower part of the face. This branch, in addition, supplies motion to the muscles of mastication (masseter, temporal, external pterygoid, internal pterygoid), also to mylohyoid and anterior belly of digastric.

3. By *cell action* is meant the function of cells, such as power of movement, of growth, of ingestion, of egestion, of reproduction, of secretion, of response to various stimuli.

4. The *function of the spleen:* The following theories have been held: (1) It is a source of production of the white blood corpuscles; (2) it is a source of production of the red blood corpuscles during fetal life; (3) it is a place where the red blood corpuscles are destroyed; (4) uric acid is produced in the spleen; (5) an enzyme is produced in the spleen and is carried by the blood to the pancreas, where it converts the trypsinogen into trypsin.

5. The *function of the thyroid* is not definitely settled; (1) it has some trophic function, regulating oxidation in the body, and it is supposed to have also a special influence on the vasomotor nerves, the skin, the bones, and on the sexual functions; (2) it is supposed to antagonize toxic substances, and (3) it produces an internal secretion.

Removal of the thyroid gland causes mental and bodily dullness and apathy, tremors, twitchings, overgrowth of the connective tissues, and development of fat; the hairs fall out and the patient becomes unwieldy and clumsy in both body and mind. The complete removal causes death in most animals, and it is not considered justifiable in man.

6. Glycogen is chiefly formed from the carbohydrates. The liver cells act upon the dextrose into which the carbohydrates have been converted by the action of the ptyalin and amylopsin of the digestive juices. This *may* occur by a simple process of dehydration:

$$C_6H_{12}O_6 - H_2O = C_6H_{10}O_5$$

But the precise process by which it occurs in the liver cells is not known.

At a subsequent period the glycogen is transformed into dextrose and is returned to the circulation. Hence the blood of the hepatic veins contains more sugar than the blood of the arteries, and these latter more than the blood in the veins (except the hepatic). This is the generally accepted view, but it is denied by Pavy, and the whole subject is in a state of uncertainty.

7. The circulation of the blood is regulated in (a) *the arteries* by: (1) The elasticity and tone of the arteries, (2) the force and frequency of the cardiac contractions, (3) the resistance in the capillaries; (b) in the *capillaries* it is regulated by (1) the action of the heart, (2) the action of the arteries; (c) in the *veins* it is regulated by (1) the action of the heart, (2) aspiration of the thorax, (3) the contraction of the muscles, and (4) slightly by the valves in the veins.

8. The functions of the skin are: Protection, sense of touch, excretion, regulation of body temperature, absorption, and respiration.

CHEMISTRY.

1. *Anolytic methods* consist in breaking up a compound into its elements or into simpler compounds, as by acting on a carbonate with an acid we get water and carbon dioxide: $CaCO_3 + H_2SO_3 = CaSO_4 + H_2O + CO_2$.

Synthetic methods are the reverse of this, and consist in building up compounds out of simpler compounds or out of elements, as when $2H_2 + O_2 = 2H_2O$.

2. The monosodic carbonate is decomposed by the tartaric acid; sodium tartrate remains in the solution, and the liberated CO_2 causes the effervescence.

3. $HgCl_2 + 2KI = HgI_2 + 2KCl$.

4. Hydrogen is the essential element of all acids. *Hydracids* contain no oxygen; *oxyacids* contain oxygen as well as hydrogen.

5. Add cane sugar and evaporate; if the sugar turns black H_2SO_4 is present.

6.

	CHEMICAL NAME.	FORMULA.
(*a*) Aqua regia.	Nitrohydrochloric acid.	$HNO_3 + 3HCl$.
(*b*) Oil of vitriol.	Sulphuric acid.	H_2SO_4.
(*c*) Green vitriol.	Ferrous sulphate.	$FeSO_4$.

7. Ordinary alum is aluminium ammonium sulphate.

8. They are all alkaline. The acidity of the urine is due to monosodic phosphate.

9. *Ferrous salts,* on the addition of solution of potassium hydroxide, give a greenish-white precipitate, changing to green and then to reddish-brown, soluble in hydrochloric acid, but insoluble in ammonium hydroxide.

10. A *sulphate* is a salt of sulphuric acid, and contains more oxygen than a *sulphite,* which is a salt of sulphurous acid:

H_2SO_3	$CaSO_3$
Sulphurous acid	Calcium sulphite
H_2SO_4	$CaSO_4$
Sulphuric acid	Calcium sulphate

11. *Test for albumin in the urine:* "The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent it is to be treated with a few drops of magnesia mixture and again filtered. The reaction is first observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid and heated. If albumin be present a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3."

For sugar: Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth; to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color.

12. *Chemical test for blood:* Boil a fragment of dried blood with a drop of glacial acetic acid on a slide; on cooling, hemin crystals separate out. If the blood stain is not recent a crystal of sodium chloride should be added with the acetic acid.

PHYSICAL DIAGNOSIS.

1. *Moderate dullness* is found in: Consolidation of lung (in phthisis, pneumonia, gangrene, tumors), collapse of lung, congestion of lung, thickened pleura. *Absolute dull-*

ness is found in: Hydrothorax or pleurisy with effusion, empyema.

2. *Acute bronchitis* begins with coryza; soreness and tenderness may be behind the sternum; pain may be caused by coughing; expectoration is abundant; dyspnea is in proportion to the extent of the disease; the pulse-respiration ratio is not altered; fever is slight or absent; various râles may be present; the condition is generally bilateral; ends by lysis.

Lobar pneumonia begins with rigors, sometimes also with vomiting; pain on affected side; expectoration is rusty and tenacious; breathing is very rapid; the pulse-respiration ratio is much disturbed; there is considerable fever; crepitant râles are heard in first stage, also in third stage (râle redux); usually only one side is affected; ends by crisis.

3. Râles are produced within bronchi or lungs, while friction sounds occur in the pleura and do not pass away after coughing. The creaking or crackling pleuritic friction is often mistaken for a crepitant râle, and Tyson gives the following distinguishing characteristics: The friction sound does not pass away after coughing, while the crepitant râle may do so; the friction sound is more superficial and localized, while the crepitant râle is deep and more diffuse; the friction sound has a to and fro movement during inspiration and expiration, while the crepitant râle is only heard at the end of inspiration; pleuritic friction sounds are generally heard in the axilla or side of the chest, while the crepitant râle is most frequently posterior, often at the base of the lung.—(From Gould and Pyle's *Cyclopedia.*)

4. See French's "Practice of Medicine" (1907), page 630; or Osler's "Practice of Medicine" (1909), page 857.

5. Pneumothorax, or cavity in the lung.

6. In *endocarditis:* The murmur is soft, not harsh; it is systolic or diastolic; it may be transmitted; it is heard loudest at definite points; it is not followed by signs of effusion; the apex beat may be strong.

In *pericarditis:* The murmur is harsh; is not in connection with the heart sounds: is heard loudest at the base of the heart and over the precordium; is followed by (or accompanied with) signs of effusion; the apex beat is generally feeble.

7. See French's "Practice of Medicine" (1907), page 681; or Osler's "Practice of Medicine" (1909), page 635.

8. See French's "Practice of Medicine" (1907), page 579; or Osler's "Practice of Medicine" (1909), pages 802 and 807.

ETIOLOGY, PATHOLOGY, SYMPTOMATOLOGY, AND DIAGNOSIS.

1. See French's "Practice of Medicine" (1907), page 824; or Osler's "Practice of Medicine" (1909), pages 556, 557, and 560.

2. See French's "Practice of Medicine" (1907), page 907; or Osler's "Practice of Medicine" (1909), page 703.

3. See French's "Practice of Medicine" (1907), page 625; or Osler's "Practice of Medicine" (1909), page 849.

4. See French's "Practice of Medicine" (1907), page 498; or Osler's "Practice of Medicine" (1909), page 45.

5. In *pericarditis:* The friction sound is not affected by the patient holding his breath; the pulse is feeble; the pain is slight and is not affected by respiration. In *acute pleurisy:* The friction sound ceases when the patient holds his breath; the pulse is regular and strong; the pain is sharp and cutting, and is worse on inspiration.

6. See French's "Practice of Medicine" (1907), page 141; or Osler's "Practice of Medicine" (1909), page 150.

7. See French's "Practice of Medicine" (1907), page 218; or Osler's "Practice of Medicine" (1909), page 210.

8. See French's "Practice of Medicine" (1907), page 154; or Osler's "Practice of Medicine" (1909), page 170.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), pages 3 and 262.

2. *Forces by which the child is expelled:* (1) Uterine contractions; (2) contractions of the diaphragm; (3) contractions of the abdominal muscles.

3. See Williams' "Obstetrics" (1909), page 478; or Hirst's "Obstetrics" (1909), page 436.

4. See Williams' "Obstetrics" (1909), page 267; or Hirst's "Obstetrics" (1909), page 404.

5. In cases of *shoulder presentation*, if seen before labor, version should be performed to correct the malpresentation; in case of impaction a cesarean section is indicated; sometimes decapitation or embryotomy has been performed, but a cesarean section is preferable. Cases of shoulder presentation have been known to terminate spontaneously, but it is not advisable to rely on this possibility.

6. See Williams' "Obstetrics" (1909), page 846; or Hirst's "Obstetrics" (1909), page 939.

7. See Williams' "Obstetrics" (1909), page 403.

8. See Williams' "Obstetrics" (1909), page 325; or Hirst's "Obstetrics" (1909), pages 609 and 867.

GYNECOLOGY.

1. The following (from Gould and Pyle's *Cyclopedia of Medicine and Surgery*) is a useful classification of uterine hemorrhages, and also gives the causes of the same:

I. *Hemorrhages complicating pregnancy, labor, or the puerperium:*

A. Hemorrhages of pregnancy: Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) apoplexy of the decidua or placenta.

B. Hemorrhages of labor: Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) relaxation of the uterus; (4) laceration of the cervix; (5) rupture or inversion of the uterus.

C. Hemorrhages of the puerperium: Caused by (1) retained secundines; (2) displaced uterus; (3) displaced thrombi; (4) fibroid tumors; (5) hypertrophied decidua; (6) carcinoma.

II. *Hemorrhages occurring in the non-pregnant woman:*

A. In virgins before the age of thirty: Caused by (1) uterine congestion, the result of cold or exposure; (2) endometritis; (3) polypi and fibroid tumors.

B. In married women before the age of thirty: Caused by (1) subinvolution; (2) laceration of the cervix; (3) endometritis; (4) retrodisplacements of the uterus; (5) polypi and fibroid tumors.

C. In women after the age of thirty: Caused by (1) carcinoma of the cervix; (2) carcinoma of the body of the uterus; (3) sarcoma of the uterus.

The *treatment* depends on the cause. For details see any work on obstetrics or gynecology.

2. *Amenorrhea* may be *due* to: Absence or imperfect development of the generative organs; also to stenosis, obstructions, or atresia of the genital tract; also to operative removal of the uterus or its appendages. Other causative factors are: Acute infectious diseases, anemia, chlorosis, obesity, drug habits, alcoholism, overstudy, lack of exercise, exposure to cold, and various emotional causes. Pregnancy or lactation may be the cause.

Treatment consists in: Removing or treating the cause.

3. *Ectopic pregnancy* is a pregnancy in which the product of conception is not inside the uterine cavity. *Varieties:* Tubal, ovarian, interstitial, abdominal.

4. "The consistency of a tumor is ascertained by palpating it in all directions between the fingers of both hands and by tapping it to determine the absence or presence of fluctuation. The left hand is placed firmly over the abdomen on one side of the tumor and the fingers of the other hand strike or tap the abdominal wall on the opposite side; if fluid is present a thrill or wave is detected. The fluctuation wave, however, may be absent in multilocular cysts and in tumors having thick, tense walls or viscid contents. The length and intensity of the thrill over different parts of an abdominal enlargement are of great diagnostic value in many instances. Thus, in ascites and unilocular cysts there is no variation in the character of the wave, whereas in a multilocular tumor it differs as to length and intensity over different parts of the growth. In obese women the fat contained in the belly walls causes false wave or thrill when the abdomen is tapped, which may be mistaken at times for the presence of fluid. To eliminate this factor an assistant places the ulnar edge of his hand firmly on the abdominal wall in the median line, while the examiner taps the abdomen in the usual manner."—(From Ashton's *Gynecology.*)

5. As to preference between the vaginal and abdominal routes, the following is taken from Garrigues' *Gynecology:* "If the vaginal route is available it should be preferred, because it entails much less shock, requires a simple after-treatment, does not leave any visible cicatrix, predisposes less to hernia, and allows the patient to resume work in shorter time. On the other hand, the vaginal route is more difficult on account of the limited space. Hemorrhage is more troublesome to check, adhesions are harder to separate, and the bladder and intestine more exposed to injury and less accessible for repair. The pelvic cavity cannot be seen so well and the abdominal not at all. If tissue is left to mortify it emits an offensive odor."

6. *Symptoms of fibroids:* Hemorrhage, leucorrhea, pain, pressure symptoms (disturbances and displacements of bladder, rectum, urethra, and uterus), backache, bearing-down sensation, dysmenorrhea.

7. RETROVERSION. *Etiology:* Relaxation of uterine ligaments; increased weight of fundus; subinvolution; ovarian or other tumor pressing on front of uterus; distended

bladder; peritonitis or cystitis; prolonged dorsal decubitus and tight bandaging in the puerperium.

RETROFLEXION. *Etiology:* Tight lacing and tight clothing; congenital conditions; pressure by tumors; metritis and parametritis with adhesions; atonic conditions of the uterus following labor, and the conditions that cause retroversion.

8. A complete gynecological examination would include (1) anamnesis, including family history; personal history, with special reference to menstruation, labors, and miscarriages, and present illness. (2) Examination of the abdomen (and breasts), including inspection, palpation, percussion, auscultation, and mensuration. (3) Inspection of the external genitals. (4) Vaginal examination, digital, bimanual, and with speculum. (5) Bimanual examination of uterus and appendages. (6) Sometimes the sound, or curette, may be required. (7) Chemical and microscopical examination of the urine. (8) Microscopical examination of discharges or uterine scrapings. (9) Rectal examination. (10) Cystoscopic examination and perhaps ureteral catheterization. (11) In case of phantom tumor or pseudocyesis, anesthetization would be required.

SURGERY.

1. *The general rules for treatment of wounds:* Stop the bleeding; remove foreign bodies; make as aseptic as possible; coapt the edges; drain when necessary; dress, and secure rest to the part; bring about reaction; ease pain.

2. See Rose and Carless' "Surgery" (1908), page 112; or Da Costa's "Surgery" (1908), page 174.

3. See Rose and Carless' "Surgery" (1908), page 175; or Da Costa's "Surgery" (1908), page 154.

4.

CHANCRE.	CHANCROID.
First lesion of a constitutional disease, viz., syphilis.	A local disease.
Due to syphilitic infection.	Due to contact with secretion from chancroid.
Generally a venereal infection.	Always a venereal infection.
May occur anywhere on the body.	Nearly always on genitals.
Period of incubation never so short as ten days.	Period of incubation always less than ten days (generally about three).
Generally single.	Generally multiple.
Not autoinoculable.	Autoinoculable.
Secretion slight.	Secretion profuse and purulent.
Slightly or not at all painful.	Generally painful.
As a rule only occurs once in any patient.	May reoccur in same patient.
Buboes are painless and seldom suppurate.	Buboes are painful and usually suppurate.

5. See Rose and Carless' "Surgery" (1908), page 481; or Da Costa's "Surgery" (1908), page 464.

6. See Rose and Carless' "Surgery" (1908), pages 620, 621, and 622; or Da Costa's "Surgery" (1908), pages 588 and 590.

7. See Rose and Carless' "Surgery" (1908), pages 1175 and 1176; or Da Costa's "Surgery" (1908), pages 1110 and 1111.

8. See Rose and Carless' "Surgery" (1908), page 969; or Da Costa's "Surgery" (1908), page 821.

EYE, EAR, NOSE, AND THROAT.

1. ACUTE CATARRHAL CONJUNCTIVITIS. *Symptoms:* Hyperemia, profuse lacrymation, epiphora, a profuse discharge, sensation of sand in the eye, and sometimes photophobia. *Treatment:* Astringent and antiseptic washes are of value. Ascertain the underlying cause, if possible, and remove it. Anointing the lids with pure or medicated vaseline every evening is necessary. Alum, tannic acid, silver nitrate, and zinc sulphate are valuable as astringents. In intractable cases a 50 per cent. solution of boroglycerid in glycerin should be applied once daily.—(Gould and Pyle's *Cyclopedia.*)

2. GONORRHEAL OPHTHALMIA. *Symptoms:* Swelling and redness of the eyes, the presence of a discharge which soon becomes purulent, the conjunctiva of the lids becomes thickened, the eyelids are edematous, pain is severe, and there is some fever. *Dangers:* Ulceration and sloughing of the cornea, perforation of the anterior chamber, and blindness. *Management:* Protect the sound eye. Wash the eye carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a 2 per cent. solution of nitrate of silver must also be dropped onto the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt. In adults the irrigation must be frequent, about every half hour or hour.

3. *Management of corneal ulcer:* The treatment consists in putting the eye at rest, instilling atropin, and the application of a bandage. Leeches to the temple will relieve the pain. Hot compresses have the same effect. The eye should be douched with sublimate solution, 1:5000, and iodoform dusted upon the cornea. Stronger sublimate solution, boroglycerid 50 per cent., and formalin 10 per cent. are sometimes necessary. Cauterization is occasionally indicated. If perforation seems probable, it should be hastened by a puncture.—(Gould and Pyle's *Cyclopedia.*)

4. Cerumen may become impacted in the external auditory canal. It may cause deafness, tinnitus, giddiness, cough; it is diagnosed by being seen (with the aid of an ear speculum). Syringing with warm water containing sodium bicarbonate and glycerin; if near the orifice, it may be removed with a spud.

5. In *acute suppurative otitis media:* Pain (lessened when drum perforates), fever (100° to 104° F.), tinnitus, deafness (usually partial only), and purulent discharge (after perforation). *Treatment:* Dry heat allays the pain. Warmed water or warmed carbolic acid solution (1:40) may be used. Inflations, aspirations, etc., should be avoided. If the nares are filled with tough secretions, a spray of Dobell's solution may be used. If the pain continues over six hours in a child or over twelve hours in an adult without spontaneous perforation of the tympanic membrane, paracentesis of that structure should be performed. The concha and meatus should be smeared with petrolatum to avoid chapping, and the secretions should be gently mopped off as they appear. Under this treatment the ear usually returns to normal in two to three weeks."—(Gould and Pyle's *Pocket Cyclopedia of Medicine and Surgery.*)

6. *To arrest epistaxis:* (1) Try to cauterize the bleeding point; (2) plug the nasal cavity with gauze soaked in adrenalin; (3) inject into the nares a solution of peroxide of hydrogen: (4) plug the nares, anteriorly and posteriorly; (5) an inflating plug may be used.

7. The most conclusive evidence of diphtheria is the finding of the Klebs-Loeffler bacillus. See French's "Practice of Medicine" (1907), pages 192 and 196; or Osler's "Practice" (1909), pages 205 and 209.

8. *Intubation is indicated* in: Diphtheria, edema of glottis, and laryngeal obstruction. *Laryngotomy* in: Spasm of glottis, foreign body in the larynx, and dyspnea due to some sudden obstruction. See Rose and Carless' "Surgery" (1908), page 914; or Da Costa's "Surgery" (1908), page 770.

HYGIENE AND MEDICAL JURISPRUDENCE.

1. See French's "Practice of Medicine" (1907), pages 301, 326, and 307; or Osler's "Practice of Medicine" (1909), pages 115, 141, 120, and 144.

2. *Immunity* is the ability of a tissue or organism to resist infection. The absence or loss of this defensive power against infection is called *susceptibility.*

3. See French's "Practice of Medicine" (1907), page 107; or Osler's "Practice of Medicine" (1909), pages 97 and 99.

4. The school building should be as near as possible to the center of the area which it is to serve; the site should be airy and open, of sufficient size, and somewhat elevated; it should not be too near factories, busy streets, or railways; the soil should be as free as possible from organic matter. The building should be so planned that the corners look towards the four points of the compass. In this way the sun will have access to each side and to every room during some part of the day. The building should have as few stories as possible. The walls should be of brick or stone, and should be pointed with cement: the inner surface of the wall should be cemented smooth. The foundations must be solid. The general arrangement will depend upon size of site, number of scholars, and number of required rooms. Fifteen square feet per child should be allowed. Details will have to be considered on: plans, accommodations to be provided, shape and size of class rooms, distribution of rooms, teachers' rooms, corridors, entrances and staircases, playground, ventilation, heating, lighting, and placing of windows, sanitation, lavatories, water supply, drinking water, sewage disposal, removal of refuse, sanitary appliances, and drainage.

5. *Malpractice* is a failure on the part of a medical practitioner to use such skill, care, and judgment in the treat-

ment of a patient as the law requires; and thereby the patient suffers damage. If due to negligence only, it is *civil malpractice*. But if done deliberately, or wrongfully, or if gross carelessness or neglect have been shown, or if some illegal operation (such as criminal abortion) be performed, it is *criminal malpractice*.

6. A *delusion* is a belief in something which has no real existence, but is purely imaginary; and out of which the person cannot be reasoned. An *illusion* is a false or perverted impression, received through one of the senses.

7. In *tetanus*, the onset is gradual, is apt to begin with trismus, swallowing is difficult or impossible, the condition is persistent, consciousness is dulled or lost, and there is history of a wound or injury. In *strychnine poisoning* the onset is more sudden, the muscles of the jaw and neck are generally the last to be affected, there are marked remissions with muscular relaxation, consciousness is retained, and there is no history of a wound or injury.

8. The symptoms of acute poisoning by coal tar derivatives are given by Riley as follows: After a full toxic dose there soon follows a sense of chilliness and, especially in the case of antipyrin, nausea, and vomiting. The skin becomes cyanosed and covered with cold perspiration. The pulse becomes soft, slow, and weak, and the respirations slow and shallow, death usually resulting from respiratory paralysis. Occasionally paroxysms of sneezing have been observed.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	July 12
Arizona*	Ancil Martin, Phoenix	Phoenix	July 4
Arkansas	F. T. Murphy, Brinkley	Little Rock	Nov. 8
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	Aug. 2
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	July 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 12
Delaware	J. H. Wilson, Dover	Dover	June 21
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	July 12
Florida*	I. D. Fernandez, Jacksonville	Palatka	Nov. 9
Georgia	T. H. Goss, Athens	Atlanta	Oct. 11
Idaho*	W. F. Howard, Pocatello		Oct. 4
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	July 12
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	F. P. Hatfield, Olathe	Topeka	Oct. 11
Kentucky	J. N. McCormack, Bowling Green	Louisville	July 5
Louisiana	E. L. McGehee, New Orleans	New Orleans	Oct. 18
Maine	F. W. Searle, Portland	Portland	July 19
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 21
Massachusetts*	E. B. Harvey, State House, Boston	Boston	July 12
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 11
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct. 4
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 11
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 4
Nebraska	C. A. Carr, Lincoln	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	July 6
New Jersey	H. G. Norton, Trenton	Trenton	June 21
New Mexico	J. A. Massie, Santa Fe	Santa Fe	July 11
New York	C.F.Wheelock, Univ.of State of New York, Albany	New York, Albany, Syracuse, Buffalo	June 28
N. Carolina	B. K. Hays, Oxford	Wrightsville	
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	July 5
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 13
Oklahoma*	F. P. Davis, Enid	Guthrie	July 12
Oregon	B. E. Miller, Porland	Portland	July 5
Pennsylvania*	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	June 21
Rhode Island*	G. T. Swarts, Providence	Providence	July 7
S. Carolina	H. H. Wyman, Aiken	Columbia	
S. Dakota	H. E. McNutt, Aberdeen	Watertown	July 13
Tennessee	C. A. Abernathy, Pulaski	Memphis, Nashville, Knoxville	May —
Texas	M. E. Daniels, Honey Grove	Austin	June 28
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	July 4
Vermont	W. Scott Nay, Underhill	Burlington	July 12
Virginia	R. S. Martin, Stuart	Richmond	June 22
Washington*	T. C. McFadden, Seattle	Spokane	July 5
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	July 11
Wisconsin	J. M. Beffel, Milwaukee	Madison	July 12
Wyoming	S. B. Miller, Laramie	Laramie	June 22

* No reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Massachusetts.—Two new bills were recently introduced in the Legislature: (1) Any person qualified by law to practise medicine in any State may practise medicine in this State provided that he furnishes to the board of registration in medicine satisfactory evidence that he is so qualified. (2) No person shall be permitted to practise medicine or healing in this commonwealth unless he has received the degree of doctor of medicine from some college, university, or school authorized by the laws of the State in which it is situated to confer such degrees.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of June 18, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	582	168
Diptheria	433	40
Measles	972	21
Scarlet Fever	495	17
Smallpox	1	—
Varicella	176	—
Typhoid Fever	51	10
Whooping Cough	76	9
Cerebrospinal Meningitis	3	8
Malarial Fever	—	—
Totals	2,789	273

Causes of Earache.—Fernandez reviews the different causes of aural pain, taking in the first place aural neuralgia. He uses the pain to differentiate the different causes, and makes an exhaustive research work.—*Crónica Medico-Quirurgica de la Habana.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 17, 1910.

CHOLERA

		CASES	DEATHS
India, Bombay	April 26–May 3	..	2
Moulmine	April 10–16	1	1
Rangoon	April 17–23	..	3
Java, Batavia	April 17–23	2	1
April 14–May 1, 2 cases on S.S. Tamboura, en route to Suez and bound for Marseilles and Rotterdam.			
Russia, Ekaterinislav, government	April 21–May 13	47	8
Including cases previously reported.			
Bachmut	May 13–20	3	1
Leukoran	May 13–20	10	5
Kief	May 13–20	5	2
Siam, Bangkok	Mar. 29–April 25	6	6

YELLOW FEVER

Brazil, Manaos	May 1–7	..	3
Para	May 7–21	13	9
Ecuador, Guayaquil	May 1–15	16	6
Trinidad, Port of Spain	April 10–16	1	1

PLAGUE

Chile, Iquique	May 1–7	5	1
China, Canton	April 17–23	5	3
Hongkong	April 17–23	1	1
Ecuador, Guayaquil	May 1–15	3	..
India, Bombay	April 26–May 3	..	257
Kurrachee	April 24–30	62	58
Rangoon	April 17–23	..	24
Japan, Formosa	April 24–30	1	..
Kobe	May 1–7	..	1
Siam, Bangkok	Mar. 29–April 5	23	22
Straits Settlements, Singapore	April 17–23	1	1
Turkey in Asia, Basra	April 27–30	3	1
Jiddah	April 3–22	28	29

SMALLPOX

Brazil, Para	May 7–21	7	2
Canada, British Columbia, Fernie	May 22–28	5	..
Victoria	May 15–21	1	..
Ontario, Toronto	May 7–14	3	..
Chile, Vina del Mar	April 4	..	Present
China, Canton	April 10–23	10	..
Hongkong	April 17–23	1	1
Newchwang	April 24–30	..	Present
Shanghai	May 12–18	2	4
Columbia, Cartagena	May 1–15	..	Present
Egypt, Alexandria	April 1–30	8	3
Germany, general	May 8–14	7	..
Gibraltar	May 8–15	2	..
Great Britain, South Shields	May 1–15	1	1
India, Bombay	April 26–May 3	..	38
Kurracbee	April 24–30	8	..
Madras	April 23–29	..	4
Rangoon	April 17–23	..	20
Italy, general	May 9–15	3	..
Genoa	May 1–15	2	..
Naples	May 9–15	13	1
Japan, Formosa	April 17–23	1	2
Korea, Fusan	April 3–30	4	1
Manchuria, Dalny	April 24–30	1	..
Mexico, Aguascalientes	May 15–21	..	5
Guadalajara	May 14–20	..	1
Mexico	April 24–30	..	3
San Luis Potosi	April 3–May 14	9	10
Portugal, Lisbon	May 7–14	45	..
Russia, Libau	May 2–15	24	2
Moscow	April 17–May 7	70	25
Odessa	May 7–30	44	14
Spain, Cadiz	April 1–30	..	1
Valencia	May 8–14	1	..
Vigo	May 8–14	..	1
Straits Settlements, Singapore	April 17–23	15	6
Turkey in Asia, Basra	April 1–30	..	Present

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Original Articles.

THE FUNCTION OF THE CORPUS LUTEUM, THE EXPERIMENTAL PRODUCTION OF THE MATERNAL PLACENTA, AND THE MECHANISM OF THE SEXUAL CYCLE IN THE FEMALE ORGANISM.*

BY LEO LOEB,

PHILADELPHIA, PA.

ON several previous occasions[1] I published some of the results of my investigations into the conditions under which it is possible to produce experimentally the maternal placenta and deciduomata, and into the functions of the corpus luteum. I now intend to communicate some of the results obtained more recently, namely since the summer of 1909. I shall not aim at completeness either in enumerating the new facts ascertained, or in giving a detailed account of the individual series of experiments, but I shall content myself with emphasizing some of the more important conclusions at which I arrived and to point out in what respect my methods and my results differ from those obtained by previous investigators.

I may, however, mention that my conclusions are based on a very extensive series of investigations. In more than nine hundred guinea pigs the time of copulation was ascertained, and in the large majority of these cases the different parts of the uterus were examined microscopically and in several hundred of cases the ovaries were examined on serial sections. Our comparative studies in rabbits were much more limited.

Until recently our knowledge of the functions of the corpus luteum has been very unsatisfactory. I may briefly indicate the status of this problem without going into any detailed discussion of the literature, which is found in the review of R. Birnbaum.[2] L. Fraenkel[3] attributed to the corpus luteum in the main two sets of functions:

1. To prepare the mucosa of the uterus for the reception of the ovum. This the corpus luteum accomplishes by causing a hyperemia and softening of the tissues.

2. To cause the conditions of heat and menstruation.

Fraenkel disclaimed the assumption that the corpus luteum was in any way responsible for the building up of the maternal placenta. He cited as proof of his first contention experiments in which, after cauterization of the corpora lutea in the rabbit, pregnancy was interrupted. Many investigators repeated his experiments with contradictory results, and at the present time a very large number, perhaps the majority of authors, especially gynecologists, have abandoned the hypotheses of Fraenkel as unfounded or improbable.

It is not difficult to recognize why this line of research did not lead to a more satisfactory conclusion. The reason is the following: Fraenkel and all the later investigators used as a criterion for the function of the corpus luteum the effect of certain operative interferences (burning of corpora lutea, excision of ovaries) upon the development of pregnancy. This, in the first place, is an uncertain reaction, inasmuch as pregnancy can be interrupted in the guinea pig as well as in the rabbit by various nonspecific operative procedures: and secondly, even if it could be established that the corpus luteum does influence pregnancy, we would still be entirely in the dark as to the mechanism by which it does so.

We introduced a new test for the influence which various external and internal factors, and especially the corpus luteum, exert upon the sexual processes, namely, their influence upon growth-processes in the uterus. Here we have to deal with an objective reaction free from the many variable factors that interfered continuously with the progress of previous investigations. In order to test the influence of the ovaries and of the corpus luteum upon the growth-processes taking place in the uterus, it was especially necessary to exclude one variable factor of importance, namely, the contact between the ovum and the uterine mucosa. Various previous investigators had attributed exclusively to the contact with the ovum those changes in the uterine mucosa which take place after fertilization. We could easily eliminate this influence of the ovum by ligating the Fallopian tubes near their uterine end within the first forty hours after copulation, or more generally after the rupture of the follicles (ovulation).

Thus we could readily establish the fact that all growth phenomena observed in the uterine mucosa in the early stages of pregnancy can be produced without contact with an ovum.

Quite recently, after publication of several of our previous communications, Bouin and Ancel[4] adopted our method of investigation. For the first time in the course of their investigations they used objective growth phenomena taking place in the uterine mucosa as a reagent for their experimental investigations; they modified slightly our procedure, by ligating the vas deferens of the male instead of the Fallopian tubes of the female in order to prevent the passage of a fertilized ovum through the uterine cavity. Of course their procedure does not exclude the contact of the unfertilized ovum with the uterine mucosa.

We shall now briefly state some of the results which we have obtained in the course of the last year.

1. The corpus luteum exerts an influence that

*From the Laboratory of Experimental Pathology of the University of Pennsylvania.

acts as a formative stimulus upon the mucosa of the uterus and induces here growth phenomena. These growth phenomena are of two kinds.

a. In conjunction with the ordinary metabolic processes taking place normally in the uterine mucosa and in conjunction with those stimuli that induce normal regeneration in the epithelium, the corpus luteum regularly calls forth not very pronounced changes in the mucosa of the uterus. Such changes are found quite independently of the contact action of an ovum in the uterine mucosa of the guinea pig and of the rabbit. In the former they consist in a moderate mitotic proliferation of the interglandular connective tissue which becomes at the same time more succulent, and in the latter we notice a marked amitotic proliferation of the epithelial nuclei. In the guinea pig these proliferative processes reach their maximum about six or seven days after ovulation and very soon come to a standstill; in the rabbit the amitotic proliferation of the nuclei is found approximately fifteen days after ovulation. If we extirpate in the guinea pig the ovaries very soon after the rupture of the follicles these growth phenomena do not take place.

b. If to the action of the corpus luteum a mechanical stimulus is added the changes proceed much further and lead to the production of a maternal placenta which in the case of the guinea pig may assume a tumor-like appearance. A deep cut into the wall of the uterus may act as such a mechanical stimulus. The maternal placenta is, therefore, not produced merely by the action of the corpus luteum, but is due to a combined action of mechanical stimuli and of the influence of the corpus luteum.

Or, we may state it in a somewhat different way: The corpus luteum sensitizes the mucosa and ordinary metabolic or the normal regenerative processes are sufficient to cause slight growth phenomena in the uterine mucosa at a certain stage of the development of the corpus luteum. If, however, more potent mechanical stimuli act upon the sensitized mucosa, a maternal placenta is produced.

In a general way we may, therefore, state the corpus luteum enables the uterine mucosa to respond to certain stimuli with growth phenomena; these growth phenomena differ quantitatively according to the intensity of the stimuli used. If the stimuli are weak we find merely predecidual changes (mentioned under *a*) and when the stimuli are stronger, they lead to the production of the maternal placenta (mentioned under *b*). Qualitatively these changes are of the same kind and the predecidual changes indeed form a part of the maternal placenta and represent the initial phenomena in the formation of this structure.

Recently Bouin and Ancel have confirmed our finding that the corpus luteum without the addition of mechanical stimuli causes predecidual changes in the mucosa of the uterus of the rabbit (amitotic nuclear proliferation) and they add that these changes are preceded by mitoses and swelling of the mucosa. Inasmuch as the ephithelial mitoses are not a characteristic feature of the placenta, we have not yet given especial attention to their occurrence, leaving a more detailed description of the predecidual changes in the uterine mucosa of the rabbit to a later study.

2. The results of our experiments leave no doubt whatever that the corpus luteum is indispensible for the formation of the maternal placenta, inasmuch as in only one exceptional case did we find a very small area of decidual tissue after an early extirpation of the corpora lutea. Thus far, however, our experiments had not enabled us to state definitely by what mechanism the corpus luteum exerts this influence. We could readily conceive that the corpus luteum might act upon the uterine mucosa with the aid of a nervous mechanism. A so-called internal secretion might also be suggested. But, without actual experiments proving either, such explanations must be considered as purely hypothetical. Several years ago I showed that it is possible to obtain the formation of maternal placenta (deciduomata) even in the uterus transplanted into the subcutaneous tissue, provided the transplantation has been carried out approximately five to seven days after ovulation. At first I was inclined to consider this experiment as a proof that the corpus luteum acts through an internal secretion. But very soon I recognized that it merely proved that the formation of the maternal placenta takes place independently of a nervous mechanism, after the stimulus for its formation has been transmitted to the mucosa. Such a transmission might have already occurred at the time of the transplantation of the uterus. For reasons which I cannot go into at this time, it is impossible to obtain the formation of maternal placenta in the transplanted uterus, if the transplantation has been carried out immediately after ovulation. Nevertheless, it is possible to prove directly that the influence of the corpora lutea is exerted by means of an internal secretion, in the following way. If we excise the ovaries six days after ovulation and at the same time apply the mechanical stimuli to the not transplanted uterine mucosa, we still obtain, usually, the formation of maternal placenta, as I stated in some previous communications; but the quantitative examination of such newly formed tissue shows the quantity of maternal placenta thus formed to be much smaller than in the control experiments, in which the ovaries had been left intact. There is, therefore, even later than six days after ovulation an influence exerted through the ovaries acting upon the uterine mucosa, and it can be shown that this influence is not of a nervous character, but is exerted by means of a certain substance which is given off to the body fluids, and is thus transmitted to the uterine mucosa. If we transplant the uterus of that period, namely, six days after ovulation, and extirpate the ovaries at the same time, the maternal placenta in the transplanted uterus, if produced under such conditions, is likewise much smaller than that in the transplanted uterus when the ovaries are left intact. This proves without doubt that in this case the internal secretion of the ovaries is responsible for the production of the maternal placenta. That this influence of the ovaries is dependent upon the presence of the corpora lutea and not of other parts of the ovaries we conclude from experiments in which we proved that at early periods after ovulation the only parts of the ovaries of importance for the formation of the maternal placenta are the corpora lutea.

3. The experiments just recorded prove still another point, namely, that for the production of the maternal placenta it is not sufficient that the mechanical stimulus merely act upon the mucosa after a certain amount of the corpus luteum substance has been secreted for a short period; but, in order to obtain from a quantitative point of view the full development of a maternal placenta, it is necessary that the corpus luteum continue to secrete the substance even at later periods. We need, therefore, a

continuous cooperation between the mechanical local stimulus and the chemical influence exerted through the corpus luteum. We may assume that the latter has continuously to sensitize the uterine mucosa, in order to make the cells of the mucosa responsive to the mechanical stimuli. Nothwithstanding this relationship of the two sets of stimuli, six days after ovulation the mucosa of the uterus is sufficiently sensitized in the majority of cases to respond to mechanical stimuli with the production of the maternal placenta, although, as stated above, the full quantitative response can not be obtained without a continued cooperation of the ovaries.

4. Our further experiments, carried out under still more favorable conditions, again demonstrated that the corpus luteum substance acts merely upon the uterine mucosa, the mucosa of the Fallopian tubes for instance being at no time sensitized to mechanical stimuli, and this is, as we pointed out before, probably one of the reasons, why in the guinea pig it is impossible to obtain a tubal pregnancy experimentally.

5. At a very early stage of our experiments we had planned to prove the existence of the substance given off by the corpus luteum by injection of blood of a suitable animal in which ovulation had taken place, into a guinea pig previously castrated. Cuts into the uterus of the castrated guinea pig should then lead to the production of maternal placenta, if the substance had been transmitted with the blood of the first guinea pig to the castrated animal. A few such experiments which I carried out several years ago proved negative, although we had ascertained through special investigations that at an early stage after castration the uterus is not changed to any marked degree. Soon after ovulation the uterus of the guinea pig becomes succulent, and as we described before, predecidual changes take place in the uterine mucosa within five to six days.

In animals which have been castrated the uterus looses its succulence and the predecidual changes do not take place. The uterine mucosa returns to its resting stage. Fibrous changes in the uterus, which have been found after castration, must follow at a later period. It cannot, therefore, be due to such secondary structural changes in the uterine mucosa after castration if the injection of blood of an animal that has recently ovulated into a castrated animal remains without effect.

In the meantime our experiments taught us that a constant cooperation between the action of the corpus luteum and the mechanical stimuli exerted upon the mucosa is necessary in order to obtain the full development of the maternal placenta. It was, therefore, not probable that even a periodically repeated subcutaneous injection of the fresh corpus luteum substance could act as a substitute for the constant physiological activity of the corpus luteum. These considerations induced us to defer experiments in which corpus luteum substance was administered to castrated guinea pigs.

Last winter we carried out three experiments, in which previously castrated guinea pigs were injected usually every day, sometimes every second day with fresh corpora lutea of other guinea pigs. In two series the corpora lutea were six to eight, in one series two to four days old. Cuts made in the uterus of such animals did not lead to the production of maternal placenta. In two cases, however, I found several mitoses in the connective tissue of the mucosa, before the cuts had been made, and after the corpora lutea had been injected for several days. We can, therefore, positively state that intermittent injection of the corpora lutea of the guinea pig cannot to any great extent act as a substitute for the action of the living corpus luteum. We cannot deny, however, the possibility that a very slight influence might be exerted by the corpus luteum substance injected subcutaneously.

Our previous experiments proved without doubt that the corpus luteum acts by means of a substance given off to the body fluids. If, notwithstanding this fact, the subcutaneous injection of corpus luteum substance does not act as a substitute for the living organ this must in the light of our other experiments in all probability be interpreted in the following way: The living organ discharges continuously a small amount of the specific substance. The latter is carried through the body fluids to the mucosa of the uterus, and it does not, therefore, accumulate to any great extent in the blood or in the corpus luteum itself; a periodical injection of very small quantities of this substance cannot take the place of a continuous discharge of the substance which occurs probably in the living organ.

I may here mention that recently Dr. Robert T. Frank, of New York, tested the effect of extracts of the corpus luteum of the pig on the production of deciduomata in the guinea pig and rabbit, and he also obtained negative results.

6. In our previous work the mechanical stimuli which we applied consisted in deep incisions into the uterine wall. Further experiments proved that such cuts do not act through the wound as such, but indirectly through a complete or partial eversion of the uterine mucosa, which they cause. If such an eversion is prevented by the application of a circular ligature near the cut end of the uterus, the maternal placenta is only formed in that small remnant of the uterus which is left between the ligature and the cut end, while on the other side of the ligature no decidual changes take place. The stimulus exerted upon the connective tissue of the mucosa affects, therefore, at first the uterine epithelium, producing some changes therein and only secondarily is the connective tisue affected. This can be proven in the following more direct way: We found that it is possible to imitate the action of the ovum directly by introducing a foreign body (thin glass rod, platinum wire, paraffin) into the uterine cavity at the proper period, the action of the ovum being excluded in the usual way. Within a few days the uterus increases in volume to a surprising extent, this increase in volume being caused by the new formation of the maternal placenta, wherever the foreign body came in contact with the mucosa. Here again the foreign body acts first upon the epithelium, causing a necrosis of the epithelial surface layer at some places and thus initiating the enormous tissue proliferation. A preceding necrosis of the epithelium, however, is not necessary, as has been proved by our experiments, mentioned above, in which a mere eversion of the epithelium was followed by the same changes. The ovum also injures the surface epithelium at the point of fixation, and we thus see *that it is possible to imitate the action of the ovum by an inert foreign body;* both foreign body and ovum, however, need the co-operation of the corpus luteum. The *mechanical* effect of the attachment and of the growth of the ovum is, therefore, sufficient to explain, in the main, the influence which the ovum exerts in the production of the maternal placenta.

7. In our previous investigations we had found that extirpation of the corpora lutea soon after ovulation prevents the formation of the maternal placenta, which takes place under the influence of a mechanical stimulus. If the corpora lutea have been extirpated on the second or fourth day after ovulation frequently small deciduomata form. Later extirpation of the ovaries does not prevent the production of the maternal placenta, but it diminishes its size, as we have already pointed out. We now tested the effect of the extirpation of the corpora lutea upon the development of pregnancy. In the guinea pig, after removal of the corpora lutea on the first, second and third day after copulation, no trace of pregnancy is found, if we examine the uterus on the nineteenth day after copulation. If, however, the corpora lutea are removed six or seven days after copulation, in the large majority of cases pregnancy has progressed normally on the nineteenth or twentieth day after copulation.

On the basis of our former work we are now in a position to understand such an outcome. The normal course of pregnancy is interfered with, if the corpora lutea are excised at such an early stage, because under such conditions mechanical stimuli are unable to produce a sufficient quantity of maternal placenta, as we have already pointed out; if, on the other hand, the corpora lutea are extirpated six days after copulation, a certain quantity of placental tissue can be formed, and the ovum is able to develop under such conditions. Thus the influence of the corpora lutea on the development of pregnancy has been satisfactorily explained through our experiments. Those experiments allow one more conclusion: We saw that a maternal placenta can develop around the dividing ovum, if the corpora lutea have been extirpated six days after copulation. On the other hand we have definitely proven that even six days after copulation the internal secretion of the ovaries is still of importance for the full development of the maternal placenta, and that their extirpation at that time diminishes the amount of placental tissue formed. From these facts it follows that the embryo does not need for its development the maximum quantity of placental tissue which a certain part of the uterine mucosa could furnish. This is another instance of the existence of a certain reserve power that is not made use of under natural conditions.

On former occasions I emphasized the fact that the uterus has a much greater capacity for producing maternal placenta than is ever made use of during normal pregnancy. Especially after the introduction of foreign bodies into the uterine cavity the newly formed decidual tissue far exceeds the quantity of maternal placenta produced in pregnancy.

8. So far I was concerned with one function of the corpus luteum, namely, that of enabling the uterine mucosa to proliferate, I was, however, able to establish securely another function of the corpus luteum, which is perhaps of no less importance: *The corpus luteum changes the periodicity of the sexual cycle, it prolongs the sexual period, the interval between two successive ovulations, by preventing the rupture of the follicles.* This function is exerted by the corpus luteum in the non-pregnant animal as well as in the pregnant animal, the corpus luteum in the latter case preventing interference with the progress of pregnancy by preventing a new follicle to rupture.

In a large series of experiments I could prove that, while the sexual cycle in the guinea pig has usually a duration of approximately nineteen (rarely eighteen) to twenty-four days, after extirpation of the corpora lutea, the sexual cycle usually has only a duration of twelve to fifteen days. After extirpation of the corpora lutea, approximately six days after copulation (or earlier) new follicles usually rupture spontaneously without the presence of a male on the twelfth to the fifteenth day after the previous copulation. This rupture of follicles takes place even, if a pregnancy is proceeding at the same time; *the growth of the embryo does not prevent a new rupture of follicles; it is merely the influence of the corpus luteum that has such an effect.* Even during pregnancy a new rupture of follicles usually takes place on the twelfth to fifteenth days after the fertilizing copulation, if the corpora lutea have been removed approximately six days after the last ovulation. This effect of the corpora lutea is not of a mechanical but evidently of a chemical nature; it affects also the second ovary, even if corpua lutea had been present and removed only in the first ovary; and in such a case the ovary in which no cut had been made also reacts.

Under the normal conditions the corpus luteum of the non-pregnant animal lives approximately eighteen to twenty days, when degenerative processes set in; and the beginning degeneration of the corpora lutea acts in a similar manner as their extirpation. A new rupture of the follicles can now take place. During pregnancy, which in the guinea pig lasts approximately sixty-six days, factors are at work (presumably some direct or indirect action of the embryo—this is a point which we still intend to test experimentally) that prolong the life of the corpora lutea, and correspondingly the follicles are prevented from rupturing until the corpora lutea begin to degenerate at the conclusion of the pregnancy.

Thus far we had progressed in our work, when we found in the literature a communication by T. Beard,* in which this author gave expression to the hypothesis that the corpus luteum might have the function of preventing the rupture of the follicles during pregnancy. He did not undertake to prove this suggestion, and his hypothesis does not absolutely correspond to reality. The corpus luteum has a wider function than he conceived of; it not only prevents ovulation during pregnancy, but it delays ovulation also in non-pregnant animals. It changes the sexual cycle, a conception rather contrary to what Beard assumed. But, notwithstanding these imperfections in his hypothetical conclusions, we cannot but express our admiration for the scientific imagination of Beard. He has not received his due recognition, and what now has proved to be correct in his hypothesis we find in the literature without justification attributed to others—a mistake transmitted from one writer to another and a marked example of a not uncommon occurrence.

Concerning Fraenkel's hypothesis, it attributes on the one hand functions to the corpus luteum which it does not possess; the corpus luteum does not cause heat in the guinea pig, but, it has the opposite function; it prevents heat by preventing the rupture of the follicles. On the other hand, L. Fraenkel underestimates the function of the corpus luteum, in as much as the latter does not only induce hyperemia and softening of the mucosa, but is one of

*Anatom. Anzeiger 1897, XIV p. 97.

the principal factors that build up the maternal placenta. As we saw above, the experimental means at the disposal of L. Fraenkel and of his successors did not make it possible for them to get a clear insight into the functions of the corpus luteum.

9. In the guinea pig the various stages in the sexual cycle are accompanied by definite changes in the ovarian follicles, which to a certain extent enable us to diagnose in what period of the sexual cycle the animal stood. Soon after ovulation all follicles, with the exception of the smallest ones, show more or less pronounced degeneration of the granulosa. In the case of the larger follicles this stage of granulosa degeneration is soon followed by atresia (connective-tissue organization). The smaller follicles, in which only a few cells degenerated, may recover.

Gradually the small follicles begin to grow, and as soon as they reach their full size they also begin to degenerate; in the meantime other maturing follicles take their place. This process continues as long as a corpus luteum is present. As soon as in the corpus luteum degeneration has set in a certain change takes place, in a few mature follicles the granulosa remains preserved, these follicles enlarge and rupture and their granulosa and theca interna become transformed into new corpora lutea. At this time again an almost general degeneration of the other follicles sets in in the ovary and a new cycle begins.

10. We may now briefly recapitulate the principal features in the sexual cycle. At a certain period the animal enters the period of heat; a few ovarian follicles rupture and become transformed into corpora lutea. In the early stage of their life the corpora lutea are one of the factors initiating growth processes in the uterine mucosa by means of an internal secretion. If no pregnancy takes place, these proliferative phenomena are slight. If pregnancy does take place, the ovum adds a mechanical stimulus to the sensitizing action of the corpus luteum and a maternal placenta is produced. The ovum can be substituted by an indifferent foreign body. Within a few days this receptive period of the uterine mucosa is followed by a refractory period, in which the uterus no longer reacts to mechanical stimuli, notwithstanding the functioning of the corpus luteum. In this period the corpus luteum exerts a new function, it prevents the rupture of new follicles and prolongs artificially the period of the sexual cycle. During pregnancy some factor extends the life of the corpus luteum, and the period of the non-rupture of follicles is thus prolonged. At the end of the pregnancy the corpus luteum degenerates, new follicles rupture, and a new cycle begins, the pregnancy as such, does, however, not prevent a new rupture of follicles. If no pregnancy is present the factor that prolongs the life of the corpus luteum is absent. The corpus luteum degenerates much earlier and permits new follicles to rupture. The changes in the corpus luteum and in the uterus are accompanied by rhythmic changes in the ovarian follicles.

In conclusion, I wish to emphasize that the conception of this mechanism is not hypothetical, but rests on a secure foundation of experimentally established facts.

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ON THE AFFECTIONS CLINICALLY SIMULATING TYPHOID FEVER, WITH ESPECIAL REFERENCE TO AND REPORTS OF CASES OF BRILL'S DISEASE.

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Attesting to the evolution in clinical observation which our present knowledge of the differentiation of the exanthemata represents are the historical facts[1] that from Sydenham's time up to the beginning of the eighteenth century the term scarlet fever was applied to no less than four distinct diseases and that only about seventy-five years ago was the distinction recognized between typhus and typhoid fever. Owing largely to important bacteriological investigations in which Gärtner[2] in 1888 was the pioneer, the terminology of the older writers as to exceptional cases of typhoid fever began to undergo changes. Thus the appellation "abortive typhoid" was often replaced by "food poisoning" and some of the outbreaks previously regarded as "mild typhoid" were differentiated as epidemics of "paratyphoid fever." Based on interpretations of distinctive clinical and negative bacteriological evidences a further advance is the relegation into a separate though unclassifiable group of a fairly common condition which has previously been regarded as atypical typhoid fever.

Some of the acute infectious diseases which occasionally assume a temporary clinical picture of typhoid fever are miliary tuberculosis, septic endocarditis, malaria, influenza and the meningitides. Let us disregard this casual simulation in a *tentative classification* of the conditions which frequently bear more or less clinical resemblance to typhoid fever: (1) Intestinal Sapremia. (2) Coli Infections. (3) Meat Poisoning. (4) Paratyphoid Fever. (5) Brill's Disease.

1. *Intestinal Sapremia.*—In conditions of marked constipation, headache, apathy, a dry furred tongue, anorexia, prostration, abdominal pain, sustained temperature elevation, palpable spleen and an eruption may all be present to suggest the possible existence of typhoid fever. The eruption is, however, profuse and blotchy, macular and erythematous, and is not likely to be mistaken for a roseola nor for the eruption peculiar to Brill's disease (*vide infra*). Moreover, the administration of a brisk saline purge causes prompt defervescence and rapid disappearance of the rash. If, however, the duration of symptoms is not definitely ascertainable, or if they have been of longer duration than usual, the suspicion of typhoid fever may make active catharsis inadvisable. Such circumstances have been known by the writer to prolong for a week or more the ultimate exclusion of typhoid fever by means of the clinial course and the diagnostic aids of the laboratory.

2. *Coli Infections.*—Cases of aggravated constipation exhibiting typhoidal symptoms are occasion-

ally met with in which isolation from the urine and blood of the *Bacillus coli communis* or positive and exclusive agglutination of the patient's serum against most strains of this organism prove these exceptional cases to be a general coli infection rather than an intestinal sapremia.[3] An epidemic of this nature has been reported in Bavaria.[4]

Sanarelli has shown that the bacillus coli in the intestine increases in number and virulence in typhoid fever.[5] Moreover, the serum of typhoid patients frequently gives an agglutinative reaction with races of *Bacillus coli*, and a bacteriuria in typhoid fever shows the presence of this organism in the urine.[1] The clarification of the exact relationship of the *Bacillus coli* to typhoid fever is a problem for future solution.

3. *Meat Poisoning.*—In the outbreaks of meat poisoning which occur from time to time the clinical course of the disease varies considerably. In many of the cases the symptoms suggest a simple gastroenteritis; some of the severer cases resemble cholera nostras; while still other cases bear clinical as well as pathological resemblances to typhoid fever.[6] In the last type differentiation from typhoid fever has been made practicable by the discovery of the efficient cause, which is either Gärtner's enteritidis bacillus, or the *Bacillus paratyphosus B.* Both of these organisms can be distinguished biologically from the colon bacillus and the *Bacillus typhosus*: and recent studies have conclusively shown that the serum of patients ill with meat poisoning regularly agglutinates known cultures of the causative organism.[7]

Poisoning caused by the proteus or colon bacillus in decayed meat and certain other forms of bacterial food poisoning have not been touched upon for the reason that the symptoms produced are not likely to be mistaken for those of typhoid fever.

4. *Paratyphoid Fever.*—That there exists at least one infectious disease not caused by the Eberth bacillus though materially componental of the previously so-called typhoid fever was firmly established nearly a decade ago by the studies of Achard and Bensuade, Widal, Gwyn, Durham, Cushing, Schottmüller, Coleman and Buxton, Meltzer, and others.[8] An important and more recent contribution to the literature of this subject is that of Herbert Fox.[9]

Indistinguishable clinically from typhoid fever, and occurring both sporadically and in epidemics, paratyphoid fever can be diagnosed only with the aid of the bacteriologist, who must isolate from the blood, urine or feces the paratyphoid bacillus, or else obtain properly controlled positive agglutination reactions against this organism either (preferably) with the serum of a highly immunized animal or with the patient's serum. In bacteriological investigations of epidemics abroad the *Bacillus paratyphosus B.*, is recovered much more frequently than the *Bacillus paratyphosus A.*, while in America the reverse seems to hold true.[9] Thus Proescher and Roddy have reported forty-eight cases of type A paratyphoid occurring in Allegheny.[10] Recently, however, in an epidemic in Virginia, agglutination tests were positive exclusively against the *Bacillus paratyphosus B.*[11] In another recent epidemic in a barracks in France similar results were obtained after the *Bacillus paratyphosus B.* had been isolated from the blood in seven of the eight cases in which cultures were made.[12] There is still some uncertainty, however, as to the diagnostic adequacy of such serum reactions without other definite bacteriological proof as to etiology. Occasionally, as in Libman's celebrated case,[13] the serum of a patient from whose blood a paratyphoid bacillus has been isolated will agglutinate, not only this organism, but also the *Bacillus typhosus* in low dilutions. Interesting are the facts that immunity from paratyphoid is not conferred by a previous attack of typhoid and that there is a paratyphoid cholecystitis similar to that complicating typhoid fever.[14]

Because of the etiological relationship of the *Bacillus paratyphosus B.* to certain forms of bacterial food poisoning, the question arises whether there is a common infectious disease assuming an acute form as meat poisoning and a subacute form as paratyphoid fever. Some of these problems will probably be solved by the continued studies of competent bacteriologists such as the recent painstaking investigations of Proescher and Roddy.[7]

5. *Brill's Disease.*—Because of the complex symtomatology and protean typology of typhoid fever caution should be exercised before stating that an affection bearing clinical resemblance to atypical typhoid fever is not the same disease, especially if the condition has hitherto remained unrecognized by all internists except N. E. Brill and by all pathologists except E. Libman. In no spirit of disapprobation be it said that both of these observers have taken advantage of and have been able to evolve a new disease from the criteria born of scientific exactness and bacteriological scrutiny which now limit the scope of the term typhoid fever. Fortunately all authorities are now agreed as to certain criteria based upon the following facts: (*a*) the Widal reaction is present in about 95 per cent of all cases: (*b*) the Eberth bacillus can be isolated from the blood in over 90 per cent of all cases; and (*c*) the roseola is an almost constant sign. If, therefore, in a large number of cases the true roseolar eruption is regularly absent and the blood culture and Widal are regularly negative, we are justified in concluding that the great majority of these cases, to say the least, are not typhoid fever. Similar negative evidence with reference to the paratyphoid roseola and the paratyphoid organisms and agglutination reaction also establishes the exclusion of paratyphoid fever. Furthermore, if there are definite and constant clinical characteristics in the cases referred to distinguishing them from typhoid and paratyphoid fever, such a deduction is indisputably warrantable.

Every practical clinician of to-day, provided that he has fair training, experience and acumen, must recollect having at one time or another treated what passed for atypical typhoid fever—not, however, without the conviction that he was not actually dealing with typhoid. That this is true is shown by the following incident. The house physician at Beth Israel Hospital had suggested influenza as a discharge diagnosis, and on being questioned as to the propriety of this designation, Dr. S. Horwitt replied that he knew the case was not really influenza, but that the system of nomenclature in vogue at this hospital (the Bellevue system) excluded vague terms like autointoxication; and furthermore that though the condition resembled typhoid or paratyphoid somewhat, neither of these appellations would be justifiable. The interne's response demonstrated his recognition of an unclassifiable condition, which in fact was a typical case of the disease which we have called Brill's disease in spite of the undesirability of eponymic nomenclature.

For a detailed description of this affection the reader is referred to Brill's convincing and comprehensive presentation of the subject in the *American Journal of the Medical Sciences* for April, 1910,[15] and for a critical survey to an editorial in the Medical Record for April 30, 1910.[16] In this communication we shall limit ourselves to: (*a*) a justification of the proposed admittance into medical nosography of this affection; (*b*) remarks on the facility and practical importance of differentiating it from typhoid fever; and (*c*) reports of three cases.

As early as 1896 Brill had "noticed a type of disease somewhat similar, but characteristized by many features irreconcilable to the picture of typhoid fever;"[15] and two years later Brill published "A Study of Seventeen Cases of a Disease Clinically Resembling Typhoid Fever, but Without the Widal Reaction."[17] These studies have been continued ever since with the best obtainable laboratory facilities for agglutination tests and blood, stool and urine cultures, all of which were most systematically carried out with the last fifty cases of Brill's series, and have proven that "the affection has nothing in common with typhoid, paratyphoid and typhoid-colon or intermediate group infections."[15] In 1906, speaking before the Johns Hopkins Hospital Medical Society, E. Libman stated that "in the group of cases described by Dr. Brill, which resemble typhoid fever somewhat, and which have been considered to have been possibly cases of paratyphoid fever, we could not succeed in isolating any organisms from the blood. There is no proof as yet that they are cases of paratyphoid, and should, therefore, be classed for the present as a *separate group*."[18]

The discussion following Dr. Brill's original presentation of this subject before the Section on Medicine of the New York Academy of Medicine evinced a hesitancy to accept as a newly discovered disease a condition for which there existed only negative bacteriological and pathological evidence. Some of the participants in this criticism seemed to be oblivious of the fact that medical nosology was well established before the advent of the bacteriologist. Were his services required to distinguish measles from scarlet fever, typhoid fever from typhus, and infantile scurvy from rheumatism?

It is no exaggeration to state that the clinical differences between Brill's disease and typhoid fever are so pronounced and easy of recognition that the practical differentiation is less difficult than that between German measles and measles or that between German measles and scarlet fever. Let us now consider these differences seriatim.

The most striking mark of differentiation is the *eruption*, which appears as a single crop usually before the seventh day of the disease. There are no new crops. Appearing first on the abdomen and back, the rash spreads rapidly to the chest wall and extremities, is sometimes seen on the neck, palms and soles, and is often more profuse on the upper extremities than on the trunk. The rash is a profuse one and sometimes a number of the lesions run together to form small patches. The spots are maculopapular in character and usually have an oval, indistinct outline. On stretching the skin or making pressure over the spots, the latter fade somewhat but do not disappear entirely. Sometimes hemorrhagic spots are seen interspersed with the other lesions and frequently there are present in addition suspicious but not typical roseolæ. The eruption fades rapidly at the time of defervescence, but its remains are seen for some days in the form of brownish stains.

The febrile invasion is usually abrupt and is ushered in with a chill or chilly sensations followed by very severe headache and high fever. For a variable period previous to the invasion there is general malaise. The temperature curve reaches its acme in about three days and then remains sustained till the time of crisis or rapid lysis (see temperature charts of illustrative cases). While the fever lasts the headache persists severe and in a small proportion of cases there is also meningismus. Apathy and prostration develop very early, and the patient ill with Brill's disease looks as poisoned and as sick in the first week as does the typhoid patient in the second or third week.

Just as distinctive as the eruption is the *prompt recovery of the patient at the time of defervescence*. After the temperature has remained continuously high for a period varying from one to two weeks, there is a fall to normal in from ten to sixty hours; thereafter, in the great majority of cases, the temperature never again rises above normal. No case has been observed with a relapse or with serious sequelæ, and the mortality is nil. At the time of crisis or rapid lysis, the mental condition becomes bright, the headache disappears and the patient says that he is entirely well. It is usually difficult and apparently unnecessary to keep the patient in bed for as long as a week after the temperature has fallen. Characteristic is this rapid convalescence to complete recovery.

A leucopenia in this disease is exceptional. Usually the absolute and differential leucocyte count is normal.

The negative agglutination reactions and negative blood, stool, and urine cultures have already been dwelt upon.

The uniformity of the symptoms, the distinctive features mentioned above and their unlikeness to comparable manifestations in typhoid and paratyphoid fever make the diagnosis comparatively easy. Moreover, with the help of the characteristic eruption the diagnosis can be made early in the course of the disease, a fact which from a prognostic standpoint is of great practical significance to the practitioner. Is it not a boon when a patient is apparently seriously ill with a febrile disease to be able to predict with a fair measure of certainty that the patient will be up and about in between two and three weeks and that recovery will be complete?

Speculations will not be indulged in as to the pathogenesis, about which practically nothing is known. Clinically the disease bears more resemblance to mild typhus fever than it does to typhoid. Brill states that during an epidemic of typhus differentiation from mild cases would probably be impossible. Yet Brill is firmly of the opinion that the disease is *not* typhus. Against the view that Brill's disease is typhus modified and attenuated by importation, new environment or other changed conditions are its nonepidemic occurrence, its usual noncommunicability, its uniform clinical picture, and the absence of grave and fatal cases. Immunity from Brill's disease is not conferred by a previous attack of typhoid fever. Since there are apparently periods of incubation, invasion, continued fever, and decline, by analogy the designation "infectious" is justifiable. There is little evidence to indicate that the disease is communicable. In Brill's 221 cases members of the same

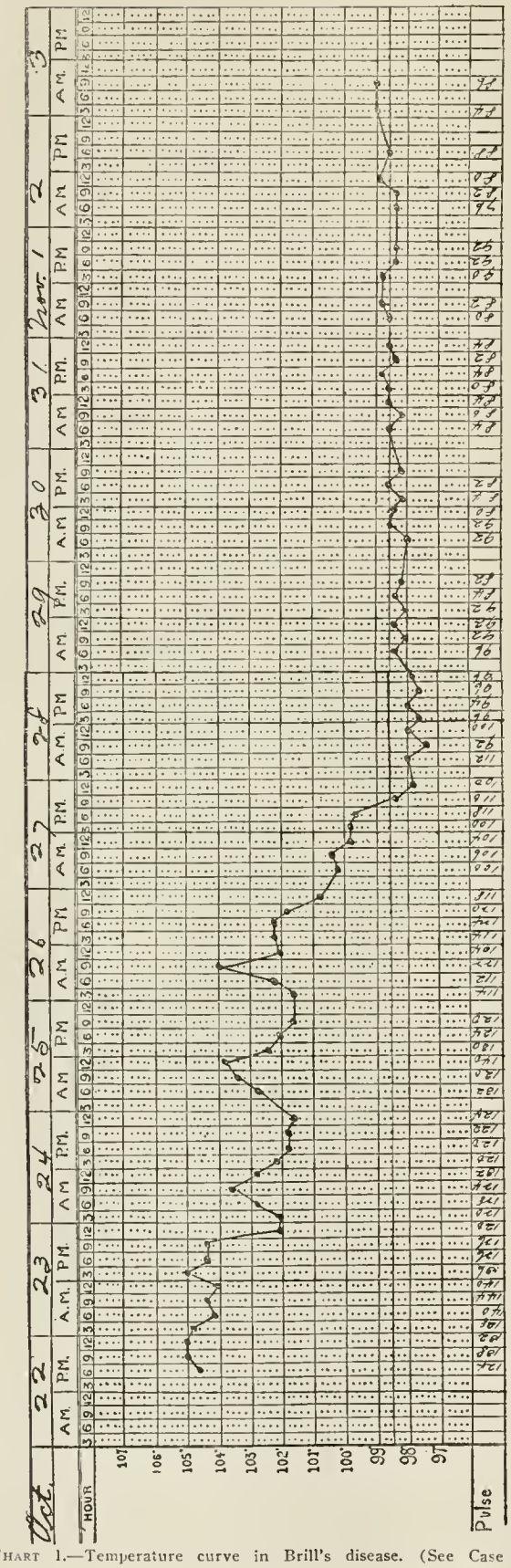

CHART I.—Temperature curve in Brill's disease. (See Case I.)

family or occupants of the same house were never attacked. Warren Coleman has, however, observed four cases from the same family and same household—cases in which Dr. Brill concurred in the diagnosis.

The following case reports are submitted with the hope of aiding in the general recognition of this interesting affection, for which we know no better name than Brill's disease:

CASE I.—A woman 29 years of age, born in Russia, was admitted on October 22, 1909, to the service of Dr. J. E. Reinthaler at Beth Israel Hospital. Married when 16 years old, she had had five children who were alive and well. The present illness began suddenly five days before admission with a chill followed by high fever. Since the onset there were severe headache, anorexia, prostration, fever and diarrhea (about six bowel movements a day). On admission the temperature was 104.6°. There was a profuse maculopapular eruption spread over the trunk and extremities with suspicious roseolæ interspersed amongst the other lesions. The patient was well nourished and well developed but greatly prostrated. The skin was hot and dry. The pharynx was congested. The pulse was not dicrotic. The spleen was not palpable. The course of the temperature curve is shown in Chart I. Five leucocyte counts averaged 10,200 with an average polymorphonuclear count of 70 per cent. The diazo reaction was positive; otherwise the urine was negative. On the 10th and 11th days of the illness the temperature dropped within 30 hours to subnormal, was subnormal for 24 hours, and then remained normal. Repeated Widal reactions were negative and a blood culture performed on the ninth day of the disease by Dr. J. J. Hertz was negative. Recovery was rapid and the patient was out of bed one week after defervescence.

CASE II.—A man 25 years of age, unmarried, a native of Russia, was admitted on May 12, 1910, to the service of Dr. A. H. Friedenberg at Beth Israel Hospital. Twelve days before admission there developed general malaise, anorexia, and constipation; these symptoms continued for nine days and then the patient took to his bed because of the development of chilliness, fever, headache, and prostration. The temperature on admission was 103.6°. The pulse was dicrotic. Though well nourished and robust, the patient was markedly apathetic and prostrated. The tongue was moist and uniformly coated. The skin was hot and dry. A profuse maculopapular eruption, hemorrhagic in areas, was scattered over the abdomen, back, chest wall and extremities. The spots were of a dull red color and not completely effaced on stretching or making pressure over the skin. In certain areas a number of spots ran together to form small patches. There were numerous lesions on the forearms and a small number on both soles. Otherwise physical examination was negative. The spleen was not palpable. The temperature remained sustained (see Chart II), never more than one degree above or below 103, until the ninth day, when it fell to normal within 36 hours and remained so. The symptoms during the febrile period were severe headache, apathy, prostration, anorexia and constipation. No new lesions appeared on the skin during the time of observation and the original crops faded rapidly at the time of defervescence. On the seventh and eighth days of the disease the headache was extreme, and there developed moderate rigidity of the neck and slight Kernig's sign. The meningismus disappeared at the time of crisis. The absolute and differential leucocyte counts were normal. The urine was negative. Repeated Widals during and after the febrile course were negative. A blood culture performed on May 16th, by Dr. J. J. Hertz, was negative. Recovery was rapid and uninterrupted.

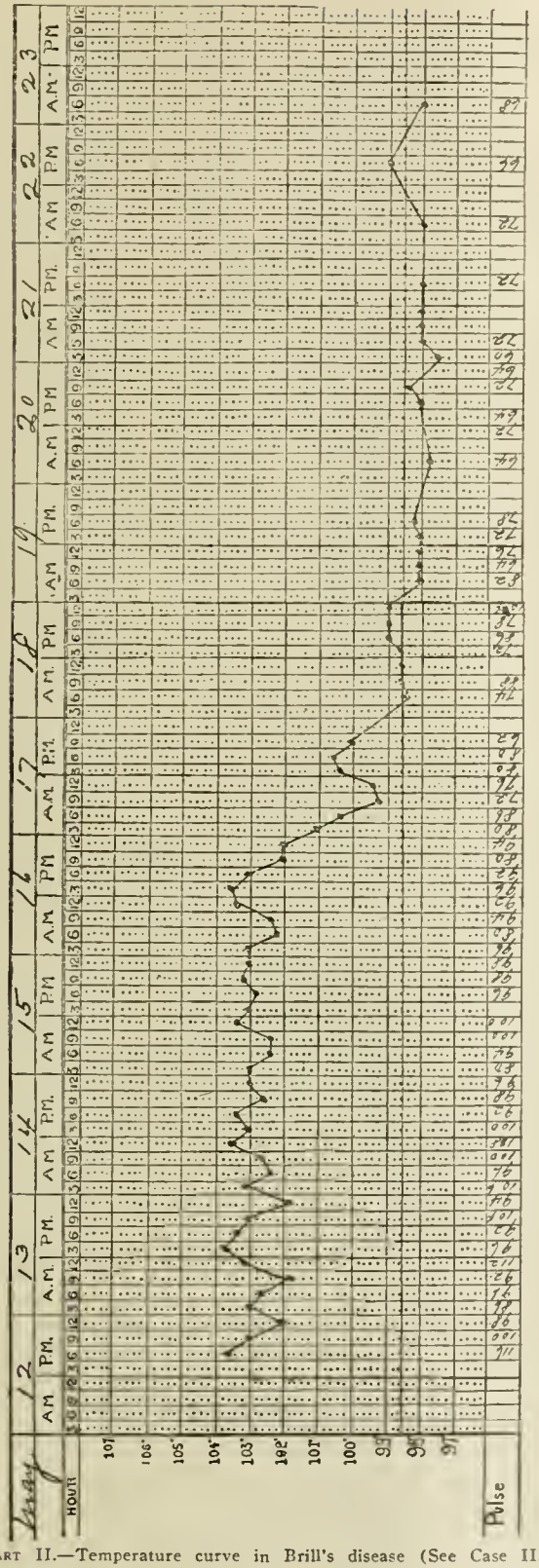

Chart II.—Temperature curve in Brill's disease (See Case II.).

Case III.—A married Russian woman 41 years of age, with six living children, was admitted on March 29, 1909, to the service of Dr. A. H. Friedenberg at Beth Israel Hospital. Having had no serious illness previously, the present one began ten days before admission with chilliness, fever, severe headache, general pains and prostration. There had been general malaise for some days previous to this onset. On admission the temperature was 105°, the pulse 110. The tongue was dry and red, the throat was congested. There was slight rigidity of the neck, no Kernig's sign. A profuse maculopapular eruption was scattered over the trunk, neck and extremities. The spleen was palpably enlarged. The patient was somnolent, markedly prostrated and complained of severe headache. Otherwise physical examination was negative. The temperature remained elevated above 102° till the thirteenth day of the illness, when it dropped to normal within 60 hours and thereafter remained normal. A blood culture performed on the thirteenth day of the disease was negative. Frequently repeated Widals continued after defervescence were negative. As the temperature dropped the headache disappeared, the mental condition became brighter, the appetite returned and the patient was up and about six days after defervescence.

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8 West Eighty-sixth Street.

Relation Between Alcoholism and the Ability to Nurse, Tuberculosis, and Caries.—J. H. Greeff has investigated a large number of families in respect to this subject and he says that the prospect of a nursing daughter is best if the mother has been able to nurse. Whether the father has been an occasional hard drinker or a steady drinker seems to make but little difference. The fact that he drinks at all, however, seems to have a slight influence in preventing the daughters ability to nurse. There is also apparently a relation between alcoholism on the part of the father and grandfather in causing pulmonary tuberculosis and caries in the descendants.—*Deutsche medizinische Wochenschrift.*

STUDIES IN AMEBIASIS, WITH A REPORT OF FORTY-TWO CASES.*

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I WISH to discuss, briefly, some of the points in the problem of amebiasis, on which there is urgent need for more light. Some idea of the importance of this problem may be gained from the fact that out of sixty-five cases of intestinal parasitism, encountered by the writer within the last two years, forty-two have been cases of amebiasis.

In the first place, do the amebæ found in the soil and instanding fresh water supplies become pathogenic when taken into the body? From the occurrence of an outbreak of nine cases within two weeks in five families, all using the same ameba-infested well, which, recently, came under our observation,[1] and from the work of Captains Nichols and Siler[2] of the U. S. Army Medical Corps, in relation to pellagra at the Peoria State Hospital, it would seem that the amebæ commonly found in water can, and do, produce amebiasis.

Is the same thing true of the amebæ found in the soil? Out of five specimens of earth, taken from vegetable gardens in different parts of Charlotte, two showed amebæ. These were easily grown out in a 1 per cent. alkaline bouillon, although, so far, we have not been able to grow amebæ from infested stools or water. If amebæ from the soil can cause amebiasis, would it not be well to lay more stress on the washing or cooking of raw vegetables in the South, in view of the prevalence of this parasite? Why should tropical fruit be looked on with suspicion? Fruit is acid and amebæ have refused to grow for us on fruit or on any other acid medium. Is there a specific pathogenic ameba, the *Entamœba histolytica*, as Schaudinn[3] claimed? If so, what becomes of it outside of the body? Aside from the cases due to water, or soil, or contact infestion,[4] it would seem that, if the pathogenic ameba lies encysted and does not multiply outside the body, then we must assume an enormous amount of pollution of our food or drink with human excrement to account for the large per cent. of remaining cases. Even in the Carolinas, where soil pollution is all but universal, it seems improbable that most of our cases have become infested from food or drink contaminated with human feces. If the *Entamœba histolytica* does multiply and thrive outside of the human body, where and under what conditions, and how can it be differentiated from other amebæ occurring in nature? We are sorely in need of further knowledge concerning the ameba family, as without such knowledge prophylaxis is impossible. In the second place, it has also been stated by Schaudinn,[5] that amebæ occur in normal stools—meaning normal individuals. Admitting that this condition may exist temporarily at times, it has never been our good fortune to find that those people who constantly harbor amebæ unknowingly and without symptoms, are normal. In a recent series of differential blood counts on 100 supposedly normal individuals, a certain number (about 3 per cent.) were found to be harboring amebæ unsuspectingly. After careful investigation, we could not consider either these individuals or their stools normal. They were not able to produce a formed stool except during the day or so following a purge or following three or four spontaneous movements in a single day, which were invariably attributed to some error in diet. Their stools are alkaline, and they generally have a moderate esinophilia and are to some degree neurasthenic. From our present limited experience we are obliged to hold to the opinion of Musgrave and Clegg,[6] as against that of Schaudinn, that all amebæ constantly found in the stools are pathogenic and that everyone constantly harboring amebæ will sooner or later show unmistakable signs of amebiasis.

In reviewing the forty-two cases seen by us since April, 1908, we are struck by the following facts: First, that 12 have died, a fatality of 28 per cent. Second, that 16 of the 42 cases gave no history of frequency of bowel movements. This point was long ago brought out by Futcher,[7] but has not been sufficiently emphasized. These are the cases that are particularly liable to be passed on with a blanket diagnosis of neurasthenia.[8] Third, that 10 out of 16 cases had bald tongue, which we believe to be indistinguishable from that of pellagra. Fourth, that of 25 cases in which the hemoglobin was estimated, in 6 it was about 80 per cent., and in 19 below 80 per cent.; in 1 case the hemoglobin was below 10 per cent. Anemia seems to be as constant and as a rule as severe in amebiasis as in ankylostomiasis. Fifth, that in making a routine blood examination the presence of a moderate eosinophilia has repeatedly directed our attention to the intestinal tract, with the result that amebæ were found in the stools. At present we cannot agree with the best authorities, who, without exception, we believe, state that uncomplicated amebiasis does not show eosinophilia. Out of 29 cases in which differential counts were made, 14 showed eosinophilia of 5 per cent. or over, 2 between 4 per cent and 5 per cent., and 11 below 4 per cent.; one case complicated by *Ascaris lumbricoides* showed 17 per cent., and 1 case complicated by hook worms showed 5.2 per cent. In 1 case of combined amebiasis and ankylostomiasis the removal of the hook worms caused the eosinophilia to drop from 10 per cent. to 5 per cent. in 8 months. This leads us to believe that a moderate increase in the eosinophiles will be found in over 50 per cent. of cases, if not less than 500 white cells be counted. Sixth, that since amebæ can be grown in alkaline bouillon, the reaction of amebic stools may prove of interest. In 14 cases in which this point was noted, litmus paper showed 10 alkaline, 2 neutral, and 2 acid; unfortunately these acid stools were not tested with phenolphthalein. In this connection it is interesting to note that out of 35 cases, *Trichomonas vaginalis* was present in 19; this observation leads us to disagree with the statement of Broun,[9] that this organism "lives—not in normal mucous, but in mucous of acid reaction." The presence of monads in such a large per cent. of cases of amebiasis, we believe, calls for further investigation as we have not found them in anything like so large a per cent. in any other class of cases.

In three cases a diagnosis of abscess of the liver was made; two of these cases left the hospital within twenty-four hours and were lost sight of; the third case showed abscess at autopsy.[10]

Because of the wide variance in character of the many substances recommended for the destruction of amebæ, when applied as colonic irrigations, we determined to try out their effects as observed under the microscope, on amebæ in stools and from

*Read at twelfth annual session of the Tri-State Medical Association of the Carolinas and Virginia at Richmond, Va., Feb. 15-17, 1910.

cultures. Only some preliminary work in this line can be reported at this time. Reagents causing at least a temporary loss of motion in amebæ may be classified under three heads—protoplasmic poisons, acids, and dessicating agents. The action of quinine sulphate up to 1 to 1000 and that of powdered ipecac in solution with sodium bicarbonate, was slow and uncertain. After treatment with ipecac, locomotion reappeared in forty-five minutes. The action of citric acid (lemon juice and lime juice) was also slow and uncertain. The action of coal oil (recommended by Hanes of Louisville [11] last year) we were unable to determine, as it will not mix either with stools or with bouillon. Rochelle salts in 5 per cent. solution stopped motility sooner than any of the preceding reagents, due partly to its acidity, and partly to its dessicating effect. Magnesium sulphate in strong solution not only instantly stops all motion on the part of the amebæ, but dessicates and shrivels it beyond recognition; whether or not it can be resuscitated again with normal salt solution, we have been unable to determine. We irrigated a number of cases daily with a gallon of 8 per cent. magnesium sulphate, but were unable to see that this was of any special advantage. On bathing amebæ in accurately prepared solutions of this reagent, it was found that motility finally ceased only in about 25 per cent. to 30 per cent. solutions, and that even considerably stronger solutions were required for instantaneous dessication. Magnesium sulphate does not irritate the bowel, but whether or not strong enough solutions can be introduced to destroy the ameba without injuring the mucous membrane, remains to be seen. We are unable to say that a heavy solution is superior to normal salt solution as a mechanical remover of the organism. But whatever the effect produced on the amebæ in the lumen of the bowel, it has been only too evident that those within the intestinal wall have not been permanently damaged.

We have not been entirely successful in using magnesium sulphate to produce stools for the purpose of diagnosis, as recommended to us by Dr. Walter A. Glines of Colon Hospital. At times the amebæ are rendered sluggish or even motionless. It would seem that a watery purge with some drug that has no direct action on the organism would be better.

In consideration of the high praise given ipecac in the treatment of amebiasis by Sir Patrick Manson,[12] we gave from 30 to 60 grains daily for two weeks in 8 cases. Ipecac may be given rubbed up with mutton suet, in capsules, in lemon juice an hour after meals, generally without difficulty, or it may be given coated with salol. Except that it sometimes sets up diarrhea, it has not seemed to influence the clinical course of these cases. If given in larger doses, less frequently, over a longer period of time, possibly its action may be more beneficial.

Of the 12 fatal cases, 7 died within 10 days after first being seen by us; 3 refused treatment and died in from 3 weeks to 4 months; of the 2 fatal cases that took treatment, 1 was complicated by an infected ovarian dermoid cyst and died in 3 weeks; the other improved sufficiently to later pass through an attack of pellagra, but after 9 months died of nephritis. Of the 30 cases still living, we had an opportunity in 20 to give a fair trial to medical measures as we understand them—that is, rest in bed for two weeks at least, on liquid or light diet without residue, with daily colonic irrigations, with or without cathartics or ipecac by mouth. In every case there was prompt relief from distressing symptoms. In two cases diarrhea returned within two weeks; in 18 cases the relief continued for from 3 to 15 months. Not a single case has gained materially in weight, and we are confident that not a single permanent cure has been effected. Hence, we are forced to conclude either, that our treatment has been radically defective, or that medical treatment of amebiasis is only palliative and can hold out no hope of a permanent cure.

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504 EAST AVENUE.

THE CARE OF THE MAMMARY GLANDS, BEFORE, DURING, AND AFTER THE PUERPERIUM.

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IT has seemed to the writer that the method of compression and moderately tight bandaging is of very great value in all forms of irritation or inflammation of the mammary gland occurring before and after labor. It has been our custom for several years to avoid massage, the use of the breast-pump, and even the pressure of the patient's clothing, whenever the breasts are sore and tender, from distention or inflammation. Before labor, we avoid all applications to the nipple, and all so-called drawing out of the depressed or flat nipple if in the least degree painful to the patient.

After labor, as soon as the second day, the entire mammary glands are covered with a rather thick layer of clean, choice cotton batting from the dry-goods store. This is preferable to absorbent cotton, being more elastic and compressible. The night-dress is then smoothed and arranged neatly, then a broad bandage is passed around the chest, outside of everything, and pinned moderately tight, which, being on the outside, can be kept free from wrinkles and in its proper position. When the babe is to be applied to the breast, but one side is uncovered, the nipple bathed with boric acid solution after nursing, and the cotton and bandage rearranged as before. As a result, we almost never see a caked breast, fissured nipples, or mastitis in its various forms, possibly ending in prolonged suppuration. In a normal case, the cotton is applied in gradually decreasing thickness after the fifth day, until by the eighth day none is applied. The bandage, however, is continued until the patient is dressed in her usual clothing.

Should we be called on to advise treatment for any of the several pathological conditions of the mammary glands, our advice is as follows:

Sore nipples.—Examine for erosions, fissures, and probable infection. Apply sterilized castor oil, or an ointment of bismuth subcarbonate, 5i to 5i of sterilized petrolatum, after cleansing well with 2 per cent. lysol solution, or a saturated solution of boric acid, then do up both glands in cotton batting, and bandage. Nursing from a sore breast is forbidden for twenty-four hours, then it is allowed if painless. If still painful, cover as before for another twenty-four hours, or longer, until all soreness has ceased, and nursing is painless. The other breast is given to the babe at regular two-hour intervals, until empty, when, if still hungry, the babe is given a small bottle of modified cow's milk, and fed until satisfied, always, however, giving the breast first.

No breast under compression and bandage, will ever become over-distended under any circumstances, but will drain itself constantly of all overplus. Moreover the gland, if thus let alone, will not secrete milk over freely.

Sore nipples most frequently occur during the very early days of lactation, when the breast is seemingly full of milk, but is really swollen and congested instead, the milk content being often small, or even absent. A strong babe, tugging and suckling under such circumstances, will often cause eroded and chafed nipples. As in other forms of active and chronic inflammation, absolute rest and temporary loss of function are demanded, and secured, readily and painlessly by our compression and snug bandage.

Congestion and engorgement,"caked breast," so-called.—This condition is often seen on the third day after labor, and was formerly treated by us with hot stupes, gentle digittal massage, etc. We now know that this condition is practically a normal one, and is caused by the hyperemia of the lobules and lactiferous ducts, nearly closing the ampullæ, so as to leave but little space for the secreted milk. This hyperemic condition demands rest, compression, and the bandage, instead of massage, heat, or the breast pump, and if rightly treated, the swelling will subside in a few hours, the milk begin to collect in the ampullæ, and soon will flow out, if there is distention, escaping gradually into the cotton, just rapidly enough to keep the breast soft and painless, allowing the patient a quiet, restful night.

Mastitis.—We have never seen this occur where proper preventive treatment by our compression and bandage has been employed. Should we see a case in its early stages, we examine for infection and try to find its source, which is nearly always external. If pus be present, it should at once be evacuated, the breast washed in lysol 2 per cent. solution, the incision covered with loose gauze, then covered with cotton batting 6 inches thick, and 24 by 12 inches in size, and a tight bandage applied. Change dressings twice daily. A rapid and uneventful recovery will almost invariably result. Nursing will of course be absolutely prohibited while the breast is inflamed. Even if a week or more out of commission, the breast will again secrete milk abundantly as soon as normal. Meanwhile, the child may be nursed from the sound breast, supplemented by a bottle of modified cow's milk, always given immediately after the nursed breast is nearly empty. It may possibly be necessary to feed the child for several days entirely on the bottle, letting both the breasts rest, but they will nearly always resume their function as soon as again normal.

In drying up the breasts, in weaning, no other method is now employed by us except the same compression with cotton and bandaging. Once a day this may be removed, and new cotton applied. No rubbing, massage, breast pump, belladonna, or camphor is ever required. The breasts take care of themselves, and in two or three days have become flaccid and free from milk secretion, and that, too, without distention, or pain. In a week the cotton may be removed, and the function of the glands will have ceased.

We claim for this method simplicity, and practically a perfect result, in nearly every complication or pathological condition of the mammary glands when present, and a perfect prophylaxis in normal cases, when carried out as a routine treatment. It has been many years since we have used the breast pump, prescribed liniments, or employed massage in any of these cases, and we believe their use may become practically obsolete in all cases seen early, and under intelligent nursing.

PROCTITIS AS A CAUSE OF HEMORRHOIDS,

WITH SUGGESTIONS FOR MEDICAL TREATMENT.*

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In my early experience attention was drawn to the coexistence of a proctitis when examining hemorrhoidal patients. Curiosity prompted me to examine all of the hemorrhoidal subjects presented to me in private as well as in dispensary and hospital practice, and to my surprise I found that a catarrhal inflammation existed in every instance.

Cases of acute catarrhal proctitis have demonstrated that as the inflammation subsides the edematous hemorrhoids also become reduced and finally completely disappear. When acute catarrhal proctitis persists in the form of a low grade or subacute inflammation, then the hemorrhoids exist until the inflammation entirely disappears. Hemorrhoids due to this cause are most satisfactorily treated.

Should this most common course of the disease take place, or if the beginning was not so acute as to justify its being classified as an attack of proctitis, but sufficient irritability exists to inflame the membrane, then according to the following theory a gradual hypertrophy of the mucous membrane takes place with a separation and sliding down of a small portion inside of the loose cuff of mucous membrane at some point within the grasp of the sphincter muscles. The mere weight of the redundant membrane is sufficient to initiate the loosening and the subsequent formation of a hemorrhoid. This small hemorrhoid is quickly filled by the serous exudate from the vessels lying within its submucous tissue. The upright superficial vessels of the lower rectum are acted upon by the descending fecal mass in a reverse direction to the normal current and tend to swell up. These vessels, temporarily distorted from their engorged condition, tear more of the mucosa and submucosa from the surrounding tissue, and they are lifted gradually by the accumulating serum away from the muscular layer.

*Read before Long Island Medical Society, March 1, 1910.

This condition existing for months or years occasionally becomes edematous from irritation or traumatism in the form of hard fecal movements. The parts are constantly in a state of hyperemia. This increased blood supply causes hypertrophy of the blood vessels and connective tissue; finally a well-organized hypertrophic mass becomes a recognized hemorrhoid.

Hemorrhoids existing in the presence of an atrophic cartarrhal proctitis are in my judgment secondary to this hypertrophic inflammation, and their presence is due simply to the serum forced within the meshes of the connective tissue of the submucosa, which, with the blood vessels, remains hypertrophied, the atrophy only affecting the mucous membrane.

The primary etiological factor in the causation of hemorrhoids from this point of view is most probably a digestive disturbance, either in the stomach or intestine with the fermentative excreta acting as an irritant, which brings about the inflammation of the mucous membrane. Indigestion in one or another form seems always associated with hemorrhoids.

We may find other well-known and positive causes of hemorrhoids, such as glandular disturbances, meaning the liver, kidneys, or pancreas; or heart lesions, traumatisms, pressure due to pregnancy and to tumors, malignant disease of the rectum or adjacent organs and to specific forms of catarrhal proctitis, as tuberculosis, syphilis, etc. These causes are not common. The large number of cases presented for treatment positively refute the assertion that every one suffering from hemorrhoids also suffers from one of these serious diseases.

The treatment of this form of hemorrhoids due to simple catarrhal proctitis by medicines or local applications begins with correction of the digestive disturbance, arresting fermentation and overacidity with the alkalies and intestinal antiseptics, relieving the liver by restricting the carbohydrates, contraindicating the use of alcohol, tobacco, coffee, and tea if possible, guarding against the overindulgence in rich food, and encouraging exercise or rest as indicated. Constipation should be treated with cascara, olive oil, or the injection of a pint of cold water before breakfast; diarrhea with castor oil and bismuth.

Locally, in the acute form wash out the rectum each day for a week with a gallon or more of plain warm water at a temperature of 110° F., or with any of the mild solutions used for the nose or throat. The irrigation should extend over a period of not less than fifteen minutes.

In the subacute and chronic forms begin with the irrigations for a week, then instead inject an ounce or two of a weak solution of one of the silver salts every second or third day, or instead of the silver salts an application of some combination of the following remedies, either in the form of a suppository or as an ointment by means of the hard rubber pile-pipe; ichthyol and iodoform for their alterative and stimulating action, tannic acid, adrenalin, and hamamelis for their astringency, and as sedatives belladonna or stramonium. There is no doubt that these drugs do aid in the relief or cure of hemorrhoids by their action upon the inflamed mucous membrane.

In very weak subjects apparently exhausted from the effects of the catarrhal disease existing also in the upper bowel, associated with profound digestive disturbances, autointoxication and its concomitant symptoms of depression, every effort should be made to improve the general tone of the body and of the eliminating organs, in addition to the above suggestions.

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A CASE OF DEXTROCARDIA.*

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AND

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The following history of a case of dextrocardia (situs viscerum inversus partialis), incomplete as it is, may prove interesting on account of the great rarity of the condition and the remarkable course of the terminal illness.

Miss L. E. C., fourteen and a half years old, had always been an apparently healthy, though a very sensitive and retiring, child. Let us mention right here that the girl, as well as her parents, knew of her anomaly—dextrocardia—but up to now she had not been examined by any physician.

On November 3, 1909 she became ill rather suddenly, as also a younger brother, with typical symptoms of influenza, cough, fever, and pains in all the muscles of limbs and trunk which rendered her practically motionless. About November 9 she, as well as her brother (who, however exhibited no symptoms from part of the locomotor apparatus), had recovered from the catarrhal affection, were free from fever, and enjoyed returning health. Her appetite and sleep were excellent. But the pulse remained high, 120 per minute, and the muscular pains persisted. She could not sit up nor even turn over in bed. The condition reminded one somewhat of trichinosis, but there was no edema. The girl had not menstruated yet, but she suffered from a profuse leucorrhea. Iron preparations were given and menses established the first days of December. No untoward symptoms supervened, the pulse became less frequent, there was no cough, the apices of the lungs seemed to be free from disease.

January 4, 1910 she again became ill with a persistent cough, labored respiration, high pulse rate, great prostration, and sharp pains in the right side of the thorax. Examination of her body was rendered very difficult because it was impossible to change her position owing to the pains she suffered. She lay flat on her back, settled deep in the cushions. Respiration 60, pulse 130 per minute, temperature 99.8°. Her chest exhibited a typical pectus carinatum, it was symmetrical with no other local bulging. A very much pronounced apex-beat was visible about ½ inch to the right of and above the right nipple in the third intercostal space. Auscultation evidenced normal heart sounds there. The whole of the left side of the chest on percussion and auscultation proved to contain nothing but normal lung tissue; there was no dullness whatever over the usual site of the heart, but from here downward resonance due to the stomach was found. On the right side of the chest, at the apex of the lung and down to the third rib, we heard on percussion a tympanitic somewhat muffled sound. Here began a dullness corresponding to the plainly visible impetus of the heart. This dullness continued to the lower border of the chest, where we could outline a

*Read before the Verein Deutscher Aerzte of St. Louis, January 21, 1910.

dullness due to the liver, which we found at its normal place and of normal size, not palpable. Palpation and percussion of the abdomen showed normal conditions. To the right of the heart in the right half of the thorax there was complete dullness and also pain on touch. An almost incessant hacking cough produced but little frothy sputum. This contained few leucocytes, no eosinophiles, very few erythrocytes, some epithelial cells, an abundance of staphylococci and streptococci, no pneumococci, and a small number of tubercle bacilli.

January 6, A. M., temperature 101° in the axilla. A dose of whiskey stimulated the heart action and lowered the pulse rate. With local anesthesia (cocain) an aspirator needle was inserted in the right middle axillary line, between the seventh and eighth ribs, and about 4 ounces of a bloody serum withdrawn, which clotted quickly. The patient, who felt no pain from the aspiration, was at once greatly relieved in every respect. Dr. J. P. Nemours, who kindly assisted in the operation, also satisfied himself of the presence of dextrocardia with partial situs inversus.

At 9 P. M. the same day the temperature was 103° in the axilla, the pulse 150, and the breathing labored. The succeeding night she became delirious and restless. The eyes were half open in her sleep.

On January 7 the pulse was 120, the temperature 101°. The patient was much weaker. Stool and urine were discharged involuntarily. She took nothing but an occasional sip of champagne. The apex beat was 2 inches to the right of the right border of the sternum, and felt in the fourth and fifth intercostal spaces. The left lung was normal. There was no expectoration. The abdomen was normal. The stomach was in the left, the liver in the right hypogastric region. Arrangements were being made to have a skiagraph taken, but on the same afternoon, while the nurse changed the bed sheeting, the patient died suddenly. Permission for autopsy was not granted, and the *x*-ray specialist stated that skiagraphs taken of dead bodies are never satisfactory.

This was without doubt a case of dextrocardia with normal situs of the abdominal viscera. The fact that the pleuritic effusion appeared on the same —right—side and did not displace or crowd the heart toward the left, but rather upward, seems to indicate that there must have been further anomalies within the mediastinum, possibly a persisting enlarged thymus which would also account for the bulging of the sternum (pectus carinatum) and the sudden death. At any rate there had been no rhachitis nor any symptom of aneurysm. The diagnosis of a pleuritic and not a pericarditic effusion was verified by the aspiration. The healthy condition of the abdomen and the qualities of the left side of the chest exclude all other disturbances as possible causes of the dextro-position of the heart. This condition was congenital. We should add that there was no marked cyanosis at any time, nor anything else to indicate the existence of a diseased heart. The girl was right-handed. None of the other members of the family exhibit any congenital anomalies.

The last disease was apparently a relapse of influenza with an acute tuberculosis and a persisting polymyositis universalis, due to the influenza. Polymyositis partialis accompanying influenza, though of a milder type, is not infrequent here at present. It is often mistaken for either rheumatism, cellulitis, or erysipelas. Usually, it is characterized by a pronounced edema setting in immediately after the acute stage and the fever begins to subside. No edema, however, occurred in this case.

We have searched the literature in vain for parallel cases. Those reported* by Lochte in *Ziegler's Beitrœgen* 16, 1894, by Koller in *Virchow's Archive* 156, 1899, and by Kurt Schelenz, Inaug. Diss. 1909, differ from ours in many essential points. Dextrocardia is generally accompanied by other malformations which we could not discover in this case. Though no autopsy was held, we believe that our findings are conclusive proof, being based on repeated careful physical examination by three physicians of many years' experience, and also upon the personal observation of the patient and her parents.

*By George Jackson Fisher in the "Reference Handbook of the Medical Sciences," VII, 241, 1889.

The Thoracic Index in Pulmonary Tuberculosis.—Washburn says that the normal male thoracic index is about 70, and that an index very much above that is an abnormality, either inherited or acquired; that the normal female thoracic index is slightly lower than that of the male, and is therefore an evidence of a higher stage of physical development, tending to lessen susceptibility to pulmonary disease; that the great majority of patients suffering from pulmonary tuberculosis present a thoracic index in excess of the normal, instead of the contrary, and this is a mark of degeneracy, increasing liability to tuberculous infection; and that patients in eleemosynary institutions, in general, have thoracic indices higher than patients in private practice, a finding which might be expected from the fact that degenerates of all kinds are found in such institutions.—*The Wisconsin Medical Journal.*

Double Infection with Measles and Scarlatina.—Brudzinski says that a perfect knowledge of the true picture of a double infection with measles and scarlatina is of the greatest importance in hospitals for children, at the beginning of the eruption as well as during the desquamation. The diagnosis of the infection will permit of isolation from the rest of the patients before infection has occurred. It is of equal importance in the schools. Children who have measles remain under observation but a short time, while scarlatina is infectious for a much greater period of time. Koplik's sign is of value when scarlatina appears first, and is complicated with a measles occurring during desquamation. Cases of late infection are most frequent. When the two eruptions appear at the same time the effect is the most severe, and complication most frequent. The two eruptions appear in different parts of the body, the measles coming out on the face and thorax and the scarlatina on the trunk and limbs. The measles eruption may disappear before that of scarlatina. The desquamation is more intense than when the diseases are separate. On the face is seen a typical measles desquamation, while the hands and feet show the large plaques of scarlatina. The desquamation of measles is prolonged beyond the usual time. —*Archives de Médecine des Enfants.*

Cardiovascular Apparatus in Nephritis of Childhood.—P. Nobécourt and Roger Voisin give results of observations of twelve children, from three to fifteen years of age, from the *Hôpital des Enfants Malades*, Paris. Of these nine had acute nephritis, in several cases after scarlatina. In five cases cure resulted; one died of pneumococcic nephritis; three cases became subacute or chronic. The histories are given. The points of especial interest have reference to the cardiovascular changes observed. The most important changes in arterial pressure are seen in acute attacks of nephritis. There is often an increase in arterial tension, more or less enduring. This disappears when the nephritis is cured. In long cases, and when the disease becomes chronic, the pressure falls to normal again. In fatal acute nephritis dilatation of the heart may occur; when the disease lasts some time the heart remains large or returns to normal. In chronic nephritis the heart is large only in old cases or acute attacks; here enlargement is due to dilatation. Galop rhythm is rare and passing. The size of the liver is often increased. The mechanism is explained by the increase of water retained, which increases weight by edema, and thus causes increased arterial pressure; the increased work of the heart causes dilatation; the liver enlarges in its turn. Increase of pressure and dilatation are not necessarily of bad prognosis; a more insidious form is often more tenacious. —*Archives de Médecine des Enfants.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

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New York, June 25, 1910.

THE REPORT OF THE CARNEGIE FOUNDATION ON MEDICAL EDUCATION.

THE most recent publication, entitled "Bulletin Number Four," of the Carnegie Foundation for the Advancement of Teaching, treating of medical education in the United States, makes what Horace Greeley used to call "mighty interestin' readin'." Whether it is also entertaining depends largely upon the direction of the reader's sympathies and college associations. Very naturally, those who are connected directly or indirectly with the schools so fiercely and contemptuously flayed by Mr. Flexner, the writer of the report, resent his attack bitterly; while those connected with the institutions receiving his faint praise—there is but one perfect school in the eyes of this investigator—whatever they think, say little.

The report professes to be based on a thorough and most painstaking personal investigation of every medical school in this country and Canada, made by Mr. Abraham Flexner, a professional critic of educators, or student of systems of education. In order to correct a very current misconception, we may say, in parenthesis, that this is not Dr. Simon Flexner of the Rockefeller Institute, but his brother. The doctor has troubles of his own with the antis of various ilks, and should not lose professional support through being made to answer for the sins of his brother. Neither, may we add, should the brother be judged by the essay which the president of the Foundation contributes by way of introduction to the report.

As a result of this investigation Mr. Flexner concludes that the country is suffering from a great plethora of medical schools—a fact which medical men have well known and deplored these many years; that many of the medical schools have not a sufficiently high standard either of admission or of graduation—another fact long well known; and that the facilities for teaching, in the way of apparatus, subjects for dissection, etc., are lacking in a number of schools—likewise a matter of common knowledge. What the writer of the report does not seem to have discovered is that all these schools, with the exception of a very small and practically negligible number, are in process of betterment, and that several associations of medical men and medical educators are working constantly to encourage and force the poorer schools to raise their standards and improve their teaching methods. When one realizes what the best of the medical schools were twenty-five or thirty years ago, and what tremendous progress has been made during the past twenty, and especially the past ten years, and when one remembers that all this uplift has come from within, without the help of any outside "Foundation," the work of Mr. Flexner seems somewhat a waste of effort and a needless expenditure of Mr. Carnegie's hard-earned money. All reforms, worthy of the name and lasting, come from within, and the interference of outsiders serves only to bewilder and irritate. The facts gathered and tabulated in this Bulletin of the Carnegie Foundation will perhaps be useful for reference by the real reformers, and had nothing yet been attempted or accomplished in the way of raising standards, the comments and admonitions of these self-appointed critics might have been useful as a goad. As it is, they will be very properly resented as uncalled for. The writers of the Bulletin are unfair in that they ignore what has already been accomplished and are silent as to the agencies at work in raising the standard of medical education. Whether this omission of a fact which, if properly presented, would prove the work of the Foundation to have been one of supererogation, was intentional or whether it is only evidence of a superficial and one-sided investigation, we do not know.

ANTISTREPTOCOCCUS THERAPY IN SCARLET FEVER.

THOUGH the etiology of scarlet fever is still an unsolved problem, there is but little doubt that in the course and prognosis of the disease the *Streptococcus pyogenes* plays a part of no mean proportions. Eight years ago Baginski called attention to the fact that this organism could be isolated from the blood at autopsy in a large proportion of all fatal cases of scarlet fever. The hope at first expressed that this would lead to the demonstration of the etiology of the disease, has unfortunately not been fulfilled, and in consequence, the antistreptococcus treatment has not been received with especial enthusiasm.

During the past year or two, however, Jochmann and Michaelis have made a careful study of a large number of cases of the disease and the effects of various forms of specific antistreptococcic treatment upon its course and outcome, the report of their work being published in the *Berliner klinische Wochenschrift* for May 16, 1910. While admitting that the streptococcus is not the cause of the disease, and that in the malignant rapidly fatal cases, it plays no part whatever, they contend that in the severe anginose forms of scarlatina it is practically constantly present as a secondary infection, and in such cases is more responsible for the fatal outcome than is the scarlatina virus itself. Having picked from 400 cases of scarlet fever, 62 in which the prognosis appeared to be especially bad owing to the severity of the infection, the authors began early with the specific treatment. In a few cases a vaccine, made according to Wright's technique, was used alone in

the hope of increasing the opsonic index sufficiently to protect against the secondary infection when it should occur. In a few others an antistreptococcus serum, prepared by inoculating horses with bouillon cultures, was used. In the majority of the cases, however, the two methods were combined, both the vaccine and the serum being administered.

From this procedure results were obtained which the authors considered more than justified the experiment. Of the sixty-two cases treated, in all of which the prognosis was considered to be very bad or hopeless at the time of inoculation, but twenty-four died. In ten of them the death was not due to the streptococcus, as at autopsy staphylococcemia, pneumococcemia, or diphtheria was demonstrated. Of the other fourteen, most of them first came under observation when late in the disease. Of the cases which recovered, in 28 the temperature fell by lysis, in 4 by crisis, and in 6 it was not influenced by the injection. In nearly all of the cases marked improvement in the general condition was noted immediately or shortly after the inoculation. The sensorium cleared; the appetite improved; the pulse and respiration strengthened; and the throat became more clean. Even more striking was the freedom from complication in the cases which received the specific treatment. In the entire series there developed not a case of nephritis among the cases which recovered, and in the fatal cases but faint traces of albumin were found, so slight as to be ascribable to the general septic condition of the patient.

The goal to be sought in the fight against scarlet fever, a specific serum against the scarlatina virus, has not yet been gained, and probably will not until more is known of the etiology of the disease. If, however, this theory of Jochmann and Michealis that the fatalities are due to a secondary infection with the streptococcus, is correct, and their observations point strongly to this being the case, their suggestions of fighting against the streptococcus even before it has made its appearance is thoroughly rational. The results of their careful study would suggest that it is as valuable in practice as it is logical in theory.

Alcoholism and Offspring.

An exceedingly interesting and, so far as it goes, valuable report has just been issued in England. The report is the result of an investigation which has been conducted as to the effects of the alcoholic habits of parents upon their progeny, by Miss E. M. Elderton, Galton research scholar in the University of London, and Prof. Karl Rearson. More than three thousand children were examined in Edinburgh and Manchester, half of whom were the offspring of drunkards. The conclusions reached were as follows: 1. The death rate is somewhat higher among the children of alcoholic than among the children of sober parents; more marked in the case of the mother being a drunkard than in that of the father. 2. The weight is slightly greater among the children of the sober. 3. Parental alcoholism has no marked effect upon filial health. 4. Parental alcoholism is not the source of mental defect in the offspring. 5. The relationship, if any, between parental alcoholism and filial intelligence is very slight. 6. Vision is somewhat better among children of alcoholic parents. To sum up, no marked relation was found between the intelligence, physique, or disease of offspring and parental alcoholism in any of the categories investigated. In regard to the question as to whether the children of drunkards inherit a predisposition to alcoholism no conclusion was come to. However, the investigations seemed to show in a decided manner that children do not inherit marked disabilities in consequence of the drinking habits of their parents. Of course the outcome of these investigations cannot be regarded as by any means decisive. The examination of three thousand children is on a too limited scale to warrant the passing of a final judgment, but the results of the investigation appear to point to the view that the harmfulness of alcoholism, so far as it directly affects the physical and mental health of the offspring, has been greatly exaggerated. If the children of drunken parents are brought up in the same way as the offspring of sober parents, they will be in no way inferior to them by reason of their parents' intemperance.

Operation in Pyloric Stenosis in Infants.

While probably the majority of pediatrists are still inclined to trust to medical treatment rather than surgery as a routine in cases of pyloric stenosis in infants, basing their preference upon lower mortality statistics than the operator is able to present, there is some justice in the plaint of the latter that he is rarely given a fair trial, that usually the cases have been kept from him so long that the condition is hopeless before the operation is begun, and that if all cases were referred to him at the onset of the disease, or at least as soon as the diagnosis became established, the results would be far more favorable. It takes no small courage, however, for the internist to advise an extensive, and too often fatal, abdominal operation in a child during the first few weeks of its life so long as he has a reasonable amount of hope of curing the baby by less heroic means. An infant at that time of life, in the greatly debilitated condition usually found in the disease, will stand no great amount of intra-abdominal insult, and the surgeons who are most enthusiastic over the early operation argue that the procedure should be such as can be completed in the briefest possible time. Various operations have been performed for the relief of the condition, including jejunostomy, pyloropexy, gastroenterostomy, and most common of all, stretching of the pylorus, the quickest and least dangerous, but also the least certain in the final results. In the *Berliner klinische Wochenschrift* for April 25, 1910, Weber of Dresden reports a procedure from which he has obtained favorable results. Intending, in his first case, to do the classical pyloropexy, he made his longitudinal cut in the pylorus through serosa and muscularis, but then, instead of going through the mucosa, he left this intact, completing the operation by sewing up the longitudinal cut transversely as in the classical operation. The advantages of this procedure are twofold: the lumen of the gut not being opened, there is no danger of soiling the peritoneum, and as a result of this the two layers of sutures usually required may be replaced by one only, thus valuable time being saved and a permanent cure ensured. The two cases treated by Weber by this method, as well as two of three reported

in 1908 by Dufour and Fredit, have made good recoveries. Though the number is far too small to justify conclusions, the mortality of 20 per cent. is certainly sufficiently low to warrant the operation being given further trial.

Congenital Family Cholemia, or Recurrent Family Jaundice.

Bile-pigment is a modification or a derivative of blood-pigment, accordingly, it is conceivable that yellowish or greenish discoloration of the tissues and body-fluids may result from the presence in a free state of one or the other of these pigments in the circulating blood—in other words, that jaundice may be either hepatogenous or hematogenous. It seems, further, not impossible that there may be mixed forms of the disorder. There has been described a condition of recurrent cholemia or jaundice appearing early in life, in more than one member of a family, and characterized by alterations in the blood, the spleen and the liver. Three illustrative cases were reported some time ago by F. J. Poynton in the *Lancet*, who discussed the nature of the disorder, as well as its relation to cognate affections. The patients may be yellow or merely pallid. The spleen is enlarged, the liver less constantly so. Examination of the blood discloses the existence of anemia, with a good color-index, pecilocytosis, anisocytosis with polychromatophilia, a predominance of macrocytes over microcytes, nucleated red cells, leucocytosis involving especially the uninuclear cells, myelocytes. The red corpuscles are unusually fragile, but not affected by phagocytosis. The serum exhibits no hemolytic power; in some instances specific agglutinating power, in others not; in some instances it contains bile-pigment, in others not. Poynton is inclined to the belief that the primary change in the disease resides in the blood-forming rather than in the biliary system, and that the affection represents a congenital familial defect rather than an acquired disease. He indicates certain points of relationship between the affection and paroxysmal hemoglobinuria and splenic anemia of infancy.

News of the Week.

New York State Appropriations.—The New York State appropriation bills, as signed recently by Governor Hughes, after much pruning, allow for an increase in appropriation for maintenance of hospitals for the insane for the ensuing year over the past year of $699,754. An appropriation of $175,000 for the deficiency in the maintenance of the State hospitals, which was passed by the Legislature, was rejected by the Governor. Insane hospital construction items also eliminated by Governor Hughes were as follows: Utica State Hospital, $27,500; Willard State Hospital, $55,670; Hudson River State Hospital, $155,200; Middletown State Homeopathic Hospital, $67,000; Buffalo State Hospital, $44,500; Binghamton State Hospital, $70,600; St. Lawrence State Hospital, $55,000; Rochester State Hospital, $32,400; Gowanda State Hospital, $14,000; King's Park State Hospital, $38,000; Manhattan State Hospital, $12,800; Central Islip State Hospital, $9,000. The Letchworth Village appropriation of $186,250 was accepted.

Health in the Canal Zone.—The report of the Department of Sanitation of the Isthmian Canal Commission for April shows an annual death rate per 1,000 of 13.04 as compared to 8.91 for March, 1910, and 8.57 for April, 1909. The annual average sick rate for malaria in hospitals per thousand among employees for the month was: White 220, black 56, all 97, as against white 253, black 83, all 125 for last month. No cases of smallpox, plague, or yellow fever originated on or were brought to the Isthmus during the month.

Rabies in Paris.—Reports from Paris state that that city is practically free of rabies. In 1909 there were only 13 cases reported with a registration of 185,000 dogs, whereas in 1902 there were 846 cases among 140,000 dogs. In 1900, 637 persons bitten by dogs suspected of being rabid were treated at the Pasteur Institute, whereas in 1909 only 105 were admitted. The last authentic case of human rabies in the Pasteur Institute in Paris occurred in 1905.

English Radium.—The first output of radium from the Trenwith mine, St. Ives, Cornwall, has been obtained. It consists of about 24 grains of radium and is valued at $150,000.

The Government Laboratory for the Study of Cancer.—The U. S. Senate has passed the bill recommended by President Taft appropriating $50,000 to establish a biological laboratory for the study of diseases of fish, especially cancer. The station is to be established by the United States Fish Commission.

Smallpox on Ocean Liners.—The steamships *Uranium* from Rotterdam and *Graf Waldersee* from Hamburg and Boulogne were detained at Quarantine in New York Harbor recently owing to smallpox among steerage passengers.

Health Officer Contracts Smallpox.—The health officer of Walden, Orange County, N. Y., is suffering from variola, supposed to have been contracted while on a visit recently to the immigrant quarantine station in New York City.

Mine Casualties.—The calender of the Geological Survey for 1909 gives records of 2,412 deaths in coal mines in the United States during the year, as compared to 2,450 in 1908, and 3,125 in 1907. The 1909 record does not include the toll of the Cherry mine in which 393 lost their lives. The list of nonfatal injuries for 1909 reports 7,979 such cases, an increase of 1,200 over 1908. This apparent increase is partially due to improvement in the records.

Body Weight in Cancer.—Having observed that the body weight of women suffering from cancer appears to be greatest just prior to or coincident with the first stages of the disease, Dr. E. Atlee, 4105 Spruce street, Philadelphia, is endeavoring to gather statistics upon this subject, and will be glad to receive records from physicians as to the date in relation to the diagnosis of the disease at which their cancer patients attained their maximum body weight.

The New York Academy of Medicine.—The Anniversary Meeting, to be held Thursday, November 17, 1910, will be devoted to the subject of Animal Experimentation in Medicine, with the following program: I. "The Influence of Antivivisection on the Character of its Advocates." By Dr. William W. Keen of Philadelphia. II. "Objections to Proposals of Further Legislation to Regulate Animal Experimentation." By Dr. Wm. H. Welch of Baltimore. III. "The Character of Antivivisection Literature." By Dr. W. B. Cannon of Boston.

Privacy of Hospital Records.—Supreme Court Justice Erlanger of New York in a decision recently stated that hospital employees had no right to withhold information in regard to patients taken to hospitals as the result of accidents. Such information was considered to be a public record and therefore must be open to any one wishing to see it.

Overcrowding in New York Hospitals.—A special commission of the New York State Board of Charities has investigated sixty private hospitals in the City of New York. In twelve of the institutions visited overcrowding and inadequate sanitation, ventilation, and fire-escapes were reported. The State Board of Charities has adopted resolutions which provide that no patient shall be retained at public expense in any ward of any hospital wholly or partly under private control, unless the building is fireproof or its fire protection facilities have been approved by the State Board in writing; unless the building is sanitary, and unless the wards provide at least 1,200 cubic feet of air space for each bed. In extraordinary cases the air space may be cut down to 800 feet, but only on written permission of the board.

Princeton University, at its commencement exercises held June 14, conferred the degree of Doctor of Laws upon Dr. William H. Welch, professor of pathology at Johns Hopkins University, and president of the American Medical Association.

The Cornell University Medical College held its annual commencement exercises in New York, June 15, 1910. The degree of Doctor of Medicine was conferred upon sixty-one men and seven women. The names of four of the seven women appeared on the honor rôle of the ten highest rank students for the graduating class.

Yale Medical School.—As a further step toward raising the standard of the Yale Medical School, a movement which has been going on for several years past, thirty students were "failed" in the recent examinations, and permission to take the examination over again was refused. The school is also endeavoring to raise an endowment of $2,000,000.

Hospital Terrorized.—A crowd of twenty rowdies, who had been turned out of Central Park on the evening of June 19, after attacking a number of people in the street, broke into Mount Sinai Hospital, fought in the halls, and badly frightened many of the patients.

Reorganization of the American Medical College of St. Louis.—The trustees of the American Medical College of St. Louis, at a meeting held on June 6, 1910, unanimously decided that, in the future, the college shall be conducted as a regular college of medicine. New officers were elected as follows: *Dean*, James Moores Ball, M.D.; *Treasurer*, J. J. Link, M.D.; *Secretary*, W. T. Burdick, M.D.

Died at 108.—The death occurred recently in Cincinnati of a man who was supposed to have reached the age of 108 years. He was head gardener in the estate of Congressman Nicholas Longworth and had been in the employ of the family for 90 years.

Unlicensed Physician Arrested.—Through the agency of the Medical Society of the County of New York, an illegal practitioner was arrested lately in his office in East Eighty-second street. He claimed to be "an osteopath and a phytologist," but was unable to produce any license to practise or evidence of registration.

The Connecticut State Tuberculosis Commission announces the appointment of Dr. Harry C. Clifton of Hartford as surgeon-in-chief of all the sanatoria in the State and medical director of the Hartford County institution. Dr. Richard W. Moriarty has been appointed resident physician of the latter institution.

The New Jersey State Pediatric Society will hold its first annual meeting at the Hotel Chalfonte, Atlantic City, Monday, June 27, 1910. The *President* of the society is Dr. Henry L. Coit of Newark, and the *Secretary* is Dr. Martin J. Synnott of Montclair, N. J.

The Fifth International Congress of Medical Electrology and Radiology will be held at Barcelona, Spain, September 13-18, 1910, in the amphitheatre of the Faculty of Medicine. The *President* of the congress is Dr. L. Cirera Salse, and the *General Secretary* is Dr. C. Comas Llaberia, Calle Cortes, 613, pral Barcelona.

The American Association of Medical Journal Advertisers held its fourth annual meeting in the parlors of the Jefferson Hotel, St. Louis, on June 9. The following resolution was unanimously adopted: *Resolved* that, where the business of an institution has been built up by newspaper advertising or other irregular methods, the owners or managers thereof shall not be accepted as members of this association or their advertisements permitted to appear or remain in journals containing the advertisements of members of this association until such institution has purged itself of irregularity to the satisfaction of the County Medical Society of the county in which it is located. The following officers were elected for the ensuing year: *President*, Dr. S. Grover Burnett of Kansas City, Mo.; *Vice-President*, Dr. Geo. H. Moody of San Antonio, Tex.; *Secretary*, Dr. Geo. E. Pettey of Memphis, Tenn.; *Executive Committeemen*, Dr. J. Jos. Kindred of Astoria, L. I., N. Y., and Dr. F. H. Barnes of Stamford, Conn.

Obituary Notes.—Dr. Randall Doyle Bibber of Bath, Me., died at his home, June 9, 1910, aged 64 years. He was a graduate of the Bowdoin Medical School in 1871. He was a member of the Sagadahoc County Medical Society, the Maine Medical Association, the American Medical Association, and the Bath Medical Club. Dr. Bibber has served as acting assistant surgeon in the Marine Hospital Service, as overseer of the poor, city physician, and Mayor of Bath. He was the president of the Home for Aged Couples and Old Men.

Dr. Carl August A. Bruck of Milwaukee died at his home, recently, aged 55 years. He was a graduate of the Wisconsin College of Physicians and Surgeons in 1896 and was a member of the Milwaukee County Medical Society and the State Medical Society of Wisconsin.

Dr. Charles A. Burleigh of Forest Hill, Cal., died at his home, June 3, 1910, aged 47 years. He was a graduate of the California Eclectic Medical College in 1889.

Dr. A. D. James of Penrod, Ky., died at his home June 7, 1910. He was a graduate of the medical department of the University of Louisville in 1873, and had served at various times as member of the State Legislature and Senate, United States Mar-

shall, Member of Congress, and member of the World's Fair Commission.

Dr. CHARLES S. STROUD of Montreal died at his home on June 5, 1910. He was a graduate of McGill University in 1876.

Dr. L. D. TEBO of Bordentown, N. J., died recently, aged 65 years. He was a graduate of the Hahnemann Medical College of Philadelphia in 1873.

Dr. WILLIAM EUGENE TRAUTWEIN of New York died at his home, June 19, 1910, aged 43 years. He was a graduate of the Bellevue Hospital Medical College and was chief surgeon to the Delaware, Lackawanna, and Western Railroad.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

BIRTHDAY HONORS—YELLOW FEVER EXPEDITION SAILED—MALARIA—ROYAL SOCIETY'S COMMISSION ON SLEEPING SICKNESS—PANCREATIC REACTION (CAMMIDGE)—ASYLUM BOARD'S EXCESSIVE STAFF—A NEW DANGER OF MEAT—OBITUARY (THREE NONOGENARIANS AND OTHERS).

LONDON, June 3, 1910.

THIS being the King's birthday, a number of appointments have been conferred upon officers of His Majesty's household and the household of the late King. Among these Sir Francis H. Laking, Bart., M. D., G. C. V. O., receives a K. C. B. These honors, it is stated, are not in the place of the customary list of birthday honors, which will, as formerly, be published this year on the 24th inst., the day on which the late King's birthday was officially celebrated.

The outbreak of yellow fever at Sekondi, West Africa, has stirred the Colonial Office into prompt acceptance of the offer of Sir Robert Boyce, dean of the Liverpool School of Tropical Medicine, to go out with a staff of assistants to direct the organization of measures to stamp out the disease. At the meeting of the African section of the Liverpool Chamber of Commerce on Monday a letter from the Colonial Office stated that there had been eleven cases at Sekondi, ten of them fatal, eight of the victims being Europeans. Two cases at Freetown were both fatal. All the other places on the coast were reported free from infection. As soon as the outbreak was known, Lord Crewe summoned the Advisory Medical and Sanitary Committee for Tropical Africa and was acting on their advice in the emergency.

Sir Robert offered to go if the Liverpool University and the Corporation would consent to his absence. These bodies, as you might be sure, gladly gave permission, and Sir Robert actually sailed yesterday in the steamship "Dakar." Eight members of the London Tropical School accompanied him, but two of these, Drs. Nicholson and Wood, are for a supplementary mission at Sierra Leone. The other six, for Sekondi, are Drs. Mugliston, Duff, Goodbrand, Fraser, Crowly, and Moffatt.

The prompt devotion of all these gentlemen is eliciting the hearty commendation of the public and a recognition of the readiness of the profession at all times to step into the front.

It happens that at this same time tropical medicine is brought under public notice by one of its experts, Major Ronald Ross, who won a Nobel laureateship for his investigations on malaria. Yesterday he gave the first of two lectures on this subject at the Royal Institution. As to its history, there was no mention of it in the Homeric period and he found none in Hesiod, who lived in a valley which is now highly malarious. Supposing malaria entered Greece about 500 B.C., it must have spread from valley to valley and have been one factor in the downfall of the Greek nation. Major Ross did not think the carrier mosquito was then present in the swamps and marshes, and suggested that Greek warriors returning from Asia and Africa brought back the actual germs. The rise of temperature in malaria was known to the early Greeks, although they had no thermometers. They differentiated between quotidien, tertian, and quarten fevers, though they erroneously connected the last with dysentery. Further, the ancients recognized not only that malaria was prevalent in or caused by marshy districts, but they also connected it with insects. Passing to the dark ages, nothing was done, said the lecturer, in the study of the disease. In 1530 A.D. cinchona was sent to Spain and Louis XIV. was cured with it by a quack. This gave great prominence to the discovery of the bark and marked a new epoch in the history of the disease.

The Royal Society's Commission on Sleeping Sickness, in a report on the development of trypanosomes in the tsetse, remarks that up to the end of 1908 these flies were believed to act only as mechanical carriers and the limit of time of infectivity of the flies was considered forty-eight hours, so that if an infected district could be cleared of all sufferers from the disease it would be safe for healthy persons to enter it after two days from the complete clearance. But at the close of 1908 Kleine found a fly could convey the parasite fifty days after feeding on an infected animal. Experimenting on these lines in Uganda, the commissioners found the flies on the lake shore were infected with two species of pathogenic trypanosomes, so they used flies bred in their laboratory from pupæ gathered on the shore. At first there was some trouble to obtain them, but when the natives found out what was needed they provided ample supplies. Their experiments show a late development of trypanosomes in about 5 per cent. of the flies which become infective to the animals they feed on. The shortest time after feeding on an infected animal before the fly became infected was eighteen days, the longest fifty-three days, the average thirty-four days. It is not known how long the infected fly may live on the shore. One was kept alive in the laboratory for 75 days and was infective all the time. Experiments made as to the period an infected area remains infective after the removal of the whole native population seem to point to two years as the least.

The results of the pancreatic (Cammidge) reaction in 1,475 cases were brought before the Medical Section (Royal Society of Medicine) on May 24 by Dr. P. J. Cammidge, who also submitted a separate paper on the diagnostic value of an analysis of the excreta in disease of the pancreas. He did not assert that the reaction was pathognomonic, but experience proved that it strongly suggested active degenerative changes in the pancreas and in conjunction with the history, symptoms, and analysis of the feces, was of no little clinical value. No reaction was obtained in most affections where the pancreas was not involved, nor even in quiescent cirrhosis, in some cases of calculi and cysts, nor in 67 per cent. of cancer of the pancreas unless there was pressure or obstruction. The reason being that in these exceptions there was not active degeneration of the gland substance to set free the glyconucleoprotein of the cells to which is attributed the reaction, inasmuch as the pancreas contains nearly five times as much pentose as any other organ, calculated as dry weight, and that, too, more loosely combined than anywhere else. It was therefore to be expected that the reaction would be obtained more constantly in lesions which involved degenerative changes of the pancreas and the experience of many observers tend to confirm Dr. Cammidge's conclusions.

London ratepayers are very patient burden-bearers, but they have sometimes grumbled at the Asylums' Board as inclined to extravagance. The charge is considered deserving by many and their opinion will be enforced by some remarks of the retiring chairman respecting the number of the staffs exceeding the number of patients in the board's fever hospitals. At the Eastern Hospital the staff was 157 for 130 patients. At the Northern Hospital for 276 patients the staff numbered 309. Other cases were more disproportionate, Park Hospital having nine patients and a staff of 116. Altogether in the fever hospitals the staff employed was 2,526 for 2,281 patients. In the smallpox hospitals, where there were no patients at all, a staff of ninety-seven was kept up. The matter was one which the retiring chairman commended to the attention of the managers. It does not appear why he did not bring forward the matter during his own year of office.

An unsuspected danger of contracting tuberculosis has lately been pointed out. The meat of healthy animals may become contaminated in the slaughter house. It is stated that the bacilli may frequently be found on the floor and the walls of abattoirs. Moreover, the knives used by the butchers, as well as their hands,

have been found contaminated. From these the bacilli may easily be transferred to the surface of joints during the cutting up. It is true that they would be on the surface only, and that cooking would destroy them. But underdone, and even raw, meat is often consumed, and sometimes prescribed. No wonder the disease is so prevalent, seeing that fresh foci of infection seem to be found wherever they are looked for.

The week has been very fatal to our seniors. Among the deaths that have occurred are those of three nonogenarians. The oldest had reached the age of ninety-eight. This was Dr. John Cooper, whose first diploma was dated 1838. He practised for many years in Clapham and was chief medical officer to the dispensary.

The next oldest was Sir F. Seymour Haden, M.D., who died on Wednesday at the age of ninety-two. He was for years honorary surgeon to the science and art department at South Kensington, was founder of the Royal Society of Painter Etchers, and author of several works on art, and especially etching. His reputation as an artist tended to overshadow his position as a physician. He was made K.C.B. in 1894.

The third nonogenarian also died on Wednesday at the age of ninety. This was Elizabeth Blackwell, who claimed to be the first woman doctor in modern times. She certainly led the fight for the sex on this side. I think she practised in New York in the early fifties, and was concerned in founding a hospital, but you will know. Later she practised here and greatly assisted in establishing the London Medical School for Women. Later she retired to Hastings, where she died.

Prof. William Rose, F.R.C.S., author of the "Manual of Surgery" jointly with Mr. Carless, which has for years been so much esteemed, has died after a prolonged illness in his sixty-third year. He was Emeritus Professor of King's College and Consulting Surgeon to the hospital. He graduated at the London University in 1875, taking M.B. and B.S. with first-class honors, and in the same year the Fellowship of the Royal College of Surgeons.

Dr. Robert Smith, late Medical Superintendent of Durham County Asylum, died in his seventy-eighth year. He was an Aberdeen graduate, taking the M.B. there in 1854, and the L.R.C.S.Ed. about the same time. He proceeded to M.D. four years afterward. Before being appointed to Durham he had served in the junior appointment at Dumfries Southern Asylum, and also at Newcastle-on-Tyne.

The death was lately announced of Dr. Alexander Menzies Brown, Medical Officer of Health of Sydney, New South Wales, who will be remembered as the author of "Molière and His Medical Associations" and other literary essays on Molière's period.

OUR VIENNA LETTER.

(From Our Regular Correspondent.)

MIND READING—THE ELECTRICAL ACTIVITIES OF THE HUMAN BODY—OPERATIONS UPON THE PENDANT BRAIN—THE SIGNIFICANCE OF THE FACIAL PHENOMENON—BONE TRANSPLANTATION—ETIOLOGY OF GONOCOCCUS-FREE URETHRITIS.

VIENNA, May 1, 1910.

With wide participation on the part of the scientific circles, the fourth congress of the Society of Experimental Psychology has been held in Innsbruck. Professor K. Marbe of Würzburg spoke upon "Mind-Reading and the Uniformity of Psychic Processes." The speaker first discussed the various known methods of mind-reading and completed them by the method which he has called the egomorphic method. This, which is the method of mind-reading usually used in ordinary life, consists in assigning to another the thoughts which the "reader" himself would have were he placed in the position of the other. Marbe emphasized, however, that this method does not always succeed, as the thoughts of men are substantially dependent upon their individuality, and the egomorphic method must always be completed by observation of the individuality of the man whose thoughts one is guessing. It was possible in certain researches which he had made by means of the egomorphic method, in a great majority of instances, to point out the playing card which the subject had picked out of three lying on the table. That in this manner one can guess the chosen card in a greater proportion of cases than would be expected, according to the laws of probabilities, was proved by Marbe by numerical researches, which showed that with several exposed cards certain ones were definitely preferred. The results of these researches can also be taken as evidence that the psychic processes by different individuals show a greater uniformity than *a priori* would have been expected. Marbe now reported a number of researches in other spheres in which various individuals under similar circumstances showed remarkable uniformity of psychic processes. A study of 469 persons who were asked to note a number between one and ten, then one between eleven and twenty, and one between twenty-one and thirty demonstrated that the digit five was the last figure in most of the cases. The further the last digit varied from five, either above or below, the less frequently it was given. If one asked a large number of persons to write down any color, red was noted much more frequently than any other. Of 350 school girls who were told to write an entirely optional word, 199 words were noted which were given by at least one other scholar and only fifty-two occurred singly. Marbe then spoke of the increased uniformity of psychic processes in different individuals under the influence of suggestion, and drew examples of the unity of phychic activity from history. The relatively great uniformity of psychic activity under similar conditions and influenced by suggestion gives us, according to the view of Marbe, the keynote of popular will and popular thought.

Professor Albrecht of Graz reported a new method of examining the electrical processes of the human body. Under the name of the psychogalvanic reflex phenomenon, Varaguth has pointed out an occurrence of which the physical and psychological basis was unknown. If a man took electrodes in the hands, a sufficiently delicate galvanometer included in the circuit would indicate a current which would show regular typical variations according to the sensory stimulation or mental activity of the subject. The same phenomenon appeared if one passed a current from a weak battery through the body. In recent years a number of authors have busied themselves in trying to explain the facts which underlie those phenomena. The speaker spoke of various methods of study which could lead to no satisfactory results, and then presented a series of demonstrations and tables of the experiments he had carried on for this purpose. Concerning the relations of the variations of the current, it was necessary to establish whether these occurred from changes in the resistance or in the electromotive force. The answer to this question depended upon the use of certain apparatus whose purpose was to produce the same electromotive force simultaneously in two circuits. The author described its construction, demonstrated several curves, showed the results calculated therefrom, and finally reported an improvement recently made in his method, which gave expectations that, with necessary modifications, it would be useful in measuring other electrobiological phemonena.

J. P. Karplus and Alois Kreidl have described operations on the dependent brain. In the course of some experiments on brain physiology the observation of certain points in the middle of the base of the brain was desired. In order to make the desired parts more accessible, the experimenters placed the heads of the animals in such a position that, after opening the skull and the dura mater the weight of the brain came into play. In this position of the head the hemispheres at once fell outward and drew away from the base of the skull. In order to make this separation more satisfactory, cotton was packed between the brain and the base of the skull. In this manner a thorough inspection of the base of the brain was possible, extending from the pons to the frontal pole, a field of observation such as has not been obtained by any other operative procedure. By it a whole series of investigations, which otherwise would scarcely have been possible, have been carried out under the control of the eyes. Karplus and Kreidl by this method have discovered a sympathetic center in the hypothalamus which in carnivora lies almost entirely in the base of the midbrain, and is now accessible for stimulation and destruction experiments. In the course of the experiments the method was used for exposing the base of the brain of monkeys. It was astonishing how well the animals bore the operation without any appreciable injury to the brain. The tolerance of the monkey brain to this procedure suggested the thought as to whether this method of raising the brain from the base of the skull might not be available in surgical procedures on man. In a study on the cadaver investigation showed that with unilateral wide opening of the skull and careful traction of the brain from the base of the skull, by the brain sinking outward, the same wide accessibility

of the skull cavity and inspection of the base of the brain as far the mid-line were obtained as in the monkeys.

Berthold Sperk has made a study of the significance of the facial phenomenon. He has investigated the occurrence in children between three and twelve years of age. This showed that it usually appeared in weak, anemic children with vague symptoms and nervousness. In the marked cases there were also increased knee jerks and decrease of the corneal and pharyngeal reactions. Sperk believes that these cases could be considered as a rudimentary form of tetany. He was also able to find a considerable number of cases which showed direct or family signs of tetany. The question arose as to whether there was not some relation between this nervousness and tetany, and whether the complex did not make up an entity. Sperk considers it justifiable in the development of this theory to think of a congenital or acquired relative insufficiency of the parathyroids. If the parathyroids are not able to detoxify the poisons produced by metabolism, deficiencies develop with the symptoms of manifest or latent tetany. It is theoretically conceivable that the function of the parathyroids is more important in infancy than in later life, and that in consequence infants show more readily the symptoms of manifest tetany. From this point of view the before mentioned symptom complex may be considered as a tetanoid condition, according to Escherich's idea. This would make tetany a disease produced by direct injury, or inborn or acquired, absolute or relative insufficiency, producing different clinical manifestations, according to the amount of the lesion and the age of the patient. By this theory the conception of puerile tetany receives some illumination, and an etiological insight into at least some cases of nervousness is offered.

Ludwig Moszkowicz, in the case of a patient twenty-seven years of age, with a spindle cell sarcoma of the lower end of the femur, resected a portion of bone 18 cm. long, extending into the knee joint. In order to fill up the great defect in the continuity of the femur, he used a correspondingly long piece of the fibula from the same extremity, which, carefully dissected from the muscles, was implanted with its adherent periosteum between the femur and the tibia, so that the lower pole of the piece of fibula was impacted into the medulary cavity of the femur and the head of the fibula, partly freshened, was placed in the groove between the two condyles of the tibia. Considering that the patient is able to get about with the help of a brace, the case may be accepted as a successful free bone transplantation. The *x*-ray showed some not uninteresting features. About five weeks after the operation the transplanted bone showed some changes in its contour, being here and there narrowed at the borders, and the medullary cavity widened (signs of resorption). From the femur there developed an ever-stronger periosteal callus, which surrounded the transplanted piece of bone and knitted the two together. The union of the bone was close and strong. On the other hand, at the transplantation point into the tibia, no callus appeared, which is explainable in that the transplanted bone here was not covered with periosteum—and it touched on both sides the cartilagenous articular surface of the tibia, and the callus of the freshened tibia did not reach up to produce the close union of the bones. There remained at this point a motility which, however, continually decreased. This, therefore, teaches that in the next case one should take a longer piece of bone for transplantation and imbed it well into the adjoining bones. Furthermore, it would be possible where the transplanted bone is not covered with periosteum, as in the surface of a joint, to cover the end of the bone with a periosteal flap.

Johann Fritsch has read a paper on the etiology of nongonorrheal urethritis. Lindner and Fritsch have succeeded in transferring the so-called inclusion blennorrhea of the newborn into monkeys. With equal success, Lindner and Hofstätter have inoculated the vaginal material from the mother of one of the children into the same species of monkey. It is, therefore, requisite to take steps with a gonococcus-free urethritis in man, of which Waelsch has written and Gross has studied and established. This disease of the urinary tract demonstrates itself as a rule clinically by a mucous, dull gray secretion, by a chronic course, and by the ineffectualness of all local therapeutic measures. Fritsch succeeded four weeks ago in infecting the conjunctiva of a monkey from a fourteen-day-old gonococcus-free urethritis. A few days before, Lindner had demonstrated the cell inclusion in the secretion from the patient. At the time of the inoculation a smear from the secretion failed to show the bodies. On the third day the inoculated animal showed a conjunctivitis, with intense injection, reddening, and a little secretion. On the eighth day the disease reached its high point. At this time the swelling of the conjunctiva narrowed the opening; injection, reddening, and secretion were much more marked. This condition persisted for two or three days, and then gradually subsided, but injection, redness, and a slight secretion remain to-day in the animals. Besides this, at the base of the lower lid granules are beginning to appear. Smears taken on the fifth day were negative, but those taken on the tenth day at the height of the disease showed the typical cell inclusions, which were exactly like those seen in the urethral secretion of the patient, and previously found in trachoma and blennorrhea. There were also found many free initial forms. Clinically as well as morphologically, therefore, the same picture occurs in the monkey, whether we inoculate from the vaginal secretion of the mother of a child with this form of blennorrhea, from the blennorrhea itself, from trachoma, or from a nongonorrheal urethritis in man. The results of this research justify the statement that there exists in a group of genitourinary diseases in men a virus which, inoculated into monkeys, produces in these animals a conjunctivitis which clinically and morphologically is indistinguishable from the affection which we have observed after inoculation from trachoma, inclusion blennorrhea, and the vaginal secretions of the mother of a blennorrhea infant. By these researches it is experimentally proven that there exists in men and in women a nongonorrheal genital disease which may infect the child and produce the so-called inclusion blennorrhea.

Progress of Medical Science.

Boston Medical and Surgical Journal, June 9, 1910.

Cancer of the Uterus; a Clinical Study.—S. Rushmore studies a series of 25 cases admitted to one of the Boston hospitals for uterine cancer. The series illustrates two points. First, the time suffered to elapse by the patients before a positive diagnosis was made. That a patient should suffer for two years without medical care from symptoms which suggested one of the most hopeless and fearful diseases is a sad commentary, says the author, on the present state of civilization. This condition is due primarily to ignorance or carelessness on the part of the patient. In two of the cases there was evident neglect on the part of the physician. Second, the author says that radical intervention increases the percentage of operable cases thus giving hope to a larger number of patients. In the series of cases operated on, one patient died on the twenty-fourth day from starvation. There had been some infection after operation in the pelvis where a small abscess had been opened. The temperature had never been high and for the last ten days the course had been afebrile. The patient was not able to retain food, the cause of which fact it was impossible to discover. Without the more extensive operation these cases could have been treated by palliative means only. To judge of the value of the operation years of observation and long series of cases are necessary, but the author quotes Wertheim as saying that even those patients in whom there is a cancerous involvement of the glands removed at operation may be free from recurrence at the expiration of five years.

Bier's Vein Anesthesia.—F. H. Lahey reports one case of operation upon a brachial aneurysm treated by Bier's vein anesthesia in which local anesthesia is produced by the introduction of the anesthetic into the area to be anesthetized by allowing it to filter out through the veins in this region. The method of preparing the region to be operated on is described. The case of the author was that of a man of 31 years who seemed to have an aneurysm of the lower end of the brachial artery and one that might well lend itself to the reconstructive operation of Matas. The indications for the operation were an inability to flex the arm, marked pain, and tenderness in front and just above the elbow. The cardiac conditions contraindicated the employment of a general anesthetic. In this case the anesthesia was perfectly satisfactory and the wound healed by first intention but the patient died one month later from his cardiac lesion. In Bier's own experience in 134 cases, anesthesia was perfect in 115, satisfactory in 14, while in 5 the patients suffered pain. The author gives several rules on technique which his experience has convinced him it is advisable to follow carefully in order to insure the best results.

New York Medical Journal, June 11, 1910.

Primary Tuberculosis of the Nose.—S. Oppenheimer reports the case of a man of 34 years without antecedent history. Five years ago he had a nasal obstruction and in the course of two years no less than ten intranasal operations were done for its relief. Microscopical evidence as to the nature of the recurring mass were indefinite in result but there had never been a suspicion of tuberculosis. Examination when the patient first came under the author's observation revealed a septal perforation about one inch in diameter while in the defect was crowded a mass which completely blocked it and prevented a view of the nares farther back. Apparently the growth was attached to the septum which was thickened. Smaller masses were attached to the anterior segment of the septum. In appearance the growth resembled a papilloma while the septal enlargement were indicative of an enchondroma. Microscopical examination of a fragment at this time revealed giant cells and tubercle bacilli. The operation consisted in the incision of the gingivolabial fold from the first molar tooth on the one side to a corresponding point on the other. The lip and face were then dissected from the bone until the anterior nares were exposed to view and the septum reached which was cut through below to a sufficient extent to allow the nose being turned up upon the face. The hemorrhage was considerable but easily controlled. The entire tumor was then removed as well as most of the cartilaginous septum, extending well back into the bony septum. Anteriorly he was compelled to remove tissue which appeared thickened and suspiciously diseased, so that he feared he was encroaching on the supporting nasal frame, but fortunately no deformity resulted. The lip was sutured back in position and the nares packed with gauze. Recovery was uneventful, the wound healing with considerable rapidity.

Pathology, Treatment, and Prophylaxis of Gastric and Duodenal Ulcers.—W. H. Thomson refers to a recent observation of Haliburton to the effect that just as poisons from without stimulate the cells to produce antitoxins, so harmful substances produced within the body are provided with antisubstances capable of neutralizing their effects; for this reason the blood does not clot within the blood vessels and Weissland has shown that the gastric epithelium forms an antipepsin, the intestinal epithelium an antitripsin and so on. Consequently a gastric ulcer is not a disease *sui generis*, but merely the local expression of a general dyscrasia caused by the presence in the blood of cytolites for the gastric epithelium. Hence arises the modern treatment of injecting rabbit's serum hypodermically and this has been done successfully. Injections have been used to supplement autogenous vacciues. Prophylaxis involves the consideration of dietetics, for the general dyscrasia referred to cannot begin without some disturbance of nutrition. If there are signs of local stomach inflammation resorcin has been in the author's hands the main stay, to be given in case of hemorrhage as soon as that is stopped. Similarly he has found it useful in the stomach disorders consequent upon gallstones. The only other drug he uses for such conditions is bichromate of potash. Both these agents are powerful antacids, arresting local fermentation. He also uses the bichromate in the strength of half a grain to the ounce of ordinary boric acid solution for washing out the bladder in chronic cystitis from which many of these cases suffer. The resorcin is given in doses of from five to six grains in tincture of nux vomica syrup of ginger, and peppermint water half an hour after meals and the bichromate in one-twentieth grain doses in pill form with bismuth half an hour before meals.

The Injection of the Salts of Mercury and Arsenic During the Reaction Period Following Tuberculin Injections as a Treatment for Tuberculosis.—C. A. Penrose says that his hope in making these antecedent injections was that such antiseptics would enable us to use larger does of tuberculin without risk and that the larger doses of this latter remedy by their action on tuberculous areas would insure better penetration of these antiseptics into such places. The method he first adopted was as follows: He gave his patients from one-fifth to one-third of a grain of succinimide of mercury, hypodermically, every other day until thirty injections had been taken, and then started them in with small doses of tuberculin (old tuberculin) hypodermically until a good tolerance dosage was obtained, and then gave this usually every other day, alternating with mercury injections for fifteen days. After a variable period of rest from treatment, from fifteen to thirty days, he gave another course of the mercury alone, etc. He now finds it best to get the tolerance dose of tuberculin first in the untreated case and then he has a gauge as to the amount of tuberculin best to use after the mercurial course. This, he has usually found, is three to four times as large as the initial dose of tuberculin used before the administration of the mercury. He has been surprised to find, in one case especially, that such a dose every other day gave no general reaction, although one-fourth of this dose every four or five days before the mercury was started shot the temperature persistently up to 102° F. and more. He hopes to confirm this observation later or have it confirmed by others on more numerous cases, as this was a result which seemed to him most significant.

Journal of the American Medical Association, June 11, 1910.

Vaccine Therapy.—The basal principles of vaccine therapy are laid down by J. G. Adami as follows: First, the main basal principle is that bacterial infection is primarily local, and that, even when the microbes spread from the primary focus or even when bacteriemia is set up, there still persist tissues of election in which alone those bacteria find conditions for active growth. He illustrates this by the course of a malignant streptococcus endocarditis, in which it is clear that the streptococci have been circulating in the blood, and there is no question about the bacteremia. Yet how rarely do we find a true abscess in the spleen, and the only conclusion we can reach from this and other cases is that the spleen destroys the bacteria. What is true of the spleen is true also of some of the most widespread and important tissues of the body. The germs undergo little or no destruction in the blood. The amount of phagocytosis is minimal, nor do the specific cells of the various tissues destroy the bacteria to any marked extent, with the exception of the hemolymph system. The fact that bacterial infection is primarily local indicates that there is a natural indifference or nonspecific immunity toward most bacteria existing in most of the tissues of the organism. This has its limits, but it is too little thought of, and it is this that renders vaccine therapy possible. The second great underlying principle is that once bacteria have established themselves in a given tissue and have undergone proliferation, that is a sign that that particular tissue is not immune, and any subsequent check to their growth is not due to any increase of its bactericidal power, but is due to aid contributed by the organism from elsewhere. This is generally accepted. There are certain subsidiary principles, however, of vaccine therapy that must be heeded. First as to dosage. Adami thinks that Wright's demonstration of the possibility of gauging the extent of the reaction following heteroinoculation has been of service, not so much in affording an accurate index as in showing that the best results are apt to follow doses so small that they need not induce general reaction during the next few hours, obvious to ordinary clinical observation. It is a general principle that minute rather than massive doses of vaccine are to be employed. As to the qualities of vaccine it would seem that the surer results follow the employment of minute, nonlethal doses of the specific bacteria rather than the use of dead cultures, and by the latter rather than by injecting the products of bacterial growth. Since, however, we cannot consider the resistance of the organism as normal, it is, in general, unwise to employ inoculations of the living bacteria. More constant and safer results are to be gained by the use of the dead cultures of the particular strain of pathogenic bacteria causing the infection, obtained from the patient himself rather than from stock laboratory cultures. Considering the cases suitable for vaccine treatment, we must recognize the difference in the virulence of the strains employed, and also those in the grade of resistance of the patient. If the bacteria are especially virulent and the patient extremely depressed, we have the most hopeless condition, and in neither case is vaccine therapy applicable. In the intermediate cases, however, those in which the reaction is slight might be at first thought unsuitable, the resistance of the organism having isolated or encapsulated the toxic germs. They are latent, however, and not destroyed, and may yet create mischief, and vaccine therapy may excite a stimulation of the tissues to their destruction. When a reaction exists, Adami inclines to think that a fatal outcome in severe infections is due to action of the toxin on medullary nerve centers rather than exhaustion in general, and, to guard against such excessive action on the nerve centers, vaccination should always be subcutaneous and never into the blood stream. A sinking temperature with increasing weakness of pulse and respiration is clear evidence of the overcoming of the reacting powers of the patient and here

vaccine therapy is contraindicated. On the other hand, if the fever is somewhat high and there are no signs of cardiac weakness, it may be safely undertaken. He does not consider Wright's method, valuable as it has been, as altogether perfect, and would have more hopes of educated clinical experience in this particular work. Vaccine therapy is for trained specialists, not for the general practitioner.

Poliomyelitis.—Irving M. Snow notices the scantiness of the literature of neck and diaphragmatic paralysis in poliomyelitis, and reports a case in which paralysis of both regions was observed. He also reproduces the accounts of other cases of the kind which he has collected, and draws the following conclusions: "1. Cervical poliomyelitis affecting only the origin of the phrenic and spinal accessory nerves is rare, but in the two recorded cases recovery occurred. 2. Paralysis of the neck muscles occasionally occurs in poliomyelitis and, save in Landry's paralysis, the prognosis is favorable as to restoration of function; some improvement always takes place. 3. Paralysis of the diaphragm is exceptionally seen in poliomyelitis and, although dangerous, recovery is possible."

False Metaplasia.—Peyton Rous has investigated the question whether the gradual transition of cancerous tissue into normal tissue, frequently observed on the borders of the growth, is primary or secondary. Many pathologists hold that the transition here noted is evidence at once of the primary seat of the growth and of its manner of origin. Ribbert has long held that a secondary union really explains such findings, but experimental evidence of this has been lacking. Rous has examined many grafts in which mixed tissue and embryonic tissue have grown intimately together in the new host. Mouse tumor and hashed mouse embryos have been used. In some cases there is such an intermingling of cells at the meeting point that it is impossible to determine microscopically where normal tissue ends and carcinomatous tissue begins. On histological evidence alone it would be said that the metaplasia exists. This probably explains, he says, only a part of the recorded cases in which such a continuity has been observed, but, while admitting that such may be primary, it should lead to caution in assuming that it necessarily implies the point of origin of its growth. If such a secondary appearance can be produced experimentally we may assume that there must occur many opportunities for such a secondary phenomenon in carcinoma or epithelioma.

The Lancet, June 4, 1910.

The Fatty Degeneration of Arterial Hypertension.—L. T. Thorne says that the two most common forms of tissue degeneration, the result of hypertension, are those of atheromatous and fatty degenerations accompanied in the latter by infiltration. It is not possible to distinguish clinically between fatty degeneration and fatty infiltration. In a typical case of fatty degeneration due to overtension the patient is overfat, has cold extremities, a urine of low specific gravity, but with no albumin, has an increased area of cardiac dulness, very feeble cardiac sounds, and sometimes edema of the legs and feet. These cases may be mistaken for ones of chronic nephritis but are distinguished from them by the fact that the impulse at the apex is often absent or very slight, that the heart sounds are often very feebly heard at the apex and are often too feeble to be audible over the aortic and pulmonary areas. This condition combined with increased cardiac dulness indicates a dilated and fatty heart in contradistinction to the hypertrophied and over-vigorous heart of nephritis. In the former the health can be restored, arterial tension lowered, cardiac dilatation cured, fatty degeneration arrested, and the weight greatly reduced without resort to any strictly limited dietary or vasodilator drugs. Treatment follows along the lines suggested. Nauheim baths and regulated exercises meet all indications. Drugs are unsatisfactory. If the digitalis group is used the benefit is only temporary. If the vasodilators are used the general vitality is lowered and the heart is depressed. In the plan suggested the tension is lowered but there is no depression of vitality. We get a better nutrition and consequently a more perfect heart action, the function of this organ being to nourish both itself and the system at large.

Pulmonary Tuberculosis in Children.—M. H. Williams says that the time has come to alter our conception of tuberculosis. It is generally a non-fatal disease. Tubercle bacilli are present in a large number of people but do harm only in a small percentage of cases. Tuberculous infection begins in many cases in early childhood and its frequency increases as the child approaches puberty. The author analyzes collections of statistics taken by various English authorities and makes a plea for abandonment in common use of the term "phthisis." In examining children it is often impossible to make a positive diagnosis at the first examination. Some require several examinations before a positive conclusion can be arrived at. In children it is notoriously difficult to get enough sputum for examination and hence the tubercle bacilli can rarely be found. Speaking from the standpoint of school inspection the author says that if it is to be more than a farce and a farce disgraceful to the medical profession, we must insist on taking such time as we, each one, consider necessary for diagnosis. We cannot advise either our education authority or the parents, of the many steps necessary if we cannot diagnose what diseases are present. And the fact that examination of the lungs takes time is no reason for omitting it.

The Pathology of Rheumatic Fever.—F. J. Poynton and A. Paine review their work on this subject during the last ten years and repeat their two main conclusions. First, that a diplococcus, streptococcus, or micrococcus is a cause and most probably the only exciting cause of acute rheumatism and secondly that acute rheumatism may be a cause of simple and of malignant endocarditis. They answer various objections to this theory which from time to time have been brought forward. The microorganism they believe to be the one in fault has not been found in every case examined but there is no proof that it may not be present; with regard to its specificity they are led to believe that no other germ can be found in the rheumatic lesions of man which will produce similar lesions in animals. Undoubtedly various organisms produce experimental endocarditis as they may also produce endocarditis in man but various organisms are not found in human rheumatic endocarditis which will reproduce the disease. They do not pretend that a pure culture is a constant result but they have invariably found that the streptodiplococci predominate. In general they assert that no explanation of acute rheumatism can compare with that which attributes it to an infection with a diplococcus of the streptococcus group. The paper is most interesting and well worthy of being read by all who wish the latest discussion on the cause of acute rheumatism.

British Medical Journal, June 4, 1910.

The Rightward Edge of Cardiac Dulness.—W. Gordon says that any statement in regard to the transverse measurement of the heart made without mention of the patient's attitude or posture at the moment is utterly worthless. In the recumbent position we get, in many cardiac cases, a misleading idea of the condition of the right heart which is then percussionably almost invisible while in the upright position we usually have the great advantage of having much more of the right heart percussionally in view. The author has previously pointed out how in cases of cardiac disease the variation in dullness in change of position is even more considerable than in the case of the normal heart and how necessary it is to bear these facts in mind before making a final opinion. If we examine transverse frozen sections of the body taken at the levels of the fifth intercostal cartilages and the third intercostal space respectively we see that the right auricle does not lie nearly so close to the chest wall as does the right ventricle and that a considerable part of the right ventricle falls back from the chest wall toward the right. Thus a great deal of the right heart is seen to be removed from contact with the chest wall. When the erect posture is assumed gravity no longer tends to pull the heart from the chest wall, while the heart as a whole comes more fully into contact with the sternum and the rib cartilages. Under these circumstances the right ward region of the heart which in recumbency is percussionally invisible might be reasonably expected to come more fully into view. It becomes clear that the width of the cardiac dullness in the erect position is a much more reliable measure of the heart's true width than in the dullness in the recumbent posture. Illustrative diagrams support the author's contention.

Gastrotaxis.—W. Hale White reviews Bolton's article on this subject in the *Journal* of May 21 and in the main supports the latter's views. He himself has seen only three cases out of 7,500 post mortems. We do not know the cause of it any more than we do that of nose bleed in young boys and of menstruation in girls. There is reason to believe that a similar oozing may take place from the vessels of the kidney and give rise to blood in the urine. Probably some cases of suspected stone in which no stone is found are examples of the lesion now considered. Several cases of bleeding from the stomach have lately been recorded in connection with appendix disease. Although

this is difficult to explain it is easier to imagine that some toxin from the appendix acting as an endothelial poison would cause gastrotaxis or oozing of blood rather than cause gastric ulcer for we know that in toxemia associated with liver disease (apart from portal congestion), hematemesis may occur without any ulceration of the stomach and rupture of minute gastric vessels is not rare in acute infective processes, for out of 172 post mortems on patients with gastric ecchymoses seen at Guy's Hospital, in 68 the cause of death was an acute infective process.

Sterilization of the Skin in Operative Areas.—J. L. Stretton gives the results of 348 cases. He is an advocate of iodine in disinfecting surgical fields. He believes that it is absolutely unnecessary to shave the skin and this is an important advantage. He finds that staining does not persist and that by the time most operations are finished the staining has already gone. If the stain persists it vanishes on washing with a 3 per cent. solution of carbolic acid. Towels are cleaned by soaking in the same solution. As a rule there is no desquamation. The solution should be kept tightly corked and used from a wide-mouthed bottle. Personally the author has never seen a case of dermatitis from the remedy though several have been reported. The only disadvantage he has discovered is lacrymation, to which some assistants are more susceptible than are others. The tincture made from the rectified spirit is far less irritating than that made from the methylated spirit and can be tolerated by most people. The author still uses the methylated preparation for the primary painting immediately before operation. The second painting is done when the anesthesia is complete and this is done with the rectified preparation. The final painting when the operation is finished is done with the methylated. The matter is merely one of expense.

A Case of Prolonged Abstinence.—B. Hall reports the case of a woman of 66 years who had a cancerous mass in the rectum but who declined all operation. There was complete stoppage of the bowels throughout the duration of the case, nothing passing but a little foul discharge. Vomiting took place even after a mouthful of water. The abdomen become distended but caused little distress. Occasional back pains were relieved by hypodermics of morphine and toward the close these were given every six hours. A bed sore developed over the sacrum. For fifty-one days she was absolutely without food and practically without drink. This period seems to be about the limit to which life may be prolonged during complete abstinence. Considering the cancer and the bed sore one must regard this case as unusual and remarkable.

Berliner klinische Wochenschrift, May 23, 1910.

Intratracheal Insufflation (Meltzer) on Man.—Lilienthal and Elsberg report three cases in which the Meltzer method of intratracheal insufflation was used in human beings. The first case was that of a patient dying of myasthenia gravis. When the disease had progressed until respiration stopped, she was unconscious, and pulseless; the tube was inserted into the trachea and insufflation was begun under 20 mm. pressure. Within a minute the patient's appearance changed. The face became light rose colored, the lips red, and the pulse could be felt, at first very slow, 32 per minute, but soon 110 to 120. The insufflation was kept up for five hours, during which time there were no respiratory movements, but the color remained good and the pulse 120. At the end of this time the patient's condition being hopeless, the insufflation was discontinued. The second case was of a man, aged 55, who gave signs of a pulmonary abscess. After painting the throat with a 10 per cent. solution of cocaine the tube was inserted easily to the bifurcation of the trachea. Insufflation was begun with ether and air under 15 mm. pressure. This caused a cough, which was stopped by slightly withdrawing the tube. An incision four inches long was made through the left pleura, and the lungs thoroughly explored, and an aspiration needle inserted in several places. The abscess was not found. During the closing of the wound the pressure was raised to 25 mm. in order to fill the thorax completely with lung and drive out all air. When the last stitch was taken the pressure was raised to 30 mm. Respiration instantly ceased, but soon began again at a rate of 32 per minute. The pleural cavity was open for twenty-five minutes. The insufflation lasted fifty-five minutes. There was no cyanosis at any time. The pulse at first was 120, but soon dropped to 108, and remained between 96 and 108 throughout the operation. The respiration varied from 32 to 48. The patient made a rapid recovery, and has remained well since. The third case was a simple rib resection and drainage for empyema. This operation was uneventful. The disappearance of râles as soon as the insufflation began was noteworthy.

Morbus Ceruleus in Four Generations.—Burwinkel reports the case of a man of 55 years of age who had been blue since birth. Though his color was very dark, and there was a loud systolic murmur, best heard at the left border of the sternum at the third interspace, he had no subjective symptoms, the heart was not enlarged, and he had served two years in the army. The point of interest was that several other members of his family had also suffered from morbus ceruleus. His grandmother died of old age at 76, having been blue from birth. His mother also was affected, having died at 44. A younger brother was normal. His sister and her only child were both congenital cardiac cases, as were two of his own three children. In none were there any symptoms of cardiac insufficiency.

Münchener medizinische Wochenschrift, May 17, 1910.

The Nature and Mode of Infection of the Poliomyelitis Virus.—Römer and Joseph state that virus of poliomyelitis, which had been preserved for five months in undiluted glycerine, when injected into monkeys was shown not to have lost its virulence, or even to have had its virulence lessened. They then discuss the relation of gastrointestinal symptoms to etiology and show that in monkeys the diarrhea is simultaneous with, not antecedent to, the paralysis. On the theory that the intestinal symptoms, rather than being the cause of the disease, might be the result of the excretion of the virus through the bowel, they injected a monkey intracerebrally. Three days after the simultaneous appearance of general symptoms of illness, onset of paralysis, and occurrence of diarrhea, the animal died. At autopsy the mesenteric glands were found greatly enlarged. These glands injected into a healthy monkey produced paralysis.

Transient Cerebral Hemiplegia.—Riebold says that mild transient cerebral hemiplegia may be caused by the presence of local disease of the cerebral blood vessels, causing temporary mechanical interference with the circulation and consequently momentary anemia of definite portions of the brain, without anatomical lesions. A second cause may be emboli or thrombi in the very small blood vessels and the rapid formation of collateral circulation. His observations suggest that possibly at times large anatomical anastomoses may exist between the branches of the arteriæ fossa Sylvii, which may permit of rapid recovery even from severe cerebral hemiplegias following obstruction of a main trunk of the arteria fossa Sylvii.

Deutsche medizinische Wochenschrift, May 12, 1910.

Scarlet-red and Epithelial Growth.—M. Strauss has made use of 8 per cent. ointments of scarlet-red as a local application to granulating wounds. The first application of 24 hours caused some irritation and a thin gray-white film over the granulations and some increased secretion. The use of antiseptics is not necessary. If the irritation is too great the ointment should be discontinued for from two to twenty-four hours. The results of the use of the ointment is shown not only by the rapidity of cure, but by the thickness of the epithelium produced. The scarlet red ointment is a valuable material for local application to wounds. So far no untoward results have followed its use. The fear that the stimulation of the epithelial proliferation may lead to the formation of cancer is not well grounded. In these cases the drug is applied superficially, while in the animal experiments it was injected subcutaneously. The epithelium produced has the microscopic appearance of normal epidermis.

Costochondral Abscess from the Paratyphoid Bacillus.—John Reenstjerna reports the case of a man 41 years of age. In 1906 he had an indefinite attack of fever which lasted three weeks. After his recovery he had pain and tenderness in the left side. He was observed in a hospital for two weeks, where it was considered that he had a gastric ulcer, or splenic abscess. At the end of 1907 a small swelling was evident over the rib. By Christmas, 1908, this was considerably larger, and in February, 1909, the swelling was opened and a costochondral abscess was discovered, which contained the *Bacillus paratyphosus B.* The patient made a rapid recovery.

Pruritus Ani.—The cause of some obstinate cases of pruritus ani is the presence of a small ulcer on the rectal mucous membrane, between the external and internal sphincters. The best treatment is forcible stretching of the sphincter.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-first Annual Meeting, Held in St. Louis, June 6, 7, 8, 9, and 10, 1910.

(Special Report to the MEDICAL RECORD.)

(*Continued from page 1033.*)

SECTION ON SURGERY.

Thursday, June 9—Third Day.

THE election of officers for the ensuing year was as follows:

Chairman, George W. Crile of Cleveland, Ohio; *Vice-Chairman,* Emmett Rixford of California; *Secretary,* John T. Bottomley of Boston, Mass.; *Orator,* George E. Brewer of New York; *Delegates,* A. F. Jonas of Omaha, Neb.

Partial Thyroidectomy in Dementia Precox.—Dr. RANDOLPH WINSLOW of Baltimore said that this well-known condition of progressive insanity, which occurred about equally in both sexes and presented clinically many of the signs commonly attributed to hypersecretion of the thyroid, was in at least a few of the cases susceptible to cure by surgical method. He himself was able to report two such cases in one of which at least there had been a certain return to health. It was significant that the operation in these cases was attended with the usual dangers, which accompanied parathyroidectomy in exophthalmic goiter. A further point of suggestive value was that the administration of thyroid preparations usually exaggerated the symptoms.

Diagnosis and Treatment of Esophageal Lesions.—Dr. H. S. PLUMMER of Rochester, Minn., first discussed the important points in the technical usefulness of the well-known methods of conducting esophageal work, namely esophagoscopy, roentgenoscopy, and finally instrumentation. The keynote he said of this new branch of diagnosis and treatment was safety to the patient. All instruments that were used should be patterned in their general make-up as closely as possible after a hypothetical instrument, which gradually emerged in substance from a harmless thread to a firm staff. The recognition of pockets and diverticula was of the greatest importance and in this the well-known shape of the bismuth shadow at its aboral extremity was the most importnt diagnostic feature. In all this work, the use of a silk thread, six yards of which was to be swallowed, proved to be of the utmost value. This length of thread introduced into the intestine afforded a medium upon which sounds and dilators could safely be passed, and in the hands of an experienced operator, the degree of tension upon the thread could easily be so modified as to enable accurate measurements to be made of the depth of any pockets. Outside of the removal of foreign bodies, of course the importance of esophagostomy was chiefly in determining the character of the esophageal wall, and early diagnosis of malignant growth might confidently be looked forward to throughout the country in the near future, as the technic had so far advanced as to place this diagnosis within reach of any painstaking and skillful person. In the Rochester clinics, as a rule, a five-minute examination was possible without an anesthetic, and this usually afforded time to do the necessary work.

Dr. WILLY MEYER of New York, in opening the discussion, said that in certain cases of chronic cardiospasm where the patient had suffered for many years, and in which there must have occurred a degree of muscular stretching around the stricture which would prevent the return of the parts to normal physiological function even after dilatation, operative surgery might be necessary. Such a case had occurred in his service. Under differential pressure, he had entered the seventh intercostal space posteriorly, had without difficulty found the diverticulum, and on account of the bad condition of the patient, he had made a plication of the esophageal wall about two inches long, instead of resecting it, as he had hoped to have been able to do. The wound was closed and the patient did well, but had sudden dyspnea twelve hours later. She was put in a pressure box where she breathed comfortably. After six hours, it was possible to take her out and she made a good recovery.

Dr. Plummer, in closing, said that he had not met a case of cardiospasm in the first sixty-five cases so far treated, which could not be cured by dilatation of the cardia.

Certain Surgical Aspects of Goiter.—Dr. G. W. CRILE of Cleveland said that the work which he had to report was based on the hypothesis that the symptoms of hyperthyroidism were not due to the factors usually submitted, but to ganglionic cellular changes produced by a combination of fear on the part of the patient and tissue maltreatment on the part of the operator. Studies of the brain and cord show that fear could produce chromatolysis in the nerve cells. It was interesting to review the many factors which in time past had been considered as important in causing the fatal postoperative syndrome. Nothing could demonstrate more clearly the condition of flux in which the entire subject was still to be found than the rapid acceptance and rejection of explanatory hypotheses Hemorrage was among the first to be dreaded, but it came about that the fear of it vanished when competent observers found that the ligation of the superior thyroid was as often followed by hyperthyroidism as was the operation of resection. In like manner, the fear of infection had come and gone. Still prominent as a possible causative agent was the hypothesis that the secretions liberated at the time of operation might be responsible. Here again one was confronted by the forbidding fact that severe massage amounting even to the roughest handling of the gland did not produce the symptom complex. A hitherto unrecognized element was fear. It was well known that fear had killed men and women. The exclusion therefore of psychic factors was of the utmost importance. What more was necessary for the complete protection of the patient? Hirst had shown that patients suffering from exophthalmic goiter were hypersensitive to traumata inflicted anywhere on the body and particularly traumata to tissues phylogenetically allied to the thyroid. Obviously the treatment indicated by a consideration of these facts was to eliminate fear entirely. To give a general anesthetic without the patient's knowing it, and in addition to cocainize the parts before operation as thoroughly as one would for operation under local anesthesia. The success attending this mode of treatment was conclusive proof of the soundness of the argument. There was undoubtedly a pathological reciprocal interaction between the brain and the gland and this took place via the nerves. It had long been known that important nerve trunks entered the gland in the region of the superior thyroid. It seemed probable that in ligating this vessel, the benefit which was often amazing in extent came from interruption of the nerve paths rather than in any diminution of the blood supply. For it was well known that the anastomosis would compensate at an early date, and that little, if any, permanent decrease in the blood supply was clinically possible. Finally the speaker emphasized the necessity of removing the patient from the environment which had accompanied the development of the disease.

Dr. A. J. OCHSNER of Chicago, in opening the discussion, said that the author's method of reasoning by exclusion was most valuable. In the normal human body, there existed a balance in the physiological terms which accommodated considerable hyperthyroidism. Any overstrain, whether physical or psychic, might carry a poorly

endowed young person over the balance. It was unquestionable that all harmful causes and conditions should be eliminated both before and after operation.

Dr. A. A. McLaren of St. Paul said that he thought the paper a most important one and agreed that fear was in these cases more than any other a very deciding element.

Dr. Martin Tinker of Ithaca believed that simple manipulation of the gland might cause temperature and other manifestations. He wondered why the free use of drainage was so necessary in all cases of thyroidectomy and suggested the possibility of Dr. Crile's well-known operative skill having more to do with the patient's freedom from symptoms and with the remarkable series shown by the author, than the removal of the elements which Dr. Crile had considered the determining cause. The speaker, in operating upon a hundred cases, had found it very desirable to divide the operation into several stages, and he thought that an estimation of the resisting power of the patient constituted a very importnat surgical factor. He agreed that the local anesthesia was a very important adjunct in eliminating shock.

Dr. W. R. Cubbins of Chicago suggested that the persistence of clinical symptoms in the face of avowed improvement on the part of the patient meant that most of the value from an operative standpoint came from suggestion alone.

Dr. C. W. Mayo of Rochester said that it should be the duty of every surgeon to cause as many "medical deaths" as possible. Thus, particular care had been exercised at the Rochester clinic, not only in the choice of patients, but in the time of operation. Individuals suffering from exophthalmic goiter had well-marked periods of exacerbation and of recession and it was of great importance that the period of greatest inactivity be chosen for operation. He agreed with Dr. Crile and emphasized the value of his work. There were, he believed, unquestionably certain cytolytic changes; a granular breaking up of the tissues of which we as yet knew very little, but which were equally sure of solution in the near future.

Dr. Crile, in closing, thanked the section for the discussion and said that he had wished, particularly, to devise a method of ligation which could be done without danger. He regarded the elimination of the psychic factor and the marooning of the brain as the two essentials in a safe operation. Their employment made possible the ligation of the superior thyroid even when in the most advanced and feeble cases, thus giving a chance to all. The operation broke the pathologic chain and rest cure would prevent its union. This took a year, and no less time should be employed, for it was certain that the cure of a relapse case was far more difficult and hazardous than that of the original disease.

Surgical Management of Suppurative Peritonitis.—Dr. A. D. Bevan of Chicago said that if any man whose chief interests lay in the domain of internal medicine alone, said to the surgeon that medical progress was of late years but little indebted to the art of surgery, no better rebuttal was to be found than in the presentation of the remarkable history of the treatment of peritonitis. This remarkable achievement was to be credited entirely to the clinical surgeon and the development of the work had taken place very largely in the last five years. The surgical treatment might be considered under four heads: (1) saline, (2) rest and starvation, (3) Blake's irrigation, and (4) removal of cause. Considering these in detail, it would be remembered by all that the time was still recent when patients were tortured by the introduction of wholesale doses of concentrated salts in the hope of eliminating the disease factors. Paralytic ilius alone was to be considered the justification for such treatment. Ochsner's treatment was as yet little understood. It favored localization and walling off and prevented generalization. It was therefore not indicated in the class of cases under consideration. As to Blake's irrigation, he regarded the method as excellent if employed after the removal of the cause and if followed by immediate abdominal closure. Enteroclysis, or the so-called drop method of Murphy, held a most important place in the treatment of the disease. All essential was a logical and intelligent employment of the different methods either alone or in combination. An early diagnosis, which meant that it must be made within the first twelve hours, was essential. These, in the very nature of the disorder, must not depend upon distension and other late signs which were evidences of approaching death rather than of the disease; but upon pain, tenderness, and rigidity, which were the real indices of general peritonitis. If a leak existed in one of the hollow viscera it certainly was unsurgical not to close it, and this even at considerable cost of time. A convenient method to determine clinically whether general peritonitis existed or not was to slip gently into the peritoneal fossæ a catheter which might conveniently be used as a pipette. This did no harm, because soft, and with it one could remove for inspection any fluids which might be present. He advocated irrigation, but not by the syphon principle of Blake. The exaggerated Fowler position, he believed, had been responsible for many painful deaths, because of exhausting the patient. In his service, he had as a routine merely elevated the bed. This obtained gravitation for the pelvis and allowed most conveniently of intermittent irrigation, which he considered as good clinically as the drop method and which in his experience was more easily and therefore surely applied by the general average surgical nurse.

Dr. W. L. Rodman of Philadelphia, in opening the discussion, agreed that the essential in this treatment was thorough diagnosis. The saline treatment *per se* had little use in his hands. The Ochsner treatment was in his interpretation of it for the prevention of general peritonitis and was therefore not designed for the treatment of it. As to closure of the causative lesion without subsequent drainage, this did not interest him. Flushing was for the occasional case only. The main stay in the treatment to his mind consisted in bowel irrigation and plenty of it.

Dr. W. H. Wathen of Louisville, Ky., said that the diagnosis and treatment of general peritonitis was not yet agreed upon. He was opposed to irrigation and also saline and cathartics.

Dr. A. J. Ochsner said that the following definite step must be followed, viz., early diagnosis, closure of the opening in the hollow viscus, gastric lavage, rectal irrigation.

Dr. Bevan, in closing, said that the man was a fool who in the presence of threatened peritonitis gave a saline. The one and only condition in which it was indicative was in intestinal paralysis. Blake had shown that many cases might be cured without drainage, and had demonstrated that the dangers of irrigation were theoretical rather than real.

Conservative Surgery of the Pelvic Region and Lower Abdominal Wall.—Dr. F. W. Rae of Atlanta, Georgia, said that surgical victims were as frequent as surgical victories. Neurologists and general practitioners, as well as open-minded gynecologists and surgeons, were agreed that the wave of conservative surgery of the female pelvis, which had swept over the country in the last three years was a most beneficent and timely one. In rebuttal of the falacious teachings of the few remaining radicals in this department the author presented a splendid series of conservative pelvic operations in 16 per cent. of which pregnancy had occurred. This alone, quite aside from the preservation of the woman, which had occurred in 100 per cent. of the conservatively operated cases, was enough to justify the acceptance of the modern treatment. He emphasized the horrible condition of nervous prostration, social ostracism, and absolute uselessness of the women

who in thousands of cases had undergone the easy but destructive operation of total oophorectomy. The author demonstrated a transverse incision for the drainage of pus cases by which the abdomen was entered through the loin very rapidly, satisfactorily, and at a dependent point.

Dr. J. M. Baldy of Philadelphia said that it appeared to him self-evident that the diagnosis of a pelvic lesion, both before operation and at the time of exposure of the parts, was of paramount importance. The operator, therefore, must not only be a good clinician, but must be competent to know what he was looking at when operating. There was no question, be it admitted to his grace of the operating profession, that countless numbers of women were operated upon by improperly qualified persons, whose lesions, whether real or imaginary, properly belonged to the domain of outdoor treatment and rational hygiene.

Dr. McRae, in closing, said that it was aphorismal that the younger the woman, the more necessary and imperative became the saving of ovarian tissue.

Some Further Experience of Drainage of Pelvic Abscess Through the Rectum.—Dr. A. MacLaren of St. Paul, Minn., said that the English had done more work in this important field than we had. Of course the object of the technique was to give the male the same advantages of drainage as was enjoyed by the female through Douglas' cul-de-sac. He had observed that many cases of neglected appendicitis had severe pain in the rectum, and he believed that in opening abscesses at their place of pointing in the rectum we should be only imitating nature and that operation could be done much more safely after relief of pressure than before it.

Dr. J. M. Baldy of Philadelphia said that the cases in which this technique might be indicated, would, it was to be hoped, be exceedingly rare in this day of surgical progress. For the exceedingly small number of cases, which through the neglect or the cupidity of attending physician, got into such condition that this procedure was necessary, the speaker concluded it an excellent one.

Dr. Morris Richardson of Boston said that in the early days of abdominal surgery he had observed many cases of abscess breaking into the intestinal canal. The results were rather uniformly good and it constituted nature's method of healing.

Temporary and Permanent Occlusion of the Large Arteries with Removable Metallic Bands.—Dr. Rudolph Matas in conjunction with Dr. C. W. Allen of New Orleans said that a great many experiments performed under anesthesia on animals by the authors proved conclusively that the blood stream could be interrupted in the arteries as long as 72 hours without damaging the vessels. The occlusion could be obtained with great simplicity and security by approximating the walls of the vessels with an aluminum band. This aluminum band could be removed without difficulty if symptoms or signs of peripheral ischemia and mortification appeared. Advantages of the band over the ligature, especially in dealing with large arteries, were conspicuous. He gave a description of the flat band devised by the authors as a simple substitute for the Halsted rolled band. He also spoke of histological changes in the arteries in various stages of occlusion. The author gave a report of cases in which the bands had been applied in man in carotid, and subclavian arteries, and of the thoracic and abdominal aorta and other arteries in animals.

Dr. Daniel Eisendrath of Chicago said that it was astonishing how long such ischemia as had been discussed by the author would be tolerated by the parenchyma of certain organs. The cortex of a rabbit's kidney will not degenerate until after one hour.

Diagnosis of Mammary Cancer.—William L. Rodman of Philadelphia said that there were many important points to be considered in diagnosing cancer of the breast. As time went on, sarcoma was found to be more scarce even than originally supposed, it amounting to not more than 2 per cent. All growths should be regarded as potentially malignant and retension cysts of all kinds were specifically to be placed in this class. They occurred often in unmarried women between the ages of 40 and 50, were generally diffuse, and were frequently found in the lower and outer quadrant. In the latter, or multilocular cystic stage, they were easily recognized, but in the early stage, it required the microscope to distinguish them. So far as the clinical diagnosis of malignancy went, the older he grew the more he feared to make it, and he was certain that the man did not live who could always be accurate in his conclusions. There was retraction of the nipple in but 52 per cent of cancers, and this sign might easily be present in benign growth. It was therefore valueless and all general practitioners should know this. Surely not more than 75 per cent. of all cases could be safely diagnosed. A microscopic diagnosis could not be made in cystic growths, but was easier in solid growths. Fresh stains and frozen sections in the hands of experienced men gave certain data and could be had in three minutes' time. Removal of any fragments for diagnostic purposes was absolutely faulty technique.

Operative Treatment of Cancer of the Breast.—Dr. Morris Richardson of Boston confidently expressed the cheering belief that we should soon have an effective non-operative cure. At present, however, it could not be too strongly urged upon the general practitioner that operation should be done, even if the suspicion of malignancy was the very slightest, and it was an axiom in his practice to remove all breasts in which there existed any reasonable doubt. The man who says a breast tumor is not malignant assumes a frightful responsibility. As to the extent of the operation it was obvious that the more extensive the better the results, but common sense did not require girdle amputations of the upper extremity. He regarded the value of the statistics as questionable because of the fluctuating conditions under which they were compiled. The three-year limit was of value chiefly in helping to quiet and comfort the patient. For his own part, he had seen recurrences in the spine frequently after the tenth year. Clinically, he regarded diffuse infiltration of the breast rather than the breaking through of the skin as particularly sinister and hopeless. Furthermore, if while operating the glands were found to be at all definitely attached to the vessels or fascia the case might be regarded as hopeless from the standpoint of recurrence.

Dr. Willy Meyer of New York, in opening his discussion, said that the operation was distinctly an American one. The technic was necessarily of two types, either away from the chest or toward it. The latter was gradually coming into vogue.

Dr. Parker Simms of New York said that when one realized that from 80 to 90 per cent. of all breast tumors were cancerous and further when one thought of the tendency of all benign growths to degenerate one was forced to conclude that there were no cases not calling for operation. One sympton he had never seen in print, namely, the elevation of the nipple on the malignant side. This was owing to the shortening in the trabeculae and did not take place in benign growth. It was, of course, an early sign.

Dr. Rodman, in closing, said that upon the general practitioner hung the responsibility of early diagnosis. It was beyond the keen of any surgeon to diagnose involution without the aid of frozen sections.

Physiological Implantations of Severed Ureter or Bile Duct into the Intestine.—Dr. R. C. Coffey of Portland, Oregon, said that an enormous amount of work had been done on this important subject, and that over 250 cases had been published upon it. With the exception of the Matyl operation the results had uniformly been bad.

Because of the character of the intestinal wall in dogs the results in human beings so far as ascending infection went had been more encouraging. He demonstrated an extremely clever adaptation of the natural valve to be found, both in the duodenum and in the bladder, and showed by illustrations how one might easily cut the wall of the viscus down to the mucous membrane and then enter the cavity at the further end of the incision with the ureter or bile duct. Bladders and duodenum distended with water pressure and would not regurgitate after the making of such a valvular anastomosis any more than they would if one used the natural valve. He demonstrated a large number of specimens which showed how admirably this technique had protected the kidneys from infection.

Dr. Arthur Sullivan of Madison, Wis., in opening the discussion, complimented Dr. Coffey on the extraordinary success of his technic and said that the work which he had done at the Columbia Laboratory had taught him the extreme difficulty of accomplishing what Dr. Coffey appeared to have done so easily. His own work, while closely resembling that of the authors, had consisted in an effort to reconstruct the diseased duct and in addition to utilizing a tube in this reconstruction his technic had differed from that just presented in that the valve had consisted of all of the coats of the duct rather than the mucosa alone. He had observed a number of reconstructed bile ducts functionating in dogs for varying periods from several months up to one year.

Dr. J. W. Draper Maury of New York said that he had assisted Dr. Sullivan in his work and took pleasure in corroborating his findings. As to the value of the work presented by these two gentlemen he made no comment, saying it was self-evident. He did make a strong plea, however, for every medical man present—and he hoped every State in the Union was represented—to go home and watch the Legislative proceedings constantly and scrupulously. The antivivisectionists would certainly make an effort this year to force a bill through in some State where the medical work was not active, which bill would be the first fatal step in sealing the progress of this research surgical work. The importance of shelving all such bills could not be overestimated, and the responsibility to the public lay with the medical profession.

Dr. Coffey, in closing, said that he was pleased to hear of Dr. Sullivan's technique and would use it in future in experimental work.

A Further Consideration of Cholecystenterostomy in Certain Cases of Pancreatitis.—Dr. LeGrand Guerry of Columbia, S. C., said that of fifteen cases of chronic appendicitis reported all were confirmed by operation. All were treated by simple drainage. Ten of this number were reopened and permanent drainage instituted. Stone formation was not by any means a constant accompaniment of pancreatitis. Nevertheless, temporary drainage was insufficient if the pancreatic inflammation had progressed to a certain stage. It did not require any very marked obstruction to prevent the outflow of bile. The author had had gratifying results in that all cases treated by permanent drainage had remained well. He regarded the technic as based upon rational foundation and entitled to a larger sphere of usefulness than it at present enjoyed.

Pathology of the Gall-Bladder and Galltract.—Dr. J. P. Runyon of Little Rock, Ark., said that functionally the digestive organs were synergistic. Infection very frequently took place via the portal vein and it was significant that the bile was frequently found infected in pneumonia. He urged the necessity of early diagnosis and operative treatment. He felt certain that gallstones occurred more frequently than usually supposed before middle age and cited in support of this the frequent association of dyspepsia, which at operation was proven to be due to gallstones. The bile salts, of course, were the most toxic constituents of the bile. By the nature of the morphology of the parts occlusion of the common bile duct frequently caused exclusion of pancreatic secretion from the intestine. It was well known by experimental work of Flexner and others that bile was extremely irritating to the pancreas and that its entrance through the gland was frequently followed by acute hemorrhagic inflammation. The function of the bile was well known. Its exclusion from the intestines interfered with the digestion and absorption of fats. The function of the gall-bladder was a double one, viz, to manufacture mucus and to relieve the common bile duct from all pressure.

Inguinal Hernia Following Appendectomy.—Dr. A. M. Pond of Dubuque, Ia., spoke most interestingly on the applied anatomy of the region and discussed the various incisions commonly utilized for the removel of the appendix. It had been proven many times that the integrity of the inguinal canal depended on proper nerve stimulus, and the frequency of inguinal hernia following appendectomy was unquestionably due to the cutting of the nerves supplying the canal.

Teaching the Principles of Surgery; the Ideal and the Practical.—Dr. Martin B. Tinker of Ithaca, N. Y., said that the surgery of the future would be what the man of to-day made it. One predominant fault of present-day teaching was the failure to recognize the relative value of the teachings. The student should be taught the things which all practitioners should know, the simple things, such as the control of hemorrhage, the treatment of nosebleed, of leg ulcer, of minor injuries in general. The ability to do such work and do it properly was the measure of the usefulness of the medical man in his community. His uselessness might equally be measured by his effort to do major surgery before he had attained the necessary qualifications. This in the future should be done only by men who had had proper and long-continued service as hospital internes, as residents, and as assistants to some of the great operators. What was wanted, and the want was a real one, from the Atlantic to the Pacific, was more training in the simple, every-day things, less surgical, technique, and more surgical diagnosis. Nothing could be more erroneous, the author thought, than to teach these young men the newest and, perhaps, as yet, little proved technical surgical procedures. For example, how much more necessary and desirable from the standpoint both of the profession and of the laity that the young graduate should know practical preparation of his hands, of catgut, and of operative field, rather than the size needles which might or might not be employed in the anastomosing of blood vessels. At Cornell the students took great interest in learning the things referred to in the Research Laboratory, and it was indisputable that a man whose hands had been found surgically filthy by himself, after washing in permanganate and surgically clean after the use of Herrington's solution would never forget that lesson. Remembering it would save more human lives than a hypothetical knowledge about aneurysmorrhaphy. Furthermore, the teaching of general anesthesia should be a classroom routine procedure, for every man, no matter what his subsequent predilection and tastes, should have a practical knowledge of this important branch. In conclusion he urged that emphasis should be laid on principles rather than on the presentation of jumbled facts. The teachers should be paid enough to make possible the devotion of the major part of their time to their work rather than to try to practice. The university should control its own hospital where surgical diagnosis rather than treatment should be the keynote of bedside teaching.

Dr. J. C. Stewart of Minnesota, in opening the discussion, spoke of the timeliness of the paper and emphasized

that the glorification of operative surgery had made every student wild to operate. What could be more unfortunate? Every surgeon of large experience knew that to gain this experience he had to sacrifice many human lives. At the time of his novitiate this was unavoidable, but fortunately for all, these times had passed and there was no excuse, either now or in the future, for allowing further sacrifice. There were abundant opportunities throughout the country for all who wished to qualify as practising surgeons, and it was the speaker's hope that the profession would take upon itself the important duty of regulating the matter of surgical practice on its own initiative and before it was forced to do so by leglislative activities. Such legislative activity had been pronounced in at least one State, and at the University of Minnesota arrangements were being made to grant special surgical degrees to qualified students. The degree would be an honorary one; would be based on five years' work and one year's residence in the University Hospital. This, he hoped, would ultimately lead to proper legislation, which should certainly be in the hands of the universities. So far as the teaching went, in his experience, one of the greatest difficulties was the obtaining of proper textbooks.

A Simple Operation for Hemorrhoids without Hemorrhage.—Dr. L. J. Hirschman of Detroit said that in no surgical field was there greater field for the successful operation of quacks and charlatans than that under discussion. It had come to be an accepted dogma with surgeons that internal hemorrhoids could not be operated on except under major anesthesia. He had found that with the double salt of quinine and urea hydrochlorate an anesthesia of the entire region could be easily instituted which permitted of the complete stretching of the sphincter and of the removal of the hemorrhoids, and which lasted from four to five days.

CONNECTICUT STATE MEDICAL SOCIETY.

Annual Meeting, Held in New Haven, May 25 and 26, 1910.

Samuel D. Gilbert, M.D., of New Haven, President.

The Diagnosis of Insanity.—Dr. James M. Keniston of Middletown said that to determine the existence of insanity or a psychosis the examiner should pursue a systematic course, and should get as complete a history as possible. He should find out just what the patient sees and hears, or feels, or smells, and whether things are really what they seem to him. Disturbances of memory should next be noted. Disturbances of the train of thought may be often exhibited and noted during the tests of perception, aperception, and memory. Judgment may be tested in a general way by submitting to the patient various problems concerning proper conduct, morality, business, etc. It is not enough to learn whether he knows right from wrong and the nature of a criminal act. One should ascertain whether he has lost the finer feelings that modern civilization has evolved and society demands. The full fruition of volition depends upon an antecedent idea. Acts performed without a definite idea are not volitional, but reflex. The foregoing details will help the physician to determine the general conduct of the patient and show its deviation not only from his norm, but from the standard imposed to-day by society. After the general practitioner has obtained possession of all these facts, he will be able to demonstrate the existence of insanity. At the Connecticut Hospital for the Insane, up to October 1, 1908, 0.75 per cent. of the patients committed were diagnosed as not insane, a temporary disturbance having been mistaken for a more permanent derangement.

Dr. Max Mailhouse of New Haven said that if the physician would but bear in mind that dementia paralytica often began with neurasthenic symptoms, and would always make his diagnosis by the process of exclusion, he could not go wrong. In those doubtful cases in which one does not know whether to attribute the trouble to insanity or crime, it is of the highest importance to determine whether the conduct and character of the patient deviate from their own norm, as well as from the standard imposed by society. To determine this point, one should question not only his nearest friends, relations, and associates, but also those absolutely disinterested. Dr. Mailhouse considered the large percentage of transitory mental disturbances that had appeared in the State Hospital for the Insane to be a strong argument for the establishment of psychopathic wards in general hospitals.

Dr. William F. Fisher of Middletown said that he had knowledge of only one medical college that afforded instruction in psychiatry, despite the fact that the question of the mental health of a community and its preservation are of vital importance. Were there not abundant evidence of a lack of communion of interests, it would not seem necessary for him to emphasize the necessity of more active cooperation between the alienist and the general practitioner. He considered it no less possible to group the symptoms of the different psychoses so as to afford typical clinical pictures than to group the symptoms of a respiratory or cardiac disease. The study of a mental disease should not be restricted to the minute analysis of the symptoms at some given period, but the entire course of the disease should be studied. One should guard against falling into the habit of seizing upon certain symptoms and ignoring others, and making the clinical picture fit some arbitrary constructed frame.

Dr. George N. Lawson of Middle Haddam said that he had understood Dr. Keniston to say that a man is very often really responsible for his crimes, even though insane. Dr. Lawson thought that the family physician could tell more readily than a stranger whether his patient was insane or not; whether he had passed from his own norm and the recognized standards of the day. In this way the family physician could be of great assistance to the staff of the hospital, particularly if he would send with the certificate of insanity a letter giving minute details of the case.

Instructions to Patients Suffering from Specific Urethritis.—Dr. Percy D. Littlejohn of New Haven stated that in order to overcome the difficulty of not having his instructions accurately followed by such patients, he had prepared some leaflets containing carefully printed directions. He had tried to make the statements therein as terse and clear as possible, to be at the same time emphatic. The following points were particularly emphasized: Gonorrhea is not the slight complaint that many consider it. Alcohol should be strictly avoided by those suffering with this disease. Exercise should be taken, but all forms of violent exertion should be avoided. The nails and hands should be carefully cleansed after handling the gauze dressings. All infected persons should sleep alone, if possible; and all toilet articles should be for the patient's own exclusive use. Particular attention should be given to the alimentary tract, in order to avoid constipation. The drinking of large quantities of water and the free urination produced by this are particularly valuable. Patients in the acute stage must have a milk diet, as far as possible; and all patients should keep reasonably quiet after the day's work is over. The proper technique in the use of the hand injection should be properly explained to the patient. Dr. Littlejohn believed that all cases of anterior infection were curable, and was optimistic regarding the chronic cases, provided his directions were fully followed for as long as necessary. He also believed that such cases would not infect other persons, but he thought that a positive statement to that effect was unjustifiable until all the gonococci could be proved to have disappeared, especially when marriage was contemplated.

Dr. Frank H. Coops of Bridgeport thought Dr. Littlejohn's plan in regard to the printed slips excellent, and said that he would copy them for his own use, making a few changes to suit his individual fancy. For instance, he would put the instruction, "You should drink all the water possible" in bold type. He did not think that when the urethra was washed out every half hour enough discharge would accumulate to require any dressing. He considered it most important from the diagnostic and prognostic standpoint to have the patient come to the office with a plentiful supply of urine in the bladder, and thought that the patient should be instructed as to the meaning of the various urethral shreds, etc. He considered the disease, under the best of conditions, a very difficult one to cure.

Dr. Charles S. Stein of Hartford said that the total elimination of red meat would in some cases retard the patient's recovery by weakening his resistance. He thought that unnecessary handling would increase and continue the local inflammation, and preferred a small piece of cotton as a dressing, rather than a large piece of gauze. He would add as a conclusion to the other instructions, and in heavy type, "Don't stop treatment until you are cured."

Dr. George Blumer of New Haven said that red meats had more extractives than white, and that all meat should be stopped, if any.

Dr. Ralph A. McDonnell of New Haven said that he had been unable to satisfy himself that diet had any influence upon gonorrhea after the acute part of the infection was over. He thought that the drinking of water should be stopped during the latter part of the evening.

Dr. Littlejohn, closing the discussion, said that in telling his patients not to eat red meat he had known that they would not be likely to get any other kind; so they would eat very little meat at all. He considered diet more important in recent cases than in chronic ones.

The Management of Syphilis.—Dr. Alfred G. Nadler of New Haven did not believe that syphilis was on the increase. He said that treatment should be begun as soon as the diagnosis had been made, which would usually be at the first visit or very soon after this. The microscope, he said, would invariably make or confirm the diagnosis of chancre. While the chancre should be excised, if possible, the patient should subsequently be treated just as if this had not been done. The internal administration of mercury should not be resorted to unless conditions prevented the use of inunctions or injections. He considered inhalation one of the best methods. He had had no experience with intravenous injections, but thought that intramuscular and subcutaneous injections had many advantages. They might, however, cause pain, and sometimes left a deposit of mercur·· the sudden absorption of which produced poisonous symptoms. The intramuscular injection of insoluble salts would produce a deposit that was slowly absorbed and slowly eliminated: and would, therefore, have a more profound effect on the deeper manifestations of syphilis. When injected subcutaneously the salts would be absorbed and eliminated more rapidly; and these injections should be used when a prolonged action is required. Dr. Nadler considered the first two years the most important for the patient, but said that active treatment should be pursued for at least five years. He preferred inunctions to injections.

Dr. Ralph A. McDonnell of New Haven had always found it inconvenient to cut the chancre out; and he did not see any advantage in insisting upon this procedure, when he could not promise that it would do any good. He did not find it easy to discover the spirochetæ by means of the microscope, and was not sure that his inability to do so did not work to the advantage of the patient; because he believed that, unassisted, the system would acquire a certain power of opposition to the disease. He preferred to let the patient go untreated for a time, even when he had made the diagnosis. He had given over one thousand injections of an emulsion of metallic murcury without untoward results, and was inclined to prefer this method, by which he had been able to control various late manifestations of syphilis, and even total blindness, after a few injections.

Dr. Thomas M. Bull of Naugatuck said that physicians should be more careful to make a diagnosis of syphilis, because an untold amount of harm might be done by one undiagnosed case. He confessed to a predisposition to giving medicine by the mouth, this being the natural way for anything to enter the blood; and he did not think there was much danger of injuring the digestive tract when the patient was seen frequently and the dose was carefully graded. Although capable of producing the most terrible consequences, he believed syphilis to be the most easily treated of any disease of equal gravity. He would strongly advise anyone who had ever had syphilis to take a month's mixed treatment every year, whether symptoms had developed or not. He considered the best treatment to be prophylactic.

Dr. Charles C. Beach of Hartford said that in treating syphilis successfully it was absolutely necessary to make the diagnosis early. While he admitted injection or inhalation to be the ideal treatment, he said that he never employed either of these. He had obtained sufficiently good results from internal treatment by the mouth, and had found no difficulty in giving the protiodide. He thought that cases of this disease should not be kept as professional secrets, but should be reported with the same care as any other contagious disease.

Dr. Oliver C. Smith of Hartford remarked that the place for such patients was in the hospital, in bed. He thought that they had no right to go around disseminating the disease. Physicians should try to educate the communities in which they practise concerning the importance of these two terrible infections, gonorrhea and syphilis.

Dr. Rienzi Robinson of Danielson asked whether Dr. Nadler would prefer mercurial treatment to the iodide for the tertiary manifestations of syphilis, such as iritis.

Dr. Charles S. Stern of Hartford did not believe that the Wassermann reaction still had the same standing among physicians that it had had a year before. Either positive or negative, it was not to be depended upon.

Dr. Percy D. Littlejohn of New Haven thoroughly concurred in the statement that gonorrheal patients are better off in the hospital, but did not think that syphilitic patients could be kept there.

Dr. Nadler said that the Wasserman reaction was not considered so valuable as formerly, and stated that negative reactions do not indicate a cure of the disease. He would treat the iritis with intramuscular injections of calomel, and give potassuim iodide. He had not considered the sociological question at all in his paper. If the chancre should be located where it could be removed, its removal would eliminate a host of infecting agents. He stated that the spirocheta could be readily discerned under the microscope with the so-called dark-ground illumination.

A Consideration of the Anatomy and Clinical Importance of the Subdeltoid Bursa.—Dr. Paul P. Swett of Hartford stated that lesions of the subdeltoid bursa were more frequent than any other lesions in this region, including fracture and tuberculosis of the shoulder, the exposed position and peculiar function of the bursa rendering it especially liable to inflammation. The vast majority of cases should be treated by excision of the bursa; but in the instances in which limitation of motion did not exist, rest, counterirritation, and massage were usually sufficient. No diagnosis of rheumatism, tuberculosis, paralysis, ankylosis, or neuritis of the shoulder

should be made until the possibility of subdeltoid bursitis had been excluded.

Dr. Ernest W. Arnold of New Haven said that the investigations regarding the subdeltoid bursa were the logical outcome of those regarding the behavior of bursæ in general. In a number of instances in which no great trauma of the knee joint has been received and in which repeated slight trauma from kneeling could not be held responsible for the condition, a chronic inflammation of the patellar bursa had been found. This showed the possibility that these bursæ might partake of the same inflammations that the joint itself was liable to have. All infections leave the bursa permanently thickened, and such a bursa must be not only useless, but a great impediment to the joint. If this impediment is mainly due to the bursa, the latter should be removed. He agreed with the author in thinking that a good many cases of bursitis would clear up under other treatment than operative interference.

Dr. Ansel G. Cook said that all that was true of other bursæ was true of this bursa. He then stated that fixation *per se* had never been proved to cause inflammation of any bursa; but said that if the arm were fixed in such a position as to cause pressure, this pressure would constitute trauma. In giving prominence to this point, his idea was to show that one need not be afraid to fix any of these joints, if necessary. While an inflamed joint would sometimes do better with rest, there were other times when irritation would be desirable.

The Ideal Nose and Pharynx.—Dr. Frederick W. Wilson of Bridgeport stated that the amount of air passing through the nose and pharynx in a year must be reckoned in millions of cubic feet. An obstruction having almost no influence in a single inspiration might have a great influence in a million inspirations. This was also true of nasal cavities that were too large. Expired air has a much lower percentage of microorganisms than has inspired air, most of these organisms having been deposited on the moist mucous membrane of the nose and pharynx, which might almost be called the filtration apparatus of the air. Being subsequently blown onto the handkerchief or expectorated, these organisms rarely breed and do harm if the surface of the nose and pharynx is plane; they must have some hiding places in order to lodge and multiply. The ideal nose and pharynx contain very few of these hiding places, and medical men should be alive to the importance of obliterating any of these that exist by surgical means.

Dr. Dorland Smith of Bridgeport remarked that nasal surgery for the prevention of consumption seemed, at first thought, rather startling. Doctors are used to the correction of large defects in the nose and pharynx, but to make an ordinarily well person perfectly well by paying attention to these small defects constituted a further step in development. The acquisition of a good nose and pharynx would not only give one practical freedom from colds, catarrh, sore throat, and the air-borne diseases generally, but would also give a higher level of health, which almost anyone could get who would take the time and trouble to have done these little bits of surgery that would make the nose and pharynx approach the ideal. He was satisfied that in removing tonsils and adenoids the certainty of permanent cure and ideal end results was to be found, not in thoroughness in extirpating tonsil tissue, but in thoroughness in searching out crypts, pockets, and recesses and converting them into shallow saucers by trimming their edges. In small tonsils it is the pockets and adhesions, and not the smooth tonsil tissue, that make the trouble.

Dr. Wilson said that these small pockets were of importance in influenza, hay fever, asthma, and other minor diseases, but that clinical evidence of their importance in pneumonia, tuberculosis, and other general diseases was needed. This might be obtained with the help of the general practitioner.

The Treatment of Infection Following Abortion.—Dr. Charles A. Monagan of Waterbury stated that the ideal treatment was preventive—the development of a rigid aseptic technique. He considered it unfortunate that the wearing of rubber gloves could not be generally enforced. When the condition was actually present, but before the system had become loaded down with bacteria, the uterus should be curetted with a blunt curette, and intrauterine douches would be of service. He had found the results of the use of antistreptococcic serum disappointing, the same being true of the autogenous vaccine treatment, the application of hyperleukocytosis, and the use of unguentum Crédé. Ergot did good by contracting the uterus and preventing further infection. The supporting treatment used in fighting any toxic condition should be employed. Salt solution in large quantities was the best single means of controlling the sepsis. Opening into Douglas' pouch and packing with iodoform gauze had been advocated; also hysterectomy, for cases that failed to improve after curettage in cases caused by the presence of a suppurating tumor. In septic peritonitis, multiple incisions, thorough drainage, and the constant use of saline rectal infusions offered the best means of treatment. A collection of pus, when located, should be opened and drained.

Dr. Samuel M. Garlick of Bridgeport was far from convinced that every maternity case should have the same preparation and management as an abdominal section would require. He thought that women were often brought to the verge of a nervous breakdown by the anticipation, worry, and fear engendered by such elaborate, detailed, and expensive preparations. His hospital experience had so often shown him the bad effects of indiscriminate and routine curettage that he was sometimes inclined to wish that it had never been introduced. With the different methods of treatment mentioned by the author, Dr. Garlick had either had no experience or a bad one.

Dr. Ralph W. Crane of Stamford remarked that Dr. Monagan and Dr. Garlick had detailed one method of treatment after another and pronounced them all good, and that the fact was that, as Dr. Monagan had said in his opening sentence, the treatment was prevention.

Dr. Thomas G. Sloan of Hartford mentioned the case of a woman who had died of puerperal septicemia, and said that it was impossible to discover any way in which she could have been infected. Her mother and sister had died in the same way. Where the infection came from, unless from the vagina, could not be determined.

Dr. Allen H. Williams of Hartford said that if the patient realized that perfect cleanliness would insure her recovery, he did not think that care of that sort would scare her. The meaning of these precautions should be carefully explained.

The Surgical Treatment of Gastric and Duodenal Ulcer.—Dr. Everett J. McKnight of Hartford stated that the surgical treatment of gastric and duodenal ulcer and their complications showed a higher percentage of permanent cures than could be produced by medical treatment alone. None of the complications or sequelæ, with the exception of hemorrhage, occurred early in the disease. He considered it a question whether a perfectly healed, nonindurated scar following ulcer ever gave rise to further trouble. The healthy stomach, having the same tendency to recover from injuries caused by traumatism as any other healthy organ, some extra factor must be at work in cases that did not recover; and investigation pointed to hypersecretion and hyperchlorhydria as the most important factors in preventing the normal process of repair. He thought that the beneficial effects of a gastroenterostomy were due to a regurgitation of biliary

and pancreatic secretions into the stomach, thus neutralizing to some extent the excess of hydrochloric acid, rather than to better drainage of the stomach. Perforation is more frequent when the ulcer is situated on the anterior wall, and the results of operation performed within a few hours after this accident are exceedingly good. The patients should be watched carefully after the operation until a sufficient time has elapsed to enable the attendant to be absolutely certain that a permanent cure has been effected.

Dr. Oliver C. Smith of Hartford said that it took a reasonable length of time to determine whether medical treatment would be successful or not. After that, the ulcer became a surgical disease. He referred to the fact that conditions lower down sometimes developed symptoms so similar to those of gastric ulcer as to be confused with it, and said that the fact that carcinoma often developed on the basis of a gastric ulcer emphasized the importance of early operation. That it was not possible to tell before operation just what condition one was dealing with argued, Dr. Smith said, for more frequent resection of the portion of the stomach bearing the ulcer. In all operations of this kind, he said, a soluble material should be used for sutures of the inner coat.

Dr. Edward W. Smith of Waterbury said that it was very unusual to find in the same patient a healed ulcer of the stomach and the production of symptoms of pyloric stenosis due to conditions lower down in the intestines. He reported such a case, and said that one should look out for the vermiform appendix also when a gastric ulcer is present.

Dr. William H. Carmalt of New Haven thought that Dr. McKnight had not made so much of the symptomatology of supposedly cured cases as he should have, and stated that the condition of relief obtained from a course of medical treatment was not a cure, but simply a temporary improvement. When several such series of symptoms as those described had occurred in a patient, Dr. Carmalt said, he considered it time to cease medical treatment and look to surgery.

Dr. William F. Verdi of New Haven called attention to the fact that a difference existed between a chronic and a perforating ulcer. The symptoms of the latter, not usually being severe, the patients are able to continue at work, and are usually seized with perforation while at work. They suffer intense pain, which calls for immediate relief. In chronic ulcer, the patients have a long train of symptoms, going on for years, and there is not much danger of perforation, on account of the formation of adhesions.

Dr. Louis M. Gompertz of New Haven stated that ulcers of the stomach and duodenum were much more common than is usually supposed. When patients complain of pain on an empty stomach, relieved by eating, and then coming on again within two to four hours, one should be suspicious of the presence of an ulcer of the pylorus or lower down. When an early diagnosis is made, acute ulcers are sometimes benefited by medical treatment, but not a chronic ulcer.

Dr. McKnight said that all physicians were coming to feel that for ulcer of the stomach resection or partial gastrectomy was the operation of choice, on account of the large number of cancers that develop on the basis of ulcers. He had operated on more cases of appendicitis simulating gastric disease than on gastric ulcers, so that he did not consider these cases so rare as Dr. Edward Smith believed. Regarding Dr. Verdi's distinction between the two classes of ulcers, Dr. McKnight remarked that it would not always hold, for he had seen a case of chronic ulcer with sudden perforation in a man of fifty-five years.

(To be continued.)

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of June 25, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	585	154
Diphtheria	405	38
Measles	791	20
Scarlet Fever	513	24
Smallpox	—	1
Varicella	132	—
Typhoid Fever	46	8
Whooping Cough	64	7
Cerebrospinal Meningitis	3	8
Malarial Fever	—	—
Totals	2.539	260

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended June 24, 1910.

		CASES	DEATHS
CHOLERA.			
Ceylon, Colombo	April 24–30	2	..
India, Calcutta	April 17–23	..	61
Rangoon	April 24–30	..	2
Java, Batavia	April 24–30	6	4
Philippine Islands:			
Pampanga, province	April 10–16	4	4
Russia, Ekaterinislav	May 13–20	9	1
YELLOW FEVER.			
Brazil, Bahia	April 23–29	2	2
PLAGUE.			
Arabia, Hadjour	May 23	..	Present
Loheia	April 9–30	31	24
Brazil, Bahia	April 2–29	3	3
China, Amoy	April 24–30	1	..
Canton	April 24–May 7	7	..
Hongkong	April 24–May 7	4	4
Egypt, Alexandria	April 30–May 12	1	2
Damietta	April 30–May 6	..	1
Provinces:			
Assiout	April 30–May 12	29	22
Beni Souef	April 30–May 6	5	1
Fayoum	April 30–May 12	26	29
Garbieh	April 30–May 12	12	6
Kena	April 30–May 12	29	30
Menouf	April 30–May 12	7	4
Minieh	April 30–May 6	..	1
Hawaii, Honolulu	May 3	3	3
Among Russians on S.S. "Nippon Maru."			
India, Bombay	May 4–10	..	229
Calcutta	May 17–23	..	56
Kurrachee	May 1–7	85	81
Rangoon	April 24–30	..	38
Japan, Formosa	May 1–7	4	3
Persia, Bouchir	April 2–28	9	5
Peru, Arequipa department:			
Mollendo	Mar. 24–April 4	2	1
Libertad department	Feb. 15–28	8	2
Turkey in Asia, Basra	May 1–7	4	2
Jiddah	April 22–May 22	7	6
SMALLPOX.			
Arabia, Aden	Mar. 8–14	..	1
Austria, Galicia	May 2–21	8	..
Brazil, Bahia	Feb. 24–April 29	112	91
Santos	April 18–24	..	1
Canada, British Columbia, Fernie	May 29–June 4	4	..
Victoria	May 22–28	1	..
Nova Scotia, Pictou	May 29–June 4	3	..
Ontario, Toronto	May 15–28	8	..
China, Canton	April 23–May 7	10	..
Hongkong	May 1–7	2	..
Chile, Valparaiso	April 27	..	Present
Colombia, Cartagena	May 16–22	..	Present
Egypt, Cairo	May 7–13	..	1
France, Paris	May 8–21	13	..
Germany, general	May 15–21	9	..
India, Bombay	May 4–10	..	38
Kurrachee	May 1–7	2	2
Madras	April 30–May 6	..	1
Rangoon	April 24–30	..	20
Japan, Nagasaki	April 30–May 12	1	..
From S.S. "Korea" from Hongkong.			
Mexico, Aguascalientes	May 23–29	..	11
Chihuahua	May 23–29	3	..
Mexica	May 1–7	..	4
Salina Cruz	May 22–28	1	..
Portugal, Lisbon	May 15–21	28	..
Russia, Libau	May 16–22	15	3
Moscow	April 10–16	29	8
Odessa	May 15–21	15	7
Riga	May 8–21	23	..
St. Petersburg	May 1–7	19	14
Spain, Almeria	April 1–30	..	3
Barcelona	May 17–23	..	1
Valencia	May 15–21	2	..
Turkey in Asia, Basra	May 1–7	..	Present
Damascus	May 1–7	..	Present
Uruguay, Montevideo	Mar. 1–31	103	51

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